

## **Environmental Assessment**

Development of Visitor Services Facilities, Infrastructure, and Habitat Improvements at  
Three Sisters Springs

**Crystal River National Wildlife Refuge**  
**Citrus County, Florida**

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**June 2017**

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## 1.0. PURPOSE AND NEED FOR ACTION

### 1.1. Introduction

Crystal River National Wildlife Refuge (Refuge) is managed by the U.S. Fish and Wildlife Service (Service), and is part of the Crystal River National Wildlife Refuge (NWR) Complex which includes the Chassahowitzka, Pinellas, Egmont Key, and Passage Key NWRs (Figures 1 and 2). The Service proposes to improve wildlife habitat and develop public use facilities on the Three Sisters Springs (TSS) Unit of the Refuge within the City of Crystal River (City), Citrus County, Florida. Management of the property would be in accordance with the Declaration of Restrictive Covenants (Covenants) between the City and the Florida Communities Trust (FCT); the “Management Agreement for Certain Land Located Within the City of Crystal River, Citrus County, State of Florida” (Management Agreement) between the City, the Southwest Florida Water Management District (SWFWMD) and the Service; and the TSS Project Management Plan (PMP) developed by the City, SWFWMD, and Service. These reference documents are included in Appendix A.

The 57-acre TSS Unit (Figure 3) was purchased July 2010 through a partnership of public and private funding. The Felburn Foundation and the Service purchased and retired the water rights associated with the property. Public funding for the acquisition of the property was provided by Citrus County, the Citrus County Tourist Development Council, the City, the Florida Department of Environmental Protection (FDEP), the Service, and the SWFWMD, combined with a grant from FCT. Private donors included the Felburn Foundation, Friends of Crystal River NWR Complex, the National Wildlife Refuge Association, other environmental organizations, civic clubs, and individuals.

The City owns 70 percent of the TSS property and the SWFWMD owns the remaining 30 percent. The Service manages the land and waters of TSS as part of the Refuge in accordance with the Covenants; Management Agreement; and PMP; as well as the National Wildlife Refuge Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. § 668dd; other acts of general applicability to the National Wildlife Refuge System (NWRS); Title 50 of the Code of Federal Regulations; and State of Florida laws and regulations.

The PMP outlines the proposed development of the property for activities associated with wildlife-dependent recreational activities and visitor services, including development of a visitor center and/or environmental education center, manatee viewing areas around the natural springs occurring within (i.e. TSS) and adjacent to the property (i.e., the Magnolia Springs) (Figure 3), nature trails, a connection to the City’s Crosstown Trail, picnic pavilions, and a pier on the man-made Lake Crystal (previously named Lake Linda). The PMP also includes provisions for wildlife and habitat management by the Service, including protecting Florida manatees (*Trichechus manatus latirostris*), restoring native habitat, and controlling invasive species (e.g. Brazilian pepper (*Schinus terebinthifolius*), cogon grass (*Imperata cylindrica*), Japanese climbing fern (*Lygodium japonicum*), and wild taro (*Colocasia esculenta*)).

Figure 1. Location of Crystal River National Wildlife Refuge as part of the Crystal River National Wildlife Refuge Complex.

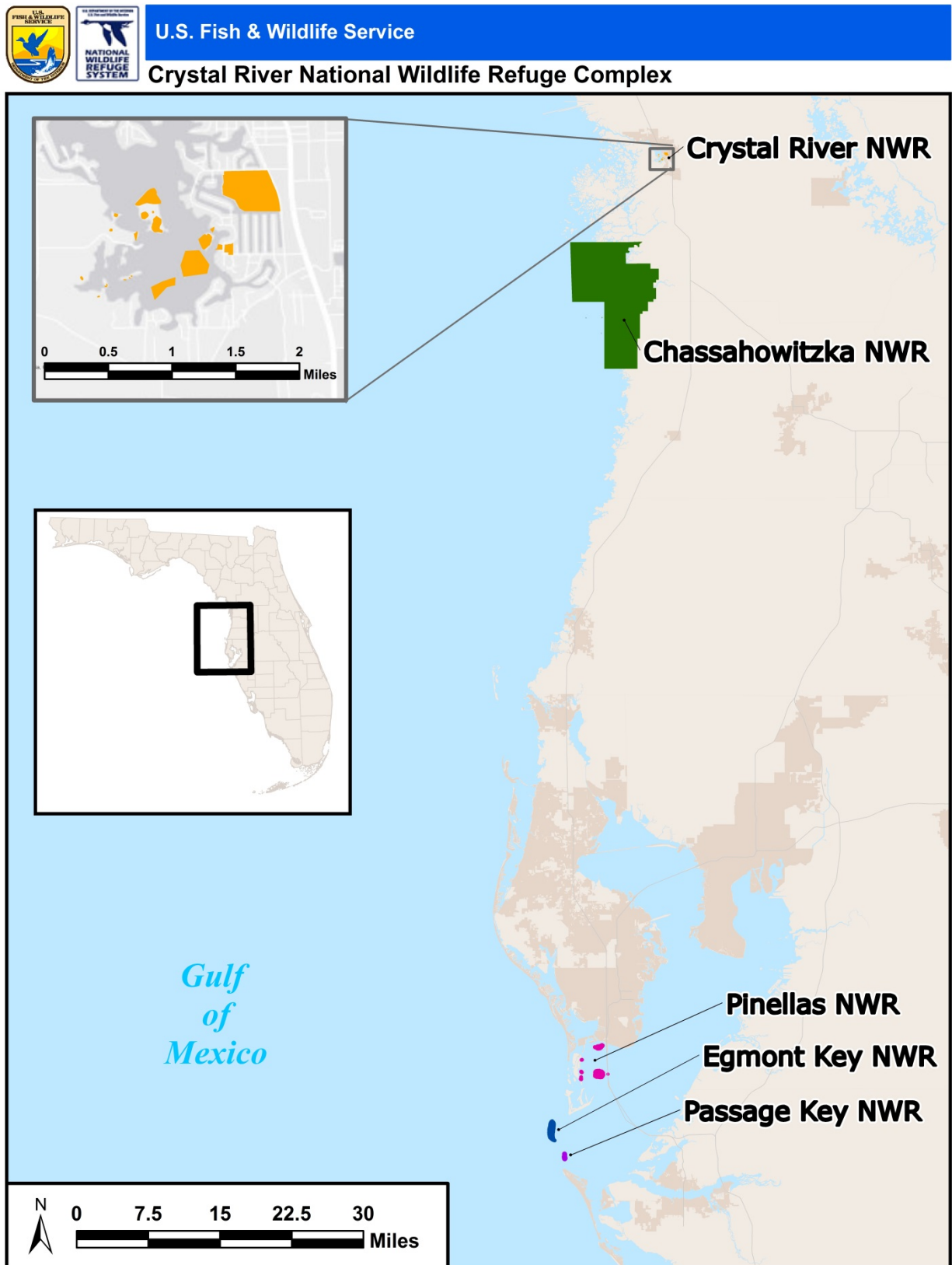
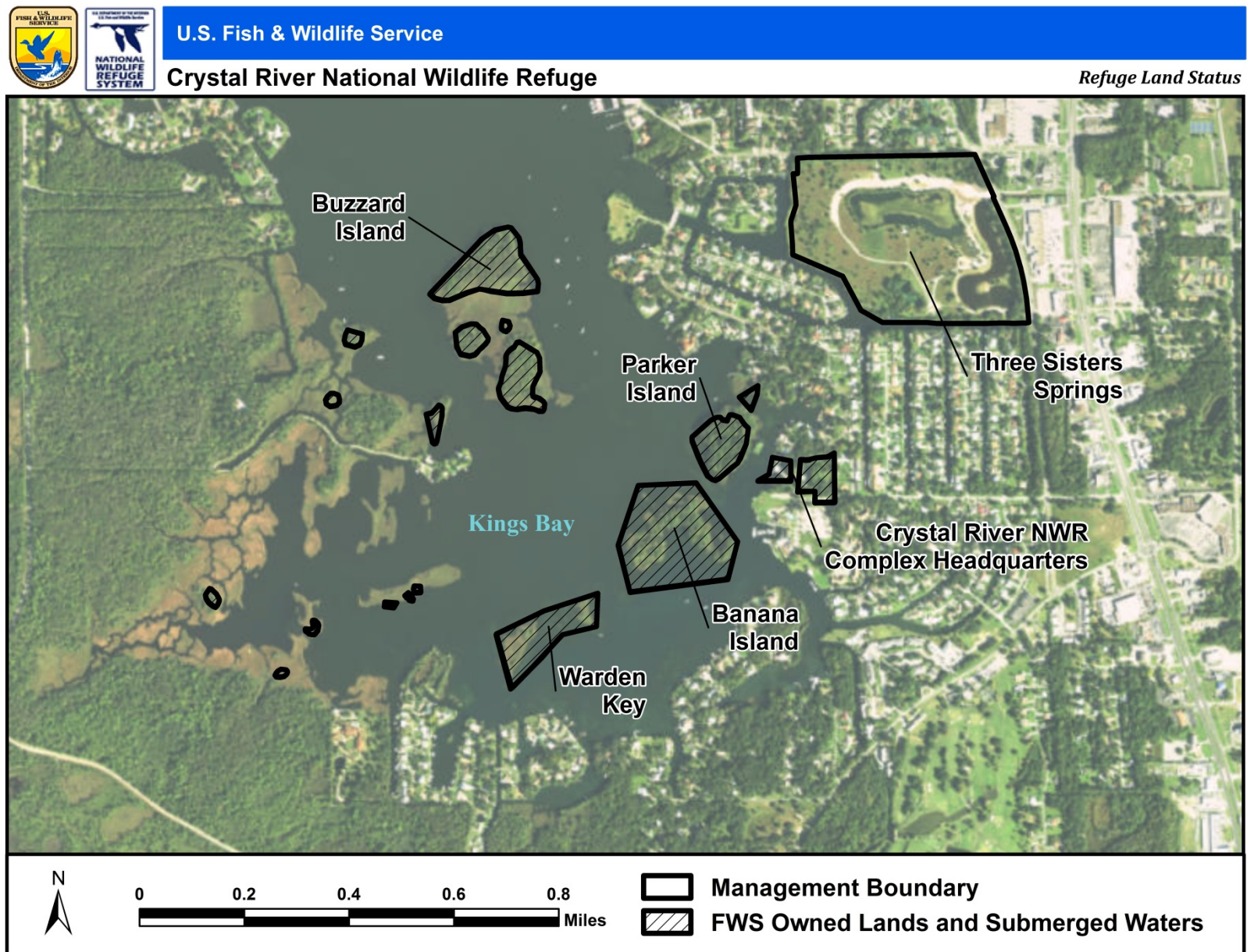


Figure 2. Location of Three Sisters Springs at Crystal River National Wildlife Refuge.



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## 1.2. Purpose and need

The National Environmental Policy Act (NEPA) of 1970 requires that all executive federal agencies analyze the potential environmental effects of proposed actions through planning documents such as an environmental assessment (EA).

The purpose of this EA is to evaluate the environmental impacts of the proposed management actions on the 57-acre TSS Unit of the Refuge, ensuring that the proposed actions promote conservation of wildlife, fish, natural diversity, natural abundance, and ecological functions of the Refuge; provide conservation, maintenance, and management of wildlife, habitat, and cultural resources on the Refuge; and provide recreational activities where appropriate and compatible with the purpose of the Refuge and the mission of the NWRS.

The need for the proposed actions is to protect wildlife and habitat within the Refuge while providing opportunities for appropriate and compatible wildlife-dependent public use activities in the local community. The Service is responding to increased public demand for recreational use of the TSS Unit and for additional manatee viewing opportunities. The Service seeks to ensure a quality, wildlife-dependent recreational experience and to achieve a “wildlife first” mandate.

This EA analyzes the potential effects of the proposed development of wildlife-dependent recreational activities, visitor services facilities, and habitat improvement activities on the TSS Unit of the Refuge, including those identified in the FCT, Covenants, and PMP. All construction and implementation activities are dependent upon availability of funding and labor resources.

## 1.3. Background

The National Wildlife Refuge System Administration Act of 1966 (Administration Act) as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. § 668dd et seq.; Improvement Act) provides authority for the Service to manage NWRs across the country. In accordance with the Improvement Act, refuges will be managed to fulfill the mission of the NWRS; fulfill the individual purpose of each refuge; and maintain the biological integrity, diversity, and environmental health of the natural system.

The mission of the NWRS is “...to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Improvement Act). National wildlife refuges provide important habitat for native plants and many species of mammals, birds, fish, insects, amphibians, and reptiles. They also play a vital role in preserving threatened and endangered species. Refuges offer a wide variety of wildlife-dependent recreational opportunities and many have visitor centers, wildlife trails, and environmental education programs. Nationwide, about 25 million visitors annually hunt, fish, observe and photograph wildlife, or participate in educational and interpretive activities on refuges.

While wildlife is first priority in refuge management, wildlife-dependent recreational uses or other activities may be allowed after they have been determined appropriate and compatible by the Refuge manager or project leader. There are six priority wildlife-dependent public uses identified in the National Wildlife Refuge System Improvement Act of 1997: hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. These six uses, called the “Big Six,” are dependent upon healthy fish and wildlife populations and receive enhanced consideration or priority over other public uses in planning and management.



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The Refuge was administratively authorized by the Director of the Service on January 10, 1983. The primary purpose of the Refuge is to protect threatened and endangered species, specifically focusing on the West Indian manatee (*Trichechus manatus*) and more specifically the Florida subspecies (*Trichechus manatus latirostris*), as listed.

.. to conserve (A) fish or wildlife which are listed as endangered species or threatened species ....” 16 USC §1534 (Endangered Species Act of 1973).

Secondary purposes also apply to the Refuge, as listed.

... suitable for...(1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ...” 16 USC §460k-1 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 USC §460k-2 (Refuge Recreation Act, 16 USC §§460k-460k-4, as amended).

... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions...” 16 USC §3901 (B) 100 Stat.3583 (Emergency Wetlands Resources Act of 1986).

The general management objectives for the Refuge are:

- To provide habitat and protection for the Florida manatee consistent with the requirements of the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Florida Manatee Sanctuary Act;
- To foster a sense of public commitment and understanding toward the plight of the manatee and its need for protection by providing opportunities for environmental education, interpretation, and compatible wildlife-oriented recreation;
- To support the Service's commitment to implement and carry out the objectives of the Manatee Recovery Plan; and
- To provide habitat for a natural diversity of wildlife species.

The Service developed this EA in compliance with the NEPA; the Improvement Act; and other applicable laws, regulations, and policies. Operation and management of national wildlife refuges are also influenced by a wide array of other laws, treaties, and executive orders pertaining to the conservation and protection of natural and cultural resources. Among the most important orders and laws affecting the operation and management of refuges are Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956.

#### 1.4. Coordination and consultation

The Service has coordinated with the City and the SWFWMD. Numerous meetings were held with the Refuge Manager, the City Manager, and SWFWMD personnel concerning the management of TSS since 2010. The Service also consulted with the State Historic Preservation Officer (SHPO) and Tribal Historic Preservation Officers (THPOs) for the Miccosukee, Seminole Tribe, Seminole Nation, the Muscogee (Creek) Nation, and the Poarch Band for proposed construction of public use facilities and associated infrastructure on the TSS Unit in July 2014.



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## 1.5. Public involvement

Public scoping to develop this EA was informed by previous public meetings held by the Refuge. Most recently, the City and Service sponsored a Community Working Group (CWG) to produce a community-written guidance document detailing priority actions and timelines for the Three Sisters Springs property. The working group met four times between June 22, 2017, and September 21, 2017. The group reached an agreement on six priorities and presented their recommendations to City Council on October 24, 2017 (Appendix A). This EA incorporates those priorities/recommendations in the alternatives considered, as noted in Table 1.

The Refuge will release this EA for a 30-day public comment period during which written comments will be accepted. The Service will provide a response to all substantive comments in the final EA.

## 2.0. AFFECTED ENVIRONMENT

This Chapter describes the environment that could be affected by the implementation of the alternatives. It is organized under the following sections: biological resources, physical resources socioeconomics, and cultural resources.

### 2.1. Biological resources

#### **Habitats**

Prior to extensive residential and commercial development in and around the project area, the TSS Unit consisted of a forested wetland system that surrounded the three-second order magnitude springs known as TSS. Spring magnitude is a category based on the volume of flow from a spring per unit time. There are eight magnitude categories; first-magnitude springs discharge the greatest amount of water at 100 or more cubic feet per second (cfs) and a second order magnitude discharges 10 to 100 cfs (Meinzer 1927).

The topography, hydrology, and vegetation of the site have been altered considerably since the 1940's (City of Crystal River, the Service, and SWFWMD 2010, 2012). Currently, the site is generally comprised of open space with scattered trees. A hardwood fringe surrounds the perimeter of the property and provides a buffer around the spring boils and run. Much of the open area was bedded for the planting of pine seedlings and limestone rock but was leveled by the Service.

#### *Wetlands and waterbodies*

Early aerial photographs of the TSS Unit, as well as the remnant vegetation along its perimeter, seem to indicate that the property was originally a mesic or hydric hammock. Three springs are located on its periphery. Magnolia Springs is located on the western margin, Idiots Delight on the southern margin, and the TSS on the southern end of the TSS property (Figure 3). Magnolia Springs reportedly had rock spires and an extensive cave system that collapsed around 1963. Idiots Delight is a group of three vertical shafts that are at least 20 feet deep. The opening of the largest shaft is approximately five feet wide. The springs known as "Three Sisters Springs" are located north of Idiots Delight. TSS consists of three major springheads: Pretty Sister, Deep Sister, and Little Sister, which comprise a complex of three "lobes," aligned on a northwest-southeast axis, with an approximate total length of 250 feet. The springs, as well as the waterways or runs that they feed, are heavily utilized as seasonal sanctuaries by manatees.

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Beginning in the late 1950s, property development began in earnest in the Kings Bay area. Development began on the 57-acre TSS Unit in the late 1960s and early 1970s. A series of canals had been excavated south and west of the parcel between 1960 and 1974. Clearing of the parcel's extensive forested wetland began by 1974. An 8-acre lake, now known as Lake Crystal, was excavated in the property's center to provide spoil material to fill in the wetlands and create upland areas suitable for residential development (City of Crystal River, U.S. Fish and Wildlife Service, and Southwest Florida Water Management District 2012).

In 2015, a 6-acre treatment wetland on the eastern side of the TSS Unit was created by the SWFWMD in accordance with the Covenants and PMP (Figure 3). This created wetland filters stormwater run-off from approximately 100 acres of nearby commercial and residential land and helps reduce nutrient loading to Kings Bay. The wetland was designed to be a tidally influenced marsh dominated by emergent vegetation.

As part of the SWFWMD wetland restoration efforts, a 1-acre hydric hammock was restored in the southeastern corner of Lake Crystal using material excavated during construction of the treatment wetland on site. Lake Crystal is now 7 acres in size with steep slopes characteristic of most borrow pits and has a maximum depth of 40 feet.

#### *Uplands*

About 43 acres of the project site consists of grasses, herbaceous plants, and scattered red cedar (*Juniperus silicicola*). The perimeter of the site includes red maple (*Acer rubrum*), black cherry (*Prunus serotina*), Virginia willow (*Itea virginica*), sweetgum (*Liquidambar styraciflua*), red cedar, American elm (*Ulmus americana*), sweet bay (*Magnolia virginiana*), pop ash (*Fraxinus caroliniana*), wild coffee (*Psychotria nervosa*), live oak (*Quercus virginiana*), laurel oak (*Q. laurifolia*), water oak (*Q. nigra*), and white basswood (*Tilia americana* var. *heterophylla*).

#### **Wildlife**

Florida sandhill cranes (*Grus canadensis pratensis*, state threatened), Southeastern American kestrels (*Falco sparverius* Paulus, State threatened), brown pelicans (*Pelecanus occidentalis*, state species of special concern), wood storks (*Mycteria Americana*, federally threatened), and Florida manatees (federally threatened) have been identified using the site, as well as herons, egrets, and ibis (Florida Fish and Wildlife Conservation Commission 2013, City of Crystal River, the Service, and SWFWMD 2010, 2012). Alligators (federally threatened by similarity of appearance) have been confirmed in Lake Crystal and the adjacent springs and canals.

Currently, there are no known federally endangered or threatened plant species on the site.

Non-native and nuisance plant and animal species have been identified by Service staff and intergovernmental partners as one of the priority management issues. Invasive species found in the uplands of TSS include exotic Brazilian pepper (*Schinus terebinthifolius*), cogon grass (*Imperata cylindrica*), air potato (*Dioscorea bulbifera*), Japanese climbing fern (*Lygodium japonicum*), wild taro (*Colocasia esculenta*), torpedo grass (*Panicum repens*), and lantana (*Lantana camara*). Other non-native plants may also be present as they are found in nearby uplands, including skunk vine (*Paederia foetida*) and chinaberry (*Melia azedarach*). Feral cats (*Felis catus*) occasionally roam the site. Non-native animals include Cuban tree frogs (*Osteopilus septentrionalis*) and island apple snails (*Pomacea canaliculata*) (City of Crystal River, the Service, and SWFWMD 2010, 2012).

Additionally, numerous species of birds, mammals, fish, reptiles, and amphibians are currently using the site.

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## 2.2. Physical resources

### **Soils**

Soils on the TSS Unit were significantly disturbed in the past in preparation for residential development. Lake Crystal was excavated to provide the fill material needed to raise ground elevations for future development of single and multi-family homes. The Natural Resource Conservation Service (NRCS) mapped the parcel's soil as Matlacha, limestone substratum-Urban Land Complex. The parent material for this somewhat poorly drained soil is sandy mine or earthy fill. HAS Inc. conducted a geotechnical survey of the tract for the prior owners in 2004. Their testing, which included excavation of test pits to a depth of 10 feet below the surface and borings to a nominal depth of 20 feet below the surface, revealed that the upper 2 to 5 feet consisted of lime rock fill with or without sand and fine sand to slightly clayey or slightly silty fine sand. Underlying the fill horizon was a zone of organic silty fine sand to peat of variable thickness (Keller 2012).

### **Water Quality**

Based on testing performed in 2011, the water quality of Lake Crystal is within acceptable limits as defined by the Florida Department of Environmental Protection (FDEP). During a 5-month testing period, ammonia averaged about 0.01 parts per million (ppm), phosphorus 0.02 milligrams per liter (mg/L), and dissolved oxygen was 7.5 mg/L (SWFWMD 2011 unpublished data). Water quality within the newly constructed treatment wetland varies with local rainfall and runoff. However, emergent and submergent plants within the wetland filter out nutrients and pollutants before the water is discharged to Kings Bay.

Periodic water quality measurements have been made in the springs within and adjacent to the TSS Unit (i.e., TSS, Idiots Delight, and Magnolia Springs). Data indicates that water quality in the springs is quite good compared to other Florida springs that have been impacted by nutrient loading from runoff, agricultural practices, land disposal of wastewater effluent, and septic tank discharges (Wetland Solutions, Inc. 2012) even though nutrient concentrations are higher than pre-development levels.

### **Air Quality**

Primary sources of pollutants in Florida are vehicle emissions, power plants, and industrial activities. Wildfires or prescribed fires can temporarily lower air quality through the release of chemicals and particulates found in the emitted smoke. In 2015, the average annual Citrus County air quality remained below the national standards for carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, particulates, and lead (U.S. Environmental Protection Agency 2015).

### **Noise**

The eastern edge of the TSS property is adjacent to commercial development along US 19, while residential development, and canals line the other three sides of the property. The noise on the site includes traffic noise from US 19, Three Sisters Springs Trail, and the adjacent commercial development, water-based activities (e.g. boating, snorkeling, and paddling) as well as general noise associated with a residential area. According to the Citrus County Code Enforcement Ordinance, noise levels for government-owned buildings and property in Citrus County are not to exceed 55 decibels (dB) daytime and 50 dB nighttime with maximums of 65 dB daytime and 55 dB nighttime. Residential and commercial business noise levels are permitted to exceed these levels (Citrus County 2017). City staff measured noise levels on the property under normal conditions ranging from 50 to 65 dB, although they can be as high 85 dB when a generator is in use (City unpublished data 2017).

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## Sea Level Rise

Impacts due to sea level rise have been seen in Kings Bay near TSS. Impacts include a corresponding shift in submerged aquatic vegetation from freshwater species to salt-tolerant plants. Increased flooding of the uplands of TSS has also been noted during extreme high tide events.

### 2.3. Socioeconomic conditions

Citrus County's resident population was approximately 143,621 in 2016 and showed a 1.7 percent increase since 2010. Over 93 percent of the County's population is Caucasian. The County's median household income was \$38,312 (U.S. Census Bureau 2016).

The City of Crystal River had about 3,089 residents in 2015. Over half of the population is not in the labor force, and this group likely includes a large proportion of retired individuals. Per capita income and other economic parameters are similar to those of the County. Industries in the City that employ the most people include retail trade, health care, educational services, recreation, accommodations, and food services (U.S. Census Bureau 2015).

The TSS Unit is visited by more than 250,000 individuals per year. During the warmer months, May through October, the vast majority of visitors are residents of the Crystal River area who have traditionally used the cooler waters of TSS as a swimming hole. During the cooler months of November through April, most visitors to the TSS Unit are not from Citrus County and make up the majority of the annual visitation. Over 50 percent of winter visitors are from other counties in Florida, with the remainder coming from other states and countries to view manatees.

A segment of the local economy depends on manatee ecotourism, particularly during the winter months, and manatee-related tourism is increasing. In 2004, it was estimated that over \$15 million was spent in Citrus County by tourists coming to view manatees (Solomon et al. 2004).

The degree to which affected business sectors depend on manatee tourism at the TSS Unit or within the associated springs is not precisely known; some businesses may depend 100 percent on these visits while other businesses may be affected very little. The 'Leisure and Hospitality' economic sector comprises 10.5 percent of the total industries in Citrus County, as compared to other sectors such as "Trade, Transportation, and Utilities", 21.5 percent; and "Professional and Business Services", 17.7 percent (Florida Legislature Office of Economic and Demographic Research 2015).

### 2.4. Archaeological and cultural resources

A review of the Southeast Region Master Site Files, which are based upon the Florida Master Site Files maintained by the Florida Bureau of Archaeological Research, did not reveal any recorded historic properties on the 57-acre tract. A number of archaeological and historical investigations have occurred in the vicinity, such as Archaeological Consultants, Inc. (2002), Chance and Fryman (1978), Laurie (1992), Carr and Steele (1993), Williams (1985), and Willey (1949). A considerable amount of archaeological fieldwork has occurred west of the Refuge; much of it focusing on the Crystal River Mound Complex (Weisman 1995 and Pluckhahn, Thompson, Laracuente, Mitchell, Roberts, and Sams (2009). Reconnaissance level investigations have occurred in the St. Martins Marsh Aquatic Preserve and the Crystal River Buffer Preserve (Dean and Ellis 2004; Ellis and Denson 1998).

The TSS Unit, if undisturbed, would have possessed a moderate archaeological potential; the highest potential areas would be located around the springs and the natural levees of the small-unnamed outlet channel or stream. Much, if not all, of this property has been substantially disturbed or altered by development-related activities that began in the late 1960s. The unnamed outlet channel no

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longer exists and has been replaced with a network of canals. With the exception of the active springs, the property has been covered with fill dredged from Lake Crystal and the adjacent canal in order to create a higher and better-drained base for houses (Keller 2012). The potential for intact archaeological sites is now considered extremely low to non-existent.

### **3.0. ALTERNATIVES INCLUDING THE PROPOSED ACTION**

The Service considered and evaluated two alternatives, which were informed using three key documents that include the PMP, the Covenants, and CWG recommendations made to City Council during October 2017. A third alternative was considered but eliminated.

#### **3.1. Alternative A: Continued management of existing conditions (No Action)**

NEPA requires an EA to consider the “No Action” alternative, where current conditions and trends are projected into the future without another proposed action (40 CFR 1502.14(d)). Under this alternative, the Refuge would maintain existing facilities (Figure 3) and infrastructure including a 1,500 linear-foot boardwalk that is Americans with Disabilities Act (ADA) compliant, approximately 1.75 miles of unimproved trails, a picnic pavilion, two kiosks with six interpretive panels, a visitor access gate, fee booth, a partially paved access road entering the property from Three Sisters Springs Trail, an unimproved dirt parking area, a public access trolley to the property from off-site (currently managed by the City of Crystal River), a gate and dirt access road for emergency vehicles and staff/volunteer access from Kings Bay Drive, temporary toilets and hand washing station, a weather shelter, bird nesting boxes, and a bat house. No further visitor amenities would be developed under this alternative. However, year-round public access to the property would be permitted for wildlife-dependent recreational activities including wildlife observation, photography, and environmental education and interpretation. The Refuge would continue to control invasive and non-native species as needed and any feral animals that inhabit the property. Native vegetation would occur through natural colonization. This alternative also includes maintenance of the newly completed 6-acre treatment wetland constructed by the SWFWMD in the southeast corner of the property to filter run-off from approximately 100 acres of nearby commercial and residential land within the City of Crystal River.

Figure 3. Alternative A: Continued management of existing conditions (No Action)





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3.2. Alternative B: Construct new or improve existing facilities, infrastructure, and improve habitat conditions (Proposed Alternative).

Alternative B includes improvements to existing infrastructure described in Alternative A and habitat conditions, construction of additional facilities, and proposes new public use activities that have been determined to be appropriate and compatible with Refuge purposes and the NWRs mission (Figure 4). The Unit has been zoned by the City as “conservation lands” which has a five percent limit for impervious surfaces. All facilities would be built to current code and all required permits would be obtained. The Appropriate Use Determinations and Compatibility Determinations are included in Appendices B and C. Although this EA analyzes the impacts of all of the actions proposed under this Alternative, funding is only available to implement the project components described under Tier 1. Project components described under Tier 2 and 3 would be implemented in the future as funding becomes available.

Tier 1:

A permanent fee booth (144 ft<sup>2</sup>), entrance gate, landscaping, and fencing would be constructed at the public entrance off Three Sisters Springs Trail to replace the temporary facilities previously installed.

Eight new interpretive panels would be installed along existing trails.

A freestanding public restroom (1,200 ft<sup>2</sup>) would be constructed to replace the temporary toilets and handwashing station. Restrooms may include a changing room.

Two viewing platforms (up to 150 ft<sup>2</sup> each) would be built along the trail bordering the Magnolia Springs on the western edge of the property for observation of manatees using the springs, particularly during the cold weather months.

One observation platform (up to 150 ft<sup>2</sup>) would be constructed on the treatment wetland to enhance wildlife (e.g., birds, alligators, and fish) and wetland plant/habitat viewing opportunities.

Alternative B includes improvements to the approximately 1.75 miles of nature trails, including installing wheelchair accessible surfaces such as boardwalks, paving, or natural or pervious materials. The trails provide visitors with a view of the springs and treatment wetlands and would connect the proposed environmental education center, manatee viewing platforms, pier, and restrooms to the existing picnic pavilion and boardwalk. Trails would be used for wildlife viewing, bird watching, photography, and environmental education and interpretation.

Accessible parking spaces would be constructed near the boardwalk in the existing unimproved parking area.

Additional utilities, including water, electric power, phone, sewer, and lift station would be installed on the property to service the existing and newly constructed facilities.

A vegetative buffer (25 to 50 ft wide) comprised of native plants would be established along the property boundary bordering Magnolia Springs and other areas as needed.

Tier 2:

An on-site environmental education center (2,000 to 6,000 ft<sup>2</sup>) would be built on the south side of Lake Crystal with a parking lot to accommodate up to 40 vehicles. The center would provide education and interpretation for visitors ranging from kindergarten through adulthood. Educational programs may include but are not limited to the ecology of the springs, the use of the springs as a



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manatee sanctuary, manatee ecology, manatee habitat, water quality, wetland ecology, and wildlife stewardship/conservation. The facility could include amenities such as wet labs and interactive displays. All facilities would be built to blend in to the natural setting.

An accessible pier (150 ft<sup>2</sup>) would be constructed on the south side of Lake Crystal to provide limited recreational, catch-and-release fishing. TSS Unit will not be open to fishing until the Refuge has evaluated the use through the Comprehensive Conservation Plan (CCP). A draft CCP is expected in 2018.

A weather shelter would be built on an existing concrete slab (up to 450 ft<sup>2</sup>) to provide shelter for visitors during poor weather conditions.

A maintenance shed (up to 150 ft<sup>2</sup>) would be constructed to house tools and equipment needed for maintenance of the property and facilities.

The access roads from both entrance gates (i.e., the visitor and emergency/service gates) and the remainder of the unimproved parking area would be resurfaced (approximately 54,200 ft<sup>2</sup>) as needed to reduce dust using permeable materials where feasible.

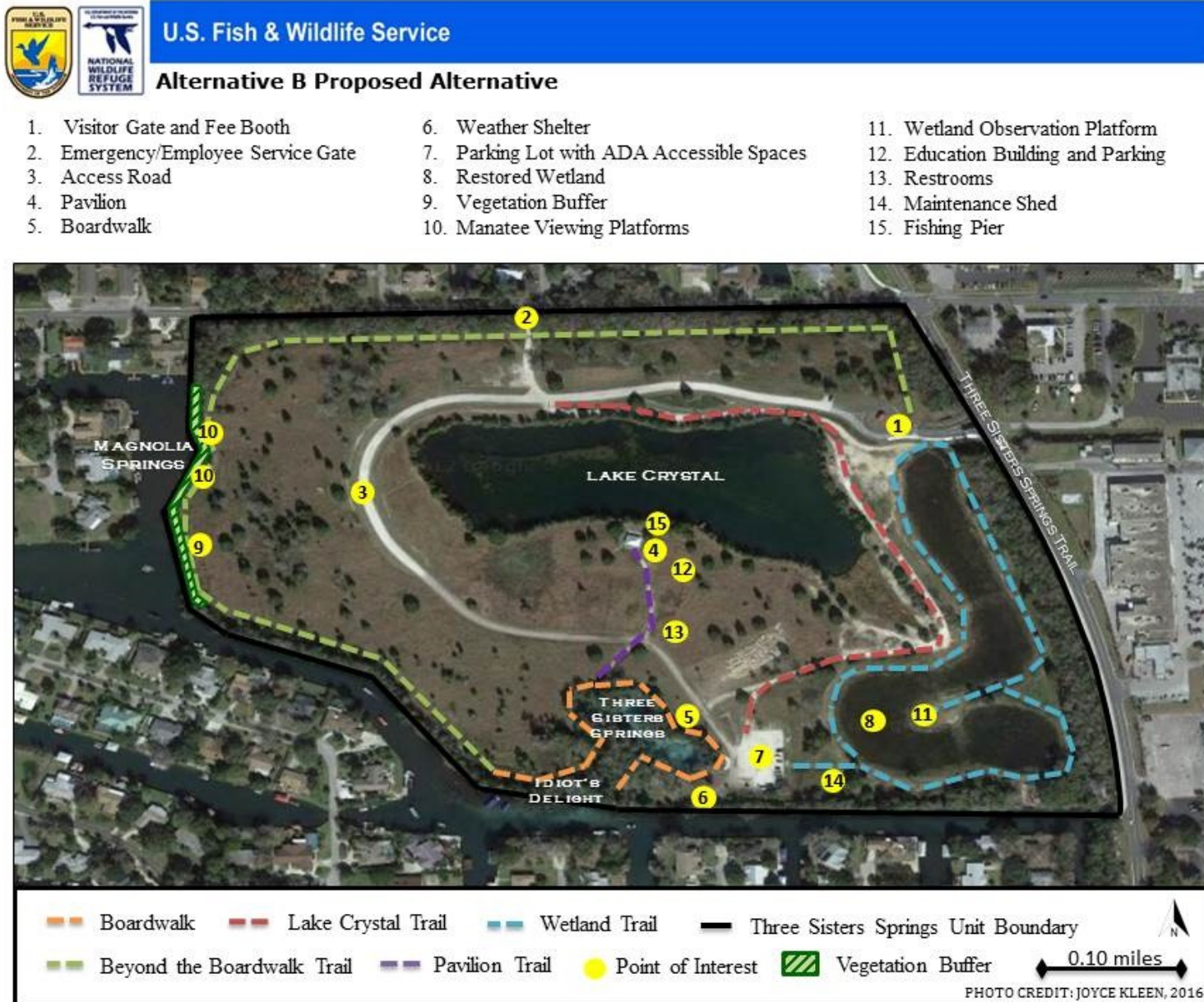
Up to 34 acres of native vegetation, including a pollinator garden would be planted within the TSS Unit.

Tier 3:

Alternative B proposes an off-site visitor center (2,000 to 12,000 ft<sup>2</sup>). This facility would not be built by the Refuge nor would it be built on Refuge-owned or managed lands. Thus, the environmental impacts will not be analyzed under this EA.

Littoral shelves would be created at strategic locations along the bank of Lake Crystal to provide wetlands and improved aquatic habitats for fish and wildlife.

Figure 4. Alternative B: Proposed construction of new or improved existing facilities, infrastructure, and improved habitat conditions (Proposed Alternative).



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### Priority Public Uses

Under the 1997 Refuge Improvement Act, the following six priority uses are identified as appropriate on refuges: hunting, fishing, wildlife observation and photography, environmental education and interpretation. Prior to allowing these uses, they must be determined to be compatible with the purposes for which a refuge was originally established.

Under Alternative B, wildlife observation, photography, and environmental education and interpretation are being proposed for the site. These proposed uses are further described as part of the compatibility determinations in Appendix C. Fishing as a public use on TSS will be addressed in the Refuge's CCP, slated to be made available to the public in 2018.

### Other Uses

In addition to the priority public uses, the Refuge is proposing the following uses under Alternative B:

- Wildlife observation and photography, environmental education and interpretation
- Scientific research and monitoring
- Land-based commercial services
- Commercial wildlife and nature photography, filming, and other art forms from land
- Bicycle use on main access road and designated trails

Appropriate use and compatibility determinations for these other uses can be found in Appendices B and C, respectively.

### 3.3. Alternatives considered but eliminated from further analysis

The alternatives development process under NEPA is designed to allow consideration of the widest possible range of issues and potential management approaches. During the alternatives development process, many different solutions were considered. The following alternative components were considered but not included for this EA.

Components	Reason for Elimination
On-site visitor center (10,000 to 12,000 ft <sup>2</sup> )	Not supported by community working group
Semi-permeable overflow parking area (1,175ft <sup>2</sup> ) and 65-space parking lot	
Bunkhouse (2,000 ft <sup>2</sup> )	
Maintenance building (1,700 ft <sup>2</sup> )	
Recreational vehicle (RV) pad with water and sewer	
Nature discovery area/children's splash pad	Not consistent with wildlife-dependent recreation

**Table 1. Comparison of facilities, infrastructure, habitat improvements, and public use opportunities on the uplands at TSS under Alternatives A and B.**

Visitor Facilities, Infrastructure, and Improvements	Alternative A Continued Management of Existing Conditions (No Action Alternative)	Alternative B Site Development with Education Center and Off-site Visitors Center (Proposed Alternative)	Documents used to inform EA (yes, if supported - no, if not mentioned or opposed)		
			Covenants	Community Working Group	Project Management Plan
Trolley	Existing- Common to all Alternatives		No	Yes	No
Pavilion	Existing- Common to all Alternatives		Yes	Yes	Yes
Boardwalk and 5 viewing platforms	Existing- Common to all Alternatives		Yes*	Yes	Yes
Nest boxes	Existing- Common to all Alternatives		No	No	Yes
Bat house	Existing- Common to all Alternatives		No	No	Yes
Invasive species control	Existing- Common to all Alternatives		Yes	Yes	Yes
<b>Tier 1: Funding currently available, construction expected within 2 years.</b>					
Entrance	Existing	Construct a permanent entrance fee booth (144 ft <sup>2</sup> ), gate, landscaping and fencing	No	No	Yes
Interpretive signage	2 Existing kiosks with 6 panels each	Add 8 new interpretive signs, update and improve existing kiosk panels	Yes	Yes	Yes
Restroom building	None	Develop a restroom	Yes*	Yes	No

Viewing platforms along Magnolia Springs	None	Construct two viewing platforms (up to 150 ft <sup>2</sup> ) along Magnolia Springs manatee sanctuary	Yes*	Yes	Yes
Wetland area viewing platform	None	Develop a viewing platform (up to 150 ft <sup>2</sup> ) at the edge of the wetland restoration area	Yes*	Yes	Yes
Nature trails	Existing	Improve approximately 1.75 miles of existing trails (resurface with boardwalk, paving, natural and pervious materials)	Yes	Yes	Yes
Parking lot	Existing dirt parking lot	Resurface the 0.42-acre parking area and include accessible parking spaces	Yes	Yes	Yes
Utilities	Limited utilities	Add utilities such as water, electric, phone, sewer, lift station	No	No	No
Vegetative buffer	None	Proposed along Magnolia Trail (approximately 0.15 miles) and along property boundary where needed.	Yes	Yes	Yes
<b>Tier 2: Projects to be completed as funding becomes available (greater than 2 years to fund/construct).</b>					
Environmental education center and parking lot	None	Develop a 2,000 to 6,000 ft <sup>2</sup> environmental education facility and parking lot up to 40 spaces	No	Yes	Yes
Pier	None	Construct a pier (150ft <sup>2</sup> ) on Lake Crystal	Yes	Yes	Yes

Weather shelter	None	Construct a cover over the existing concrete slab (450 ft <sup>2</sup> ) to provide shelter for visitors during weather events	No	No	No
Maintenance shed	None	Construct up to 150 ft <sup>2</sup> Maintenance shed	No	No	No
Roads	Existing entrance road	Resurface 54,200 ft <sup>2</sup> of access road to reduce dust	Yes	Yes	Yes
Native plants	None	Proposed to restore an estimated 34 acres of native plants including a pollinator garden	Yes	Yes	Yes
<b>Tier 3: Long-term planning, unknown time frame.</b>					
Off-site visitor center	None	Develop an off-site visitor center (2,000 to 12,000 ft <sup>2</sup> )	No	Yes	Yes
Littoral zones	None	Construct littoral zones in Lake Crystal	No	No	Yes
Recreational Uses	Alternative A Continued Management of Existing Conditions (No Action Alternative)	Alternative B Site Development with Education Center and Off-site Visitors Center (Proposed Alternative)	Documents used to inform EA (yes, if supported - no, if not mentioned or opposed)		
			Covenants	Community Working Group	Project Management Plan
Wildlife observation, wildlife photography, environmental education, and interpretation	None	Opening the refuge to priority public uses	Yes	Yes	Yes
Walking, hiking, jogging	None	Proposed on entrance road and designated trails	No	Yes	Yes
Scientific research and monitoring	None	As requested with provisions described in a special use permit	No	No	No

Picnicking	None	Picnicking associated with wildlife-dependent activities at the picnic pavilion and picnic tables	Yes	Yes	Yes
Land-based commercial services	None	As requested with provisions described in a special use permit	No	No	No
Commercial wildlife and nature photography, filming, and other art forms from land	None	As requested with provisions described in a special use permit	No	No	No
Bicycle use	None	Proposed on entrance road and designated trails	No	Yes	No (only for access)

\* Not specifically identified in the covenants but will count towards the minimum of four recreational facilities required by the Florida Communities Trust.



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## 4.0. ENVIRONMENTAL CONSEQUENCES

This Chapter describes the foreseeable environmental consequences of implementing the two alternatives outlined in Chapter 3. When detailed information is available, a scientific and analytic comparison between alternatives and their anticipated consequences is presented, which is described as “impacts” or “effects.” When detailed information is not available, those comparisons are based on the professional judgment and experience of Refuge staff, as well as Service and State biologists.

Potential effects or impacts, either positive (beneficial) or negative (adverse), to resources resulting from the implementation of the two alternatives were identified and placed into one of the listed categories, where possible. None of the impacts of the proposed action are anticipated to be significant.

Several elements would be common to both alternatives. All management activities that could impact natural resources, including subsurface mineral reservations, utility lines and easements, soil, water, air, contaminants, and archaeological and historical resources would be managed to comply with all applicable laws, regulations, and policies.

None of the alternatives would be anticipated to have negative impacts to cultural resources. The SHPO and THPOs were previously consulted and neither alternative is likely to have an effect on historic resources at the Unit. However, if unexpected discoveries occur during ground disturbing activities, the Service would consult with the SHPO and THPOs. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other cultural resources that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, all project activities involving subsurface disturbance in the immediate vicinity of the discovery would be stopped to evaluate the situation and determine next steps.

Further, none of the alternatives would be anticipated to result in disproportionate adverse effects on low-income or minority populations (Executive Order 12898). The Refuge would ensure that all new amenities would be ADA compliant. Both of the alternatives would have the positive benefits associated with the on-going and future habitat improvements including the establishment of native vegetation through natural colonization and control of invasive and non-native species. Public access provided by the existing roads and trails may slightly increase hard surface areas at the site, but would not be expected to have overall negative impacts. The potential for increased traffic along Three Sisters Springs Trail may impact the community and therefore the human environment.

### 4.1. Alternative A: Continued management of existing conditions (No Action)

#### **Effects on the Biological Environment**

Effects to the biological environment would generally be neutral, although most habitat improvements would not be realized under this alternative.

#### *Habitats*

Under Alternative A, the quality and diversity of habitats on the site would benefit through the treatment of exotic plants. Overall, this benefit is expected to be minor.

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### *Wildlife*

Foraging wood stork would benefit from continued management of the wetlands. Additional foraging habitat would not be created through construction of a littoral zone in Lake Crystal. Sandhill cranes would benefit by nesting in the wetland. The lack of a littoral zone would continue to limit the Lake's potential benefit to foraging wading birds. Overall, both the positive and adverse effects on all these imperiled birds are minimal, given the relatively small amount of potential habitat available on the site. Manatees would not be adversely affected under this alternative. Human disturbance from visitors accessing the boardwalk is minimal. Other wildlife species, including various small mammals, reptiles, and amphibians would benefit from the removal of exotic plants and an increase in native vegetation. The variety and numbers of species has increased with the creation of the treatment wetland.

### **Effects on the Physical Environment**

Overall, effects to the physical environment would be neutral under this alternative as no new facilities or infrastructure would be built.

### *Water Quality*

Under Alternative A, no additional wetlands would be created. The current 6-acre treatment wetland continues to serve as a stormwater retention area helping to reduce nutrients from reaching Kings Bay. The lack of a littoral zone in Lake Crystal would reduce the potential for plants to assist in removing nutrients. Overall, the effects on water quality are expected to be minimal.

### *Air Quality*

The local air quality may be affected by emissions from a potentially higher number of trolleys entering the Unit from the entrance road as well as dust from unimproved roads. However, these impacts would be anticipated to be minimal, given the relatively low numbers of motor vehicles permitted on the site.

### *Soils*

Alternative A would be anticipated to have minor benefits by allowing natural soil-formation processes to continue, as no new infrastructure would be built.

### *Noise*

The noise levels may increase slightly with increased vehicle and trolley traffic, and these effects are expected to be minimal given low speed limits allowed on the site. Loud noises from trolley bells and equipment use by maintenance workers are restricted during manatee season.

### **Effects on Socioeconomics**

Effects on socioeconomics would be limited under this Alternative since access would not be improved and public uses would not be expanded.

### *Environmental Education*

Under Alternative A, environmental education activities would be limited to existing facilities.

### *Recreation*

Under Alternative A, recreational uses of the TSS Unit would include the existing facilities and activities. Increased visitation would be anticipated over time. Impacts may be seen with increased crowding over time without additional facilities and infrastructure to support the increased visitation that could result in a decreased quality visitor experience under Alternative A. Unimproved roads and trails could also reduce the quality of experiences from dust, mud, and uneven surfaces.

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### *Human Safety*

The facilities available under Alternative A would be those that currently exist. Impacts to human safety could include overcrowding without additional facilities to support increased visitors under Alternative A. Unimproved roads and trails could pose risks to human safety from dust and uneven surfaces if not maintained.

### *Aesthetics*

Aesthetics may be impacted if overcrowding on the boardwalk occurs under Alternative A.

### *Economics*

The economic effects to the local economy would not change under Alternative A, since there would be no further development on TSS. Visitation to the Refuge Unit is expected to increase at the same rate as visitation to Citrus County.

### *Agency Administrative Costs*

No additional administrative costs are associated with Alternative A.

4.2. Alternative B: Construct new or improve existing facilities and infrastructure and improve habitat conditions (Proposed Alternative)

### **Effects on the Biological Environment**

Most of the effects on the biological environment would be positive under Alternative B, with some minimal adverse impacts associated with the construction of infrastructure.

### *Habitats*

The habitat on TSS Unit is highly altered through past land use. Under Alternative B, there would be some loss of habitat associated with the construction footprint of four buildings (estimated 6,574 ft<sup>2</sup>), associated parking lot (10,000 ft<sup>2</sup>), and installation of observation platforms (450 ft<sup>2</sup>). Short-term impacts during improvements to existing roads (54,200 ft<sup>2</sup>), and trails (1.75 miles) would be minimal.

### *Wildlife*

Under Alternative B, construction of the littoral zone in Lake Crystal would benefit a variety of wading birds. The variety and numbers of species has increased with the creation of the wetland area and is expected to increase with continued habitat restoration in the lake (creation of littoral zones) and the uplands (removal of exotics and planting of native species). Construction activities could temporarily disturb foraging birds, but this effect is expected to be short-lived and minimal. Manatees are not expected to be adversely affected by construction of the viewing platforms, as construction would be conducted during the warmer months when the animals are dispersed across the Kings Bay and beyond. All facilities would be built to current code and all required permits would be obtained. Best management practices would be implemented during construction.

### **Effects on the Physical Environment**

While positive impacts to the physical environment would be anticipated under Alternative B, four buildings (estimated 6,574 ft<sup>2</sup>), associated parking lot (10,000 ft<sup>2</sup>), roads (54,200 ft<sup>2</sup>), and trails (approximately 1.75 miles) would be anticipated to have localized adverse effects to the existing environment. A visitor capacity study would be done in the future.

#### *Water Quality*

The development of graded, vegetated littoral zones in Lake Crystal would be anticipated to have positive impacts to water quality. Additionally, semi-permeable and natural material would be considered to reduce run-off and nutrient loading during road and trail improvements. Best management practices are expected to keep these impacts to a minimum.

#### *Soils*

While some negative impacts would be experienced during the construction of facilities, utilities, and other infrastructure, these impacts would be short-lived. Invasive plant control, habitat restoration, and revegetation activities would improve soil formation via the increase in native plants on site. Hence, adverse effects to soils are expected to be minimal.

#### *Air Quality*

The air quality may be affected by emissions from a higher number of cars entering the area to visit the Unit from the new entrance road. However, these effects would be anticipated to be highly localized and the use of the trolley may reduce vehicle traffic. Reduction in dust would be expected with resurfaced roads. Further, the new facilities would include features to minimize energy use and reduce the carbon footprint. Impacts to air quality are expected to be minimal.

#### *Noise*

The noise levels at TSS may increase with increased vehicle traffic and visitors. There would be construction noise associated with building the new facilities, but it would be temporary. While noise levels would be expected to increase with increased traffic and visitation under Alternative B, these impacts would be offset by the creation of a 25 to 50 feet wide vegetative buffer between the trails and the edge of the property, as appropriate. Overall, the effects on noise levels are anticipated to be minor.

### **Effects on Socioeconomics**

Both positive and negative impacts would be anticipated to socioeconomics under Alternative B. Negative impacts may include increased traffic and crowding. Positive impacts would include improved site access, increased recreational opportunities, and environmental education and interpretation prospects for the community and visitors.

#### *Environmental Education and Interpretation*

Under Alternative B, the proposed environmental education center on TSS Unit would provide for increased numbers of local, state, national, and international visitors. Serving as an orientation location, these facilities would offer on-site environmental education programs, and volunteer- and/or ranger-facilitated interpretive programs. Environmental education activities would be expected to increase with the development of the education center. The Refuge volunteer program would provide interpretive programs and the Friends of the Crystal River National Wildlife Refuge Complex would develop environmental education programs for students ranging from kindergarten through adulthood within Citrus County and the surrounding area. Education and interpretation programs would include topics such as wetland ecology, birding tours, hydrology, geology, and ecology of the spring

ecosystem; the functions of springs as important manatee habitat; the role of the TSS Unit in protecting manatees; water quality and quantity; and population dynamics and conservation of the manatee. Overall, benefits to environmental education would be moderate.

#### *Recreation*

Recreational activities, facilities, and areas would increase under Alternative B. Under Alternative B, recreational uses of the TSS Unit would include access to land by vehicle, bicycle, and foot; and parking area; restroom; and a picnic pavilion. Alternative B would provide opportunities for wildlife observation and photography at the viewing areas, treatment wetland, improved nature trail, and pier.

#### *Human Safety*

No impacts to human safety would be anticipated under Alternative B. However, grading of the steep banks of Lake Crystal may improve local water safety conditions. Crowding would be reduced with increased facilities to support visitor use increasing the visitor experience. A multi-use plan would be developed to reduce user conflicts.

#### *Aesthetics*

The aesthetics on the site would improve with habitat restoration for wildlife. All buildings would be designed to integrate into the natural setting of the Unit. Natural buffers for Magnolia Springs and along the boundary would improve aesthetics. Overall, positive impacts to aesthetics would be anticipated under Alternative B.

#### *Economics*

With the increased interpretive and recreational facilities under Alternative B, the local economy would likely benefit from increased tourism to this site with visitors staying in local hotels, eating in local restaurants, obtaining fuel and other supplies, and visiting other sites in the area. No exact estimate of the total economic benefits can be quantified for this EA, but a moderate increase is expected.

### Agency Administrative Costs

Table 2 includes costs (2017 dollars) associated with the design and building of the facilities and infrastructure within Alternative B.

**Table 2. Estimated costs under Alternative B.**

Item	(2017 dollars)
Tier 1: Funding currently available, construction expected in 2 years.	
Fee booth (144 ft <sup>2</sup> ), entrance gates, landscaping, and fencing	\$110,000
Interpretative signage (8 signs, 6 panels)	\$20,000
Free standing restrooms (1,200 ft <sup>2</sup> )	\$350,000
Restroom site work, 40 space parking lot w/ accessible parking, landscaping	\$250,000
Restroom utilities: water, sewer, electricity	\$125,000
Two manatee and one wetland viewing platforms (up to 150 ft <sup>2</sup> each)	\$60,000
Nature trails (1.75 miles long, 5 ft. wide, granular)	\$75,000
Vegetative buffer along boundary as needed (25 to 50ft <sup>2</sup> wide)	\$50,000
Tier 2: Projects to be completed as funding becomes available (>2 years to fund/construct)	
Environmental education center (2,000 to 6,000 ft <sup>2</sup> )	\$350,000 to \$3M
Pier (150 ft <sup>2</sup> )	\$25,000 to \$35,000
Weather shelter (concrete pad existing, 450 ft <sup>2</sup> )	\$10,000
Maintenance shed (approximately 150 ft <sup>2</sup> )	\$2,500
Resurface road (less than 1 acre)	\$500,000 to \$600,000
Restoration of native plants (34 acres)	\$50,000 to \$500,000
Pollinator garden	\$5,000
Tier 3: Timeframe unknown	
Off-site visitor center (2,000 to 12,000 ft <sup>2</sup> )	\$1M to \$5.5M
Littoral zones	TBD

4.3. Summary of environmental consequences by alternative (Table 3).

**Table 3. Summary of environmental consequences of each of the alternatives.**

Impact Category		Alternative A Continued Management of Existing Conditions (No Action Alternative)	Alternative B Site Development with Education Center and Off-site Visitors Center (Proposed Alternative)
Biological Environment	Habitat	Would not change existing conditions.	Less than 1-acre of habitat loss. Remaining habitat quality improved.
	Wildlife	Would not change existing conditions.	Not likely to adversely affect imperiled species. Habitat restoration through native planting and exotic species removal would benefit a range of species.
Physical Environment	Water Quality	Would not change existing conditions.	Use of best management practices to reduce impacts with long-term increase in water quality through establishment of vegetative buffers where appropriate.
	Soils	Would not change existing conditions.	Some loss of soils due to construction.
	Air Quality	Would not change existing conditions.	Slight increase in vehicle traffic though the trolley may reduce need; energy efficient buildings would have some impacts as well as increased emissions.
	Noise	Would not change existing conditions.	Some increase in noise levels though vegetative buffers around the edge of the property would offset some noise.
Socioeconomics	Environmental Education and Interpretation	Would not change existing conditions.	Would increase environmental education and interpretation opportunities.
	Human Safety	Would not change existing conditions.	Grading of the steep banks at Lake Crystal would improve human safety conditions.
	Aesthetics	Would not change existing conditions.	Establishment of vegetative buffers would improve aesthetics along Magnolia Springs and the property boundary. Buildings would be designed to blend into the natural environment.
	Recreation	Would not change recreational opportunities.	Would increase recreational opportunities.
	Economics	Would not change economic opportunities.	Would increase economic opportunities.



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#### 4.4. Cumulative impacts analysis

According to the Council on Environmental Quality NEPA implementing regulations in 40 CFR § 1508.7, “cumulative impact” is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative impacts to the biological, physical, or human environments or to cultural resources would not be anticipated under any of the alternatives because no long-term overall changes to wildlife, habitat, federally- and state-listed species, water quality, soils and vegetation, air quality, noise, aesthetics, environmental education, public health and safety, recreation, socioeconomic conditions, associated costs, cultural resources, ecologically critical areas, subsurface mineral reservations, utility lines and easements, adjacent properties, low-income or minority populations, wetlands, or floodplains are anticipated. Habitat lost from construction of facilities would be offset by restoration of native plants on site.

Under Alternative A, there would be no change in cumulative impacts. Removal of invasive/exotic species would improve habitat quality to provide ecological benefits for wildlife, including threatened, endangered, and trust species while providing a quality visitor experience.

Under Alternative B (Proposed Action), the TSS Unit would be developed to provide environmental education, interpretation, wildlife observation and photography, and other wildlife-dependent recreational opportunities for the public. Restoration of native habitat and invasive/exotic species control would be implemented on site. An environmental education center would create an environment for teaching children and adults about the springs, wetlands, and the wildlife that could be found in those ecosystems. While the new buildings on the property would slightly decrease the amount of open space on the property, the educational and informational opportunities within those facilities would be positive for local, state, national, and international visitors. Best management practices would be used during construction and would be completed outside of manatee season. Overall aesthetics would be improved on the property by establishing vegetative buffers along the boundary where appropriate, removing invasive/exotic species, restoring native habitat, improving nature trails, installing manatee viewing platforms, and a pier while providing additional recreational opportunities for the visiting public in addition to the current opportunities. While positive impacts would be anticipated for aesthetics, socioeconomic, environmental education, interpretation, wildlife observation and photography, and other wildlife-dependent recreational activities, negative cumulative impacts could include increased noise levels though noise levels would not be allowed above Citrus County Code Ordinance of 55 decibels (dB(A)). In addition, there would be a permanent removal of the habitat contained in the building’s footprints. Air quality impacts from increased vehicle use should be offset by the use of the trolley to the site.

#### 4.5 Unavoidable impacts and minimization measures

Since the site was substantially altered in the past, soils, hydrology, vegetation, habitat, wildlife use, and general aesthetics had already been disturbed on the site and the uplands of the site have lower value to wildlife than in the past. Restoration on the property to native plants would improve the habitat for wildlife, soils, and hydrology, which would compensate for the loss of habitat from the building’s footprints. Invasive/exotic plant removal, native plant restoration, and vegetative buffers would help improve the aesthetics and wildlife habitat of the property. Use of the trolley would help

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offset the impact of increased vehicle use on the property. Best management practices would be used during construction and would be implemented outside of manatee season.

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## Appendices

### Appendix A. Reference Documents (Double-click to open and print full documents)

This document prepared by:  
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FLORIDA COMMUNITIES TRUST  
FF8 AWARD #08-088-FF8  
FCT Contract #09-CT-D1-08-FF8-J1-088  
THREE SISTERS SPRINGS

#### DECLARATION OF RESTRICTIVE COVENANTS

THIS AGREEMENT is entered into by and between the **FLORIDA COMMUNITIES TRUST** ("FCT"), a nonregulatory agency within the State of Florida Department of Community Affairs, and the **CITY OF CRYSTAL RIVER**, a local government of the State of Florida ("Recipient").

#### THIS AGREEMENT IS ENTERED INTO BASED ON THE FOLLOWING FACTS:

WHEREAS, the intent of this Agreement is to impose terms and conditions on the use of the proceeds of certain bonds, hereinafter described, and the lands acquired with such proceeds, as described in Exhibit "A" attached hereto and made a part hereof ("Project Site"), that are necessary to ensure compliance with applicable Florida law and federal income tax law and to otherwise implement the provisions of Sections 259.105, 259.1051 and Chapter 380, Part III, Florida Statutes;

WHEREAS, Chapter 380, Part III, Fla. Stat., the Florida Communities Trust Act, creates a non-regulatory agency within the Department of Community Affairs ("Department") that will assist local governments in bringing into compliance and implementing the conservation, recreation and open space, and coastal elements of their comprehensive plans or in conserving natural resources and resolving land use conflicts by providing financial assistance to local governments and nonprofit environmental organizations to carry out projects and activities authorized by the Florida Communities Trust Act;

WHEREAS, FCT is funded through either Section 259.105(3)(c), Fla. Stat. of the Florida Forever Act, which provides for the distribution of twenty-two percent (22%), less certain reductions, of the net Florida Forever Revenue Bond proceeds to the Department, or any other revenue source designated by the Florida Legislature, to provide land acquisition grants to local governments and nonprofit environmental organizations for the acquisition of community-based projects, urban open spaces, parks and greenways to implement local comprehensive plans;

WHEREAS, the Florida Forever Revenue Bonds are issued as tax-exempt bonds, meaning the interest on the Bonds is excluded from the gross income of bondholders for federal income tax

DRC08-088-FF8  
7/12/2010

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**Management Agreement for Certain Land Located Within the City of Crystal River, Citrus  
County, State of Florida**

WHEREAS, the City of Crystal River, hereinafter referred to as the "CITY", and the Southwest Florida Water Management District, hereinafter referred to as the "DISTRICT", jointly own certain land, hereinafter referred to as the "PROPERTY", on an undivided interest basis, with the CITY holding 70% interest and the DISTRICT holding 30% interest, and;

WHEREAS, this PROPERTY consists of 57.1 acres and is generally known as the Three Sisters Springs property, with said PROPERTY located within the congressionally-approved boundary for management by the United States Fish & Wildlife Service, hereinafter referred to as the "SERVICE", as a part of the Crystal River National Wildlife Refuge, and;

WHEREAS, the PROPERTY was acquired through a multi-agency effort that included funding by the Florida Communities Trust, hereinafter referred to as "FCT", and is thus subject to certain limitations provided in the FCT Declaration of Restrictive Covenants (as recorded in OR Book 2368 Page 1378 in Citrus County)(the "DECLARATION,") and;

WHEREAS, as part and condition of the FCT funding, the CITY provided and FCT approved a Management Plan, hereinafter referred to as the PLAN, for the PROPERTY, and together with the DECLARATION, the terms of which are hereby incorporated herein by reference, and;

WHEREAS, CITY intends that the conservation and recreation values of the Property be preserved and enhanced in accordance with the PLAN, as it may be amended from time to time only after review and approval by FCT, and;

WHEREAS, All activities by the CITY, the DISTRICT, and SERVICE shall be consistent with the DECLARATION and PLAN, and;

WHEREAS, the CITY and the DISTRICT wish to enter into an agreement with the SERVICE wherein the PROPERTY will be managed by the SERVICE for the conservation, protection and enhancement of natural resources, and for outdoor recreation compatible with those goals, consistent with the Management Plan, hereinafter referred to as the PLAN, in place for the PROPERTY through the FCT grant process, and;

WHEREAS, the SERVICE is willing to manage the PROPERTY on the basis noted above inasmuch as the PROPERTY is of critical environmental importance as a habitat for the West Indian Manatee and thus complements and supports the mission of the Crystal River National Wildlife Refuge and the SERVICE.

NOW THEREFORE, the CITY, the DISTRICT, and the SERVICE hereby agree that the SERVICE will manage the PROPERTY for the public purpose of conserving, protecting, and enhancing the natural resources located within the PROPERTY, and in a manner which is consistent with the PLAN, which is attached hereto and made a part hereof, for an initial period of twenty-five (25) years from the effective date of this Agreement, on the following terms and conditions:





# THREE SISTERS SPRINGS PROJECT MANAGEMENT PLAN

Florida Communities Trust (FCT) Project #08-088-FF8

A project of:  
The City of Crystal River  
The U.S. Fish and Wildlife Service, and  
The Southwest Florida Water Management District

Management Plan Prepared on July, 2010



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## Three Sisters Springs Community Working Group

### Executive Summary

A community working group reached consensus on the following six recommendations.

1. A Visitors Center should be built off the of property contiguous to or as close as possible to Three Sisters Springs (TSS).
  1. This should include parking and interactions such as ticket sales, gift shop, interpretive displays, general TSS facts etc.
2. Visitors from the Visitors Center should either walk or be transported onto the property.
  1. There should be minimal vehicular traffic and parking on the property i.e. staff only.
3. An Educational Building should be built on the property.
  1. The intended audience is all ages - children through seniors.
  2. A consensus of the details of the building: footprint, square footage, interior arrangement, location, staffing, maintenance etc, could not be achieved.
  3. The group recommended USFWS and Friends group conduct further community workshops to define the vision and mission of the Education Building/Center. Citrus Schools may recommend curriculum guidance and expertise. Discussion included possible hands-on field trips/excursions and lesson plans. Refuge could serve as an outdoor laboratory full of opportunities to supplement and support current classroom activities.
4. Improvements to the property should have due consideration to minimize the impact and intrusive nature to the residential neighbors around the TSS Property.
5. Improvements to the property should be flexible and evolve as needed.
  1. Changes can and should be made as new information is learned. Examples include:
    1. Visitor Capacity: seasonal maximum and minimums, durations, visitor feedback, etc.
    2. Educational opportunities and requests.
6. Restore native habitat. The natural plant habitat should be restored on and around current and future trails.

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## Appendix B. Findings of Appropriateness

The Service's Appropriate Use policy describes the initial decision process a Refuge manager follows when first considering whether or not to allow a proposed use on a refuge. The Refuge manager must first find a use to be appropriate before undertaking a compatibility review of the use and outlining the stipulations of the use.

This policy clarifies and expands on the compatibility policy (603 FW 2.10D (1)), which describes when Refuge managers should deny a proposed use without determining compatibility. If we find a proposed use is not appropriate, we would not allow the use and would not prepare a compatibility determination. Although a refuge use may be both appropriate and compatible, the Refuge manager retains the authority to not allow the use or to modify the use.

Background for this policy as it applies to Crystal River NWR is found in the following statutory authorities:

*National Wildlife Refuge System Administration Act of 1966*, as amended by the *National Wildlife Refuge System Improvement Act of 1997* (16 U.S.C. 668dd-668ee). This law provides the authority for establishing policies and regulations governing refuge uses, including the authority to prohibit certain harmful activities. The Administration Act does not authorize any particular use, but rather authorizes the Secretary of the Interior to allow uses only when they are compatible. The Improvement Act provides the Refuge System mission and includes specific directives and a clear hierarchy of public uses on the Refuge System.

*Refuge Recreation Act of 1962*, (16 U.S.C. 460k). This law authorizes the Secretary of the Interior to allow public recreation in areas of the Refuge System when the use is an "appropriate incidental or secondary use."

This policy does NOT apply to:

Situations Where Reserved Rights or Legal Mandates Provide We Must Allow Certain Uses.

*Refuge Management Activities.* Refuge management activities conducted by the Refuge System or a Refuge System-authorized agent are designed to conserve fish, wildlife, and plants and their habitats. These activities are used to fulfill a refuge purpose(s) or the Refuge System mission, and are based on sound professional judgment.

Uses that have been administratively determined to be appropriate are:

*Six wildlife-dependent recreational uses.* As defined by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act), the six wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) are determined to be appropriate. However, the Refuge manager must still determine if these uses are compatible.

*Take of fish and wildlife under State regulations.* States have regulations concerning take of wildlife that includes hunting, fishing, and trapping. We consider take of wildlife under such regulations appropriate. However, the Refuge manager must determine if the activity is compatible before allowing it on a refuge.



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**Justifications:**

Orders and laws affecting the operation and management of refuges include Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956. This use would occur on Refuge managed lands. This activity provides a means of access for wildlife observation, photography, and interpretation as well as an opportunity to maintain fitness/wellness. The use is wildlife-dependent in that it requires fresh air and open spaces. The walking, hiking, and jogging public would appreciate the experience of being in the outdoors and viewing wildlife and habitats. The use would be allowed on existing trails to ensure public safety and without impairing existing wildlife-dependent uses. The Refuge is developing a Comprehensive Conservation Plan, which will define goals and objectives for the 15-year life of the plan. This is the first time this use has been formally proposed. Minimal Refuge staff time is anticipated for project oversight. Limited staff time and budget would be required to maintain this use over time, as the predominant expense would be trail maintenance.

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## FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Crystal River National Wildlife Refuge

Use: Scientific research and monitoring

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	x	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	x	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	x	
(d) Is the use consistent with public safety?	x	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		x
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	x	
(g) Is the use manageable within available budget and staff?	x	
(h) Will this be manageable in the future within existing resources?	x	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	x	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	x	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes \_x\_ No \_\_\_\_**

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

**Not Appropriate** \_\_\_\_\_

**Appropriate** X \_\_\_\_\_

Refuge Manager: \_\_\_\_\_

Date: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_

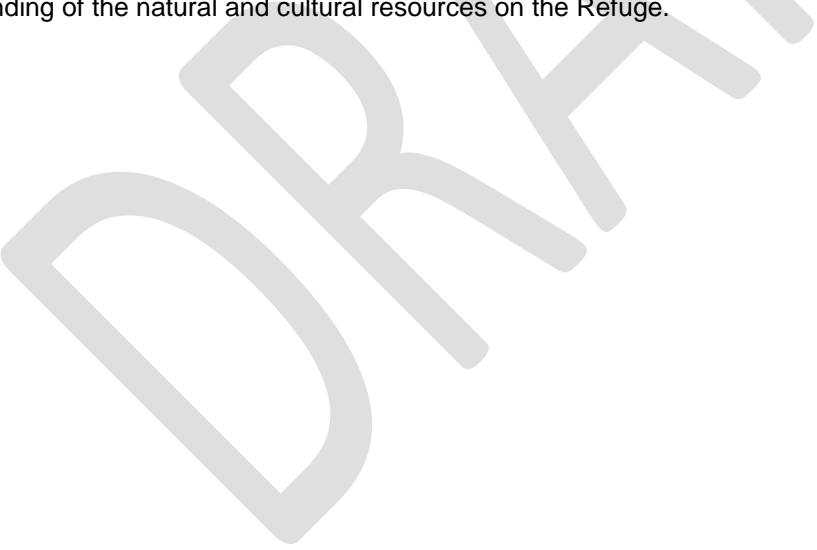
Date: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**

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**Justifications:**

Orders and laws affecting the operation and management of refuges include Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956. This use would occur on Refuge managed lands. The Service encourages and supports research and management studies on refuge lands that would improve and strengthen decisions on managing natural resources. The Refuge Manager encourages and seeks research that clearly relates to approved Refuge objectives, improves habitat management, and promotes adaptive management. Priority research addresses information on better managing the Nation's biological resources that generally are important to agencies of the Department of the Interior, the National Wildlife Refuge System, and State Wildlife Agencies that address important management issues, or demonstrate techniques for managing species or habitats. Research is conducted by universities and other academic institutions; government agencies, and consultants hired by the Service as well as non-profit organizations. The Refuge is developing a Comprehensive Conservation Plan, which will define goals and objectives for the 15-year life of the plan. This is the first time this use has been formally proposed. The use would be manageable within available budget and staff. Proposed research and monitoring would be conducted by outside entities, not Refuge staff. Minimal Refuge staff time is anticipated for project oversight and the majority of staff time would be associated with administering special use permits to researchers. Staff time may also be necessary in providing access to the Refuge and coordinating with researchers to receive copies of scientific findings and data storage. The Refuge believes it would be able to manage this use in the future with existing resources due to the minimal staff time expected for oversight. A special use permit would be issued for each proposed research project and would identify any stipulations (e.g. time of day, number of researchers on site, restrictions) necessary to ensure public safety and minimal interference with priority wildlife-dependent public uses. A job hazard analysis would be completed as needed to ensure public safety. This important use with long-term benefits ensures we have the best information possible upon which to base management decisions. This proposed use will aid the Refuge in making well-informed resource management decisions. Research and monitoring activities would aid in making new discoveries and verifying scientific findings, and is beneficial to the Refuge's natural and cultural resources. Upon research findings, the Refuge would communicate to the public and help with a better understanding of the natural and cultural resources on the Refuge.



Refuge Name: Crystal River National Wildlife Refuge

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Not Appropriate\_\_\_\_\_ Appropriate\_\_X\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

**A compatibility determination is required before the use may be allowed.**

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**Justifications:**

Orders and laws affecting the operation and management of refuges include Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956. This use would occur on Refuge managed lands. This use would occur in designated areas as to not conflict with other priority wildlife-dependent uses or pose a risk to public safety. The Refuge is developing a Comprehensive Conservation Plan, which will define goals and objectives for the 15-year life of the plan. This activity provides a means of access for wildlife observation. The picnicking public would appreciate the experience of being in the outdoors and viewing wildlife and habitats. This is the first time the use has been formally proposed. Minimal staff time is anticipated for oversight. The Refuge believes it will be able to manage this resource in the future with existing resources.

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Refuge Name: Crystal River National Wildlife Refuge

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Not Appropriate\_\_\_\_\_ Appropriate\_\_X\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

**A compatibility determination is required before the use may be allowed.**

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**Justifications:**

Orders and laws affecting the operation and management of refuges include Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956. This use would occur on Refuge managed lands. This use would promote public awareness and stewardship of the Refuges' nature and cultural resources. It does not materially interfere with or detract from the Service's ability to meet the mission of the Refuge System. This is the first time the use has been formally proposed. Special use permits would be issued to ensure public safety and minimize impairing other priority public uses. A job hazard analysis would be completed as needed to ensure public safety. The Refuge is developing a Comprehensive Conservation Plan, which will define goals and objectives for the 15-year life of the plan. The Refuge believes it would be able to manage this resource in the future with existing resources due to the minimal staff time expected to manage this use. This use would promote the National Wildlife Refuge System as well as provide environmental education to the public.

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Refuge Name: Crystal River National Wildlife Refuge

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

**Not Appropriate**\_\_\_\_\_

Refuge Manager: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**

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**Justifications:**

Orders and laws affecting the operation and management of refuges include Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956. This use would occur on Refuge managed lands. This use would promote public awareness and stewardship of the Refuges' nature and cultural resources. It does not materially interfere with or detract from the Service's ability to meet the mission of the Refuge System. This is the first time the use has been formally proposed. Special use permits would be issued to ensure public safety and minimize impairing other priority public uses. A job hazard analysis would be completed as needed to ensure public safety. The Refuge is developing a Comprehensive Conservation Plan, which will define goals and objectives for the 15-year life of the plan. The Refuge believes it would be able to manage this resource in the future with existing resources due to the minimal staff time expected to manage this use. This use would promote the National Wildlife Refuge System as well as provide environmental education to the public.

Refuge Name: Crystal River National Wildlife Refuge

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Not Appropriate\_\_\_\_\_ Appropriate\_\_X\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

**A compatibility determination is required before the use may be allowed.**

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**Justifications:**

Orders and laws affecting the operation and management of refuges include Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956. This use would occur on Refuge managed lands. This is the first time the use has been formally proposed. The Refuge is developing a Comprehensive Conservation Plan, which will define goals and objectives for the 15-year life of the plan. Providing access to Refuge lands allows visitors to experience, enjoy, and learn about wildlife and plants. This use would occur in designated roads and trails as to not conflict with other priority wildlife-dependent uses or pose a risk to public safety. The Refuge believes it will be able to manage this resource now and in the future with existing budget and staff resources due to the minimal time necessary for oversight of this use. This use would provide the public an alternative conveyance to automobiles to view and observe wildlife on the Refuge. This use reduces the carbon footprint for the visiting public. Although it is not a wildlife-dependent public use, it does facilitate other wildlife-dependent uses such as wildlife observation and photography.

## FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Crystal River National Wildlife Refuge

Use: Motorized vehicle use for mobility impaired access

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	x	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	x	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	x	
(d) Is the use consistent with public safety?	x	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		x
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	x	
(g) Is the use manageable within available budget and staff?	x	
(h) Will this be manageable in the future within existing resources?	x	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	x	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	x	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes \_x\_ No \_\_\_\_**

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

**Not Appropriate** \_\_\_\_\_

**Appropriate** X \_\_\_\_\_

Refuge Manager: \_\_\_\_\_

Date: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_

Date: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**

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**Justifications:**

Orders and laws affecting the operation and management of refuges include Executive Order 12996, the Improvement Act, the Refuge Recreation Act of 1962, the ESA of 1973, MMPA of 1972, and the Fish and Wildlife Act of 1956. This use would occur on Refuge managed lands. This is the first time the use has been formally proposed. The Refuge is developing a Comprehensive Conservation Plan, which will define goals and objectives for the 15-year life of the plan. The Refuge believes it will be able to manage this resource now and in the future with existing budget and staff resources due to the minimal time necessary for project oversight of this use. Allowing motorized vehicles for mobility impaired visitors would allow opportunities for wildlife observation and wildlife photography. Though motorized vehicle use for mobility-impaired visitors may not be a priority public use, it would facilitate participation in priority wildlife-dependent recreation.

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## FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Crystal River National Wildlife Refuge

Use: Commercially guided recreational scuba diving, swimming, and snorkeling in Lake Crystal for training purposes

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	x	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	x	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	x	
(d) Is the use consistent with public safety?		x
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		x
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	x	
(g) Is the use manageable within available budget and staff?		x
(h) Will this be manageable in the future within existing resources?		x
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		x
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		x

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes x No    

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate X Appropriate    

Refuge Manager: \_\_\_\_\_ Date: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**

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**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) identifies six legitimate and appropriate uses of wildlife refuges; environmental education, interpretation, hunting, fishing, wildlife observation, and wildlife photography. These priority public uses are dependent upon healthy wildlife populations. Where these uses are determined to be compatible, they are to receive enhanced consideration over other uses in planning and management. All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System."

Because commercially guided recreational scuba diving, swimming, and snorkeling in Lake Crystal for training purposes can create public safety risks, can have negative impacts on wildlife-dependent recreationists and fish and wildlife, and does not allow for the appreciation of the Refuge's purpose, this use has been found to be not appropriate at the Refuge.

## FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Crystal River National Wildlife Refuge

Use: Ceremonies

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	x	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	x	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	x	
(d) Is the use consistent with public safety?	x	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		x
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	x	
(g) Is the use manageable within available budget and staff?		x
(h) Will this be manageable in the future within existing resources?		x
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		x
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		x

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes \_x\_ No \_\_\_\_**

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

**Not Appropriate**   X  

**Appropriate** \_\_\_\_\_

Refuge Manager: \_\_\_\_\_

Date: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_

Date: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**

---

**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) identifies six legitimate and appropriate uses of wildlife refuges; environmental education, interpretation, hunting, fishing, wildlife observation, and wildlife photography. These priority public uses are dependent upon healthy wildlife populations. Where these uses are determined to be compatible, they are to receive enhanced consideration over other uses in planning and management. All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System."

Because ceremonies can create negative impacts for wildlife-dependent recreationists and wildlife and does not allow for the appreciation of the Refuge's purpose, this use has been found to be not appropriate at the Refuge.

## FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Crystal River National Wildlife Refuge

Use: Competitive events

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	x	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	x	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	x	
(d) Is the use consistent with public safety?		x
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		x
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		x
(g) Is the use manageable within available budget and staff?		x
(h) Will this be manageable in the future within existing resources?		x
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		x
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		x

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes \_x\_ No \_\_\_\_**

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

**Not Appropriate** X **Appropriate** \_\_\_\_\_

Refuge Manager: \_\_\_\_\_ Date: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**

---

**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) identifies six legitimate and appropriate uses of wildlife refuges; environmental education, interpretation, hunting, fishing, wildlife observation, and wildlife photography. These priority public uses are dependent upon healthy wildlife populations. Where these uses are determined to be compatible, they are to receive enhanced consideration over other uses in planning and management. All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System."

Because competitive events can create potential public safety issues, can have negative impacts on wildlife-dependent recreationists and wildlife, and does not allow for the appreciation of the Refuge's purpose, this use has been found to be not appropriate at the Refuge.

Refuge Name: Crystal River National Wildlife Refuge

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Not Appropriate X Appropriate       

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

**A compatibility determination is required before the use may be allowed.**

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**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) identifies six legitimate and appropriate uses of wildlife refuges; environmental education, interpretation, hunting, fishing, wildlife observation, and wildlife photography. These priority public uses are dependent upon healthy wildlife populations. Where these uses are determined to be compatible, they are to receive enhanced consideration over other uses in planning and management. All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System."

This use is considered a general public use that is not wildlife-dependent recreation and does not contribute to fulfillment of the Refuge purpose. Despite thousands of years of domestication, pets, such as cats and dogs, still maintain instincts to hunt and chase. Given the appropriate stimulus, those instincts can be triggered. Pets that are not under the control of their owners may disturb or potentially threaten the lives of some wildlife. A leashed pet can also disturb wildlife by barking. Domestic dogs for example, can introduce diseases like parvovirus and canine distemper to wildlife populations. In effect, non-controlled and controlled pets increase the radius of human recreational influence or disturbance beyond what it would be in the absence of a pet.

Because pet walking can create potential public safety issues, can have negative impacts on wildlife-dependent recreationists and wildlife, and does not allow for the appreciation of the Refuge's purpose, this use has been found to be not appropriate at the Refuge.



Refuge Name: Crystal River National Wildlife Refuge

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Not Appropriate X Appropriate \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

**A compatibility determination is required before the use may be allowed.**

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**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) identifies six legitimate and appropriate uses of wildlife refuges; environmental education, interpretation, hunting, fishing, wildlife observation, and wildlife photography. These priority public uses are dependent upon healthy wildlife populations. Where these uses are determined to be compatible, they are to receive enhanced consideration over other uses in planning and management. All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System."

Rollerblading and skateboarding are not priority public uses, but are general uses. They do not, as stand-alone activities, contribute to the fulfillment of the Refuge purpose, and would detract from the Refuge staff's responsibilities to protect and manage fish, wildlife, and plants and their habitats, as well as detract from administering priority uses. The Refuge does not have the facilities or staff to manage these uses. The speed, noise and unpredictable movements by rollerbladers and skateboarders may create safety hazards for observers of wildlife and may disturb wildlife. These uses are not consistent with Service policy on secondary uses and are not consistent with any approved Refuge management plan. Safety is a major concern with these uses. The general uses of rollerblading and skateboarding are, therefore, determined to be inappropriate.

Refuge Name: Crystal River National Wildlife Refuge

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Not Appropriate   X   Appropriate       

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

**A compatibility determination is required before the use may be allowed.**

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**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) identifies six legitimate and appropriate uses of wildlife refuges; environmental education, interpretation, hunting, fishing, wildlife observation, and wildlife photography. These priority public uses are dependent upon healthy wildlife populations. Where these uses are determined to be compatible, they are to receive enhanced consideration over other uses in planning and management. All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System."

The release of wildlife is not identified as a priority public use. Introduction of plants and animals on a National Wildlife Refuge is prohibited by 50 Code of Federal Regulations (CFR) 27.52, except by special use permit. Negative impacts may include introduction of exotic or invasive animals or plants, and spread of diseases. Control of already existing exotic species on the Refuge remains a challenge and uses many of the Refuge's limited resources. Introduction of additional plants and animals would only increase the challenges.

After evaluating these uses under Service policies, the release of wildlife or plants was found to be inappropriate. Introduction of plants and animals does not support the Refuge purpose, goal, or objectives and would not benefit the resources within the Refuge. Allowing this use would divert resources (i.e. staff, time, and funding) away from our habitat and species management priorities and priority public uses.

## FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Crystal River National Wildlife Refuge

Use: Off-trail bicycling

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	x	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	x	
(c) Is the use consistent with applicable executive orders and Department and Service policies?		x
(d) Is the use consistent with public safety?		x
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		x
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	x	
(g) Is the use manageable within available budget and staff?		x
(h) Will this be manageable in the future within existing resources?		x
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		x
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		x

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes x No   

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate X Appropriate       

Refuge Manager: \_\_\_\_\_ Date: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**

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**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) identifies six legitimate and appropriate uses of wildlife refuges; environmental education, interpretation, hunting, fishing, wildlife observation, and wildlife photography. These priority public uses are dependent upon healthy wildlife populations. Where these uses are determined to be compatible, they are to receive enhanced consideration over other uses in planning and management. All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. These uses are likely to divert refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System."

Off-road bicycling/mountain bicycling is not a priority public use, but a general use. This use does not, as a stand-alone activity, contribute to the fulfillment of the Refuge purpose, and would detract from the Refuge staff's responsibilities to protect and manage fish, wildlife, and plants and their habitats, as well as detract from administering priority uses. The Refuge does not have the facilities, staff, or resources to manage this use. Potential impacts include soil compaction and erosion, trampling and mortality of fragile plant communities, habitat loss/deterioration, shifts in plant communities along trails, wildlife disturbance, and conflicts with other users, which carry the concern for safety due to excessive speed of cyclists. It is not consistent with Service policy on secondary uses and is not consistent with any approved Refuge management plan. The general use of off-road bicycling/mountain bicycling is, therefore, determined to be inappropriate.

## FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Crystal River National Wildlife Refuge

Use: Motorized and non-motorized boating on Lake Crystal

This form is not required for wildlife-dependent recreational uses; take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	x	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	x	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	x	
(d) Is the use consistent with public safety?		x
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		x
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	x	
(g) Is the use manageable within available budget and staff?		x
(h) Will this be manageable in the future within existing resources?		x
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		x
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		x

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes x No   

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate X Appropriate       

Refuge Manager: \_\_\_\_\_ Date: \_\_\_\_\_

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.  
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.  
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

**A compatibility determination is required before the use may be allowed.**



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**Justification:**

The National Wildlife Refuge System Improvement Act of 1997 enumerated six wildlife-dependent recreational uses of refuges that are considered priorities for the National Wildlife Refuge System (Refuge System). All other recreational uses are considered general uses. As noted in the Appropriate Use Policy: "General public uses that are not wildlife-dependent recreational uses (as defined in the Improvement Act) and do not contribute to the fulfillment of refuge purposes, or goals, or objectives as described in current refuge management plans are the lowest priorities for refuge managers to consider. This use is likely to divert Refuge management resources from priority public uses or away from the responsibilities to protect and manage fish, wildlife, and plants and their habitats. Therefore, both law and policy have a general presumption against allowing such uses within the Refuge System.

Motorized and non-motorized boating is not a priority public use, but a general use. This use does not, as a stand-alone activity, contribute to the fulfillment of the Refuge purpose, and would detract from the Refuge staff's responsibilities to protect and manage fish, wildlife, and plants and their habitats, as well as detract from administering priority uses. The Refuge does not have the facilities, staff, or resources to manage this use. Potential impacts include wildlife disturbance and conflicts with other users. It is not consistent with Service policy on secondary uses and is not consistent with any approved Refuge management plan. The general use of motorized and non-motorized boating bicycling is, therefore, determined to be inappropriate for this small body of water.

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## Appendix C. Compatibility Determinations

### Crystal River National Wildlife Refuge (NWR) - Three Sisters Springs Unit Compatibility Determination

**Uses:** The following uses were found to be appropriate and evaluated to determine their compatibility with the mission of the Refuge System and the purposes of the refuge.

1. Wildlife observation and photography, environmental education and interpretation
2. Scientific research and monitoring
3. Land-based commercial services
4. Commercial wildlife and nature photography, filming, and other art forms from land
5. Bicycle use on main access road and designated trails

Compatibility determinations for each description listed above were considered separately.

**Refuge Name:** Crystal River National Wildlife Refuge

**County, State:** Citrus County, Florida

**Date Established:** August 17, 1983

**Establishing and Acquisition Authority:**

Crystal River NWR was administratively authorized by the Director of the U.S. Fish and Service on January 10, 1983, to conserve threatened and endangered species (Endangered Species Act of 1973), specifically focusing on the West Indian manatee (*Trichechus manatus*) and more specifically the Florida subspecies (*Trichechus manatus latirostris*).

**Refuge Purposes:** The primary purpose of Crystal River NWR is to protect threatened and endangered species, with a management focus on the West Indian manatee, under the Endangered Species Act:

“... to conserve (A) fish or wildlife which are listed as endangered species or threatened species .... or (B) plants ...” 16 USC §1534 (Endangered Species Act of 1973).

Secondary purposes have also been applied to Crystal River NWR, as listed.

“... suitable for...(1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ...” 16 USC §460k-1 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 USC §460k-2 (Refuge Recreation Act, 16 USC §§460k-460k-4, as amended)

“... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions...” 16 USC §3901 (B) 100 Stat.3583 (Emergency Wetlands Resources Act of 1986)

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**National Wildlife Refuge System (NWRS) Mission:**

As outlined in the 1997 National Wildlife Refuge System Improvement Act, the mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Other Applicable Laws, Regulations, and Policies:**

Animal Welfare Act of 1966, Public Law 89-544. (7 USC §2131 et. seq.)  
Antiquities Act of 1906 (34 Stat. 225)  
Archaeological Resources Protection Act of 1979  
Bald and Golden Eagle Protection Act (16 USC §§668-668d; 54 Stat. 250)  
Chapter 68C-22, Florida Administrative Code; Florida Manatee Protection Zones (Chapter 68C-22.011, Florida Administrative Code)  
Class III Waters (Chapter 62-302, Florida Administrative Code]  
Commerce Clause of the U.S. Constitution Article 1, Section 8  
Criminal Code Provisions of 1940 (18 USC §41)  
Critical Habitat for Florida Manatee (41 Federal Register 41914)  
Emergency Wetlands Resources Act of 1986 (S.B. 740)  
Endangered Species Act of 1973 (16 USC §1531 et seq; 87 Stat. 884)  
Executive Order 11644, as amended by Executive Order 10989, Use of Off-Road Vehicles on Public Lands  
Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System  
Executive Order 13158, Marine Protected Area  
Fish and Wildlife Act of 1956 (16 USC §742a-742j; 70 Stat.1119)  
Florida Manatee Sanctuary Act [1978, §370.12(2), Florida Statutes]  
Food Security Act (Farm Bill) of 1990 as amended (HR 2100)  
Institutional Animal Care and Use Committee (IACUC) policies  
Land and Water Conservation Fund Act of 1965  
Marine Mammal Protection Act of 1972 (16 USC §§1361-1421)  
Migratory Bird Conservation Act of 1929 (16 USC §715r; 45 Stat. 1222)  
Migratory Bird Hunting Stamp Act of 1934 (16 USC 718-178h; 48 Stat. 451)  
Migratory Bird Treaty Act of 1918 (15 USC §§703-711; 40 Stat. 755)  
National Environmental Policy Act of 1969, NEPA (42 USC §§4321, et seq; 83 Stat. 852)  
National Historic Preservation Act of 1966, as amended (16 USC §470, et seq.; 80 Stat. 915)  
National Wildlife Refuge Regulations for the Most Recent Fiscal Year (50 CFR Subchapter C; 43 CFR §§3101.3-3)  
National Wildlife Refuge System Administration Act of 1966 (16 USC §§668dd, 668ee; 80 Stat. 927)  
National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, USC §668dd)  
Native American Graves Protection and Repatriation Act of 1990  
North American Wetlands Conservation Act of 1990  
Outstanding Florida Waters [§403.061(27), Florida Statutes]  
Property Clause of the U.S. Constitution Article IV 3, Clause 2  
Title 50, Code of Federal Regulations, Parts 25-33  
Title 50 Code of Federal Regulations, Subchapter C; 43 CFR §§3101.3-3  
Refuge Recreation Act of 1962 (16 USC §§460k-460k-4; 76 Stat. 653)  
Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 USC §715s; 92 Stat. 1319)  
Refuge Trespass Act of June 25, 1948 (18 USC §41; 62 Stat. 686)  
Title 50 Code of Federal Regulations Part 17 Subpart J §17.100, Manatee Protection Areas (Manatee Sanctuaries and Kings Bay Manatee Refuge)  
Wilderness Act (16 USC §1131; 78 Stat. 890)

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**Public Review and Comment:** These draft compatibility determinations would be available for review and comment during the public review period established for Crystal River National Wildlife Refuge- Development of Visitor Services Facilities, Infrastructure, and Habitat Improvements at TSS EA.

DRAFT

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**Use:** Wildlife observation, photography, environmental education, and interpretation

**Supporting Uses and Associated Facilities, Structures, and Improvement as**

**Appropriate:** Walking, hiking, jogging, bicycle use, picnicking, motorized vehicle use for mobility-impaired access, construction of environmental education center, boardwalk, improvement of trails, and installation of interpretive panels and observation platforms.

**Description of Use:**

**(a) What is the use? Is the use a priority public use?** The uses are wildlife observation, wildlife photography, environmental education, and interpretation. Wildlife observation, wildlife photography, environmental education, and interpretation are priority public uses of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) as amended by the Improvement Act of 1997 (Public Law 105-57).

**(b) Where would the use be conducted?** Wildlife observation, wildlife photography, environmental education, and interpretation will occur on designated roads, trails, boardwalk, observation platforms, and environmental education facilities throughout the 57-acre Unit.

**(c) When would the use be conducted?** Self-directed wildlife observation, wildlife photography, environmental education, and interpretation would be allowed on the refuge daily, year-round, 8am to 5pm unless a conflict with a management activity or an extenuating circumstance necessitates deviating from these procedures. Closures for events affecting human safety or for manatee season and other sensitive times of the year are examples that would require these uses to be temporarily suspended.

**(d) How would the use be conducted?** Wildlife observation, photography, environmental education, and interpretation would be allowed to occur on the refuge. Considerations would include:

- on-site evaluations to resolve public use issues;
- monitoring and evaluating impacts;
- maintaining boundaries and signs;
- meeting with adjacent landowners and interested public;
- recruiting volunteers;
- preparing and presenting interpretive programs;
- improving and maintaining 1.75 miles of existing trails;
- revising leaflets and developing new ones;
- installing interpretive panels and information;
- developing needed signage;
- developing new media outreach materials such as a mobile phone application or QR code interpretive panels;
- organizing and conducting refuge events;
- conducting regularly scheduled programs for the public;
- developing relationships with media;
- providing law enforcement;
- constructing an on-site environmental education center;
- constructing three new observation platforms along Magnolia Springs and in the treatment wetland; and
- restoring of up to 34 acres in native plants including a pollinator garden.

**(e) Why is the use being proposed?** Wildlife observation, wildlife photography, environmental education, and interpretation are Priority Public Uses as defined by The National Wildlife Refuge

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System Administration Act of 1966, as amended by the Improvement Act of 1997 (Public Law 105-57), and, if compatible, are to receive enhanced consideration over other general public uses. These uses will be conducted to provide compatible educational and recreational opportunities for visitors to enjoy the refuge's natural resources including manatees, and to gain understanding and appreciation for fish and wildlife, ecology, and wildlife management. These uses will enhance the public's knowledge of natural resource management programs and ecological concepts which will facilitate a better understanding of the problems facing manatees and our local natural resources, what effect the public has on wildlife resources, and to learn about the U.S. Fish and Wildlife Service's (Service) role in conservation. Additionally, the public will be aware of biological facts upon which Service management programs are based, and these uses will foster an appreciation as to why wildlife and wildlands are important to them. The authorization of these uses will produce a more informed public and increased support for Service programs. Likewise, these uses will provide opportunities for visitors to observe and learn about manatees, other wildlife, and wildlands at their own pace, in an unstructured environment, and to observe wildlife habitats firsthand. These uses would also provide wholesome, safe, outdoor recreation in a scenic setting, while being enticed to participate in the more educational facets of the public use program, thereby becoming informed advocates for the refuge and the NWRS. Professional and amateur photographers will also be provided opportunities to photograph wildlife in their natural habitats. Photography opportunities will result in increased publicity and advocacy for Service programs. These uses will also provide wholesome, safe, outdoor recreation in a scenic setting, with the realization that those who come strictly for recreational enjoyment will be enticed to participate in the more educational facets of the public use program, and can then become advocates for the refuge and the Service.

**Availability of Resources:** Allowing the uses of wildlife observation, photography, environmental education, and interpretation is within the resources available to administer a Visitor Services program with the current level of participation and to ensure that the use remains compatible with the refuge purposes. Additional funding for visitor services improvements can also come from grant funds and contributions. Compliance with Refuge regulations is handled within the regular duties of the Refuge law enforcement officer. As funding is available, the Refuge would complete and maintain projects and facilities to enhance these public uses. Volunteers and partners would be utilized to help with construction and maintenance as needed.

Facilities or materials needed to support this use include maintaining access roads, parking areas, gates, kiosks, signs, the boardwalk, observation platforms, trails, the environmental education center, the pavilion, and providing information in Refuge publications and the Refuge's website.

In addition, wildlife observation, photography, environmental education, and interpretation are supported by Refuge annual operation and maintenance funds, volunteers, and the Friends of the Crystal River National Wildlife Refuge Complex (Friends). Costs include: a) associated salary of one visitor services specialist position; b) associated salaries of two maintenance employees; c) associated salaries of two federal wildlife officers; d) upkeep of existing facilities such as the boardwalk and trails; d) proposed facilities including observation platforms, an on-site environmental education center, new interpretive panels, and restoration of native plants. Volunteers and the Friends are major components of the Refuge's Visitor Services program, providing interpreters for the boardwalk, funding for Refuge projects, conducting and supporting various programs and tours, and serving other functions. Funding required for proposed improvements and facilities might come from the Refuge, grants, donations, and/or the Friends.

The Refuge does not collect fees from visitors and does not receive funding from the City of Crystal River or Southwest Florida Water Management District to offset management expenses or for site development. The Refuge may propose an entrance fee in the future.

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**Anticipated Impacts of the Use:** Disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole, 1991). Flight in response to disturbance can lower nesting productivity and cause disease and death. Hammitt and Cole (1998) conclude that the frequent presence of humans in “wildland” areas can dramatically change the normal behavior of wildlife mostly through “unintentional harassment.” Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young (such as white-tailed deer) are more likely to flee from a disturbance than those without young. Several studies have examined the effects of recreationists on birds using shallow-water habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the eastern United States (Burger 1981; Burger 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers & Smith 1995, 1997; Burger & Gochfeld 1998). Overall, the existing research clearly demonstrates that disturbance from recreation activities always have at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers & Smith 1997; Burger & Gochfeld 1998). The findings that were reported in these studies are summarized as follows in terms of visitor activity and avian response to disturbance.

*Presence:* Birds avoided places where people were present and when visitor activity was high (Burger 1981; Klein et al. 1995; Burger & Gochfeld 1998).

*Distance:* Disturbance increased with decreased distance between visitors and species (Burger 1986), though exact measurements were not reported. *Approach Angle:* Visitors directly approaching birds on foot caused more disturbance than visitors driving by in vehicles, stopping vehicles near birds, and stopping vehicles and getting out without approaching birds (Klein 1993). Direct approaches may also cause greater disturbance than tangential approaches to birds (Burger & Gochfeld 1981; Burger et al. 1995; Knight & Cole 1995a; Rodgers & Smith 1995, 1997).

*Type and Speed of Activity:* Joggers and landscapers caused birds to flush more than fishermen, sunbathers, and some pedestrians, possibly because the former groups move quickly (joggers) or create more noise (landscapers). The latter groups tend to move more slowly or stay in one place for longer periods, and thus birds likely perceive these activities as less threatening (Burger 1981, 1986; Burger et al. 1995; Knight and Cole 1995a). Alternatively, birds may tolerate passing by with unabated speed whereas if the activity stops or slacks birds may flush (Burger et al. 1995).

*Noise:* Noise caused by visitors resulted in increased levels of disturbance (Burger 1986; Klein 1993; Burger & Gochfeld 1998), though noise was not correlated with visitor group size (Burger & Gochfeld 1998).

In determining compatibility, the cumulative effects of all public use on the Unit are considered. Unpublished refuge data suggests loud noises associated with wildlife observation, photography, environmental education, and interpretation on the boardwalk may disturb manatees using the springs. Due to the limitations put on these activities, wildlife observers, photographers, and those partaking in environmental education and interpretation are not expected to greatly increase the disturbance to wildlife.

**Determination (check one below):**

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☐ Use is Not Compatible

☒ Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** All wildlife observation and photography occurring from the boardwalk would be limited to the perimeter of the boardwalk and trails only, while prohibiting the following:

- Trespassing from the boardwalk to the banks of the springs or from the trails to the shores of wetlands and Lake Crystal.
- Utilization of artificial lighting other than flash when photographing from the boardwalk
- Use of extension poles for cameras and cellphones, and the landing or launching of unmanned aerial vehicles (UAVs)

Access to the boardwalk and trails prior to 8am and after 5pm

Visitors are encouraged to refrain from making loud noises while on the boardwalk and from sounding vehicle horns near the boardwalk.

**Justification:** The National Wildlife Refuge System Improvement Act of 1997 identified these uses as four of the six priority public uses on National Wildlife Refuges, where compatible with Refuge purposes. These uses are appropriate and are dependent upon healthy wildlife populations. Offering wildlife observation, photography, environmental education, and interpretation complies with refuge goals, is a management objective for the Refuge, and furthers the goals and mission of the NWRS.

These activities would not materially interfere with, or detract from, the mission of the NWRS or the purpose for which the Refuge was established. This determination is based on sound professional judgement and best available science.

**NEPA Compliance for Refuge Use Description:** *Place an X in appropriate space.*

☐ Categorical Exclusion without Environmental Action Statement

☐ Categorical Exclusion and Environmental Action Statement

☒ Environmental Assessment and Finding of No Significant Impact

☐ Environmental Impact Statement and Record of Decision

**Mandatory 15-year Re-evaluation Date:**

**References:**

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DRY

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**Use:** Scientific research and monitoring

**Supporting Uses and Associated Facilities, Structures, and Improvement as Appropriate:**  
N/A

**Description of Use:**

**(a) What is the use? Is the use a priority public use?** The use is research and monitoring or other ecological or cultural investigations not conducted by the U.S. Fish and Wildlife Service (Service) or a Service-authorized agent. Research and monitoring is not a priority public use of the Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997.

In accordance with 16 U.S.C. 668dd (d) and 50 C.F.R. Part 25, Subpart D, the refuge manager is responsible for reviewing applications for special use permits (SUPs) and determining whether to authorize a proposed use. Uses must be “appropriate,” and if so, also found to be “compatible” with the refuge purposes, and those of the Refuge System, prior to be approved and undertaken. These decisions are based on the Service’s best professional judgment, consistent with Service regulations and policy, including the Policy on Maintaining the Biological Integrity, Diversity, and Environmental Health of the National Wildlife Refuge System (66 Fed. Reg. 3810 (2001); 601 FW 3).

**(b) Where would the use be conducted?** Locations for this use would be dependent on the particular study being conducted and could occur in a variety of habitat types. Access would be restricted by SUP to only the study sites needed to meet the objectives of the research.

**(c) When would the use be conducted?** The timing of research and monitoring would be dependent on the type and subject(s) of the research project. Research could potentially occur throughout the year. Time-of-year restrictions could be imposed to protect threatened or endangered species or to prevent conflicts with other Refuge uses or management activities.

**(d) How would the use be conducted?** Research and monitoring is conducted by Federal, State, and private entities, including the U.S. Geological Survey, State departments of natural resources, students, and professors at State and private universities, and independent non-government researchers and contractors. This activity would allow permitted researchers access to the Refuge’s natural environment to conduct both short-term and long-term research projects. The Refuge issues SUPs for research studies investigating biological, physical, or social issues and concerns to address Refuge management information needs, and to enhance the understanding of trust resources. Research permit requests would be considered on a case-by-case basis and approved by the Refuge Manager. Permitted research should result in better knowledge of the Refuge’s natural and cultural resources and improve methods to manage, monitor, and protect these resources.

The Refuge Manager would have the discretion to reevaluate the appropriateness and compatibility of any specific research and monitoring by non-Service personnel’s request at any time [603 FW 2.1 H(1), (2)]. A specific research project denial would be based on the Refuge Manager exercising sound professional judgment based on field experiences, knowledge of the Refuge’s natural resources, particularly its biological resources and available scientific information. When evaluating a proposal, the Refuge Manager would use available information that may include consulting with others both inside and outside the Service. The Refuge Manager would specify in writing the rationale, conclusions, and decision when denying a specific research project request.

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**(e) Why is the use being proposed?** The Service encourages and supports research and monitoring, and management studies on Refuge lands that would improve and strengthen decisions on managing natural resources. The Refuge Manager encourages and seeks research that clearly relates to approved Refuge objectives, improves habitat management, and promotes adaptive management. Priority research addresses information on better managing the Nation's biological resources that generally are important to agencies of the Department of the Interior, the Refuge System, and state wildlife agencies, that address important management issues, or demonstrate techniques for managing species or habitats.

Consideration may also be given to research for other purposes that may not relate directly to refuge-specific objectives, but contribute to the broader enhancement, protection, use, preservation or management of native populations of fish, wildlife and plants, and their natural diversity in the Region or the flyway. All proposals must comply with Service policy on compatibility.

Both the Refuge Manual and the Service Manual provide guidance on allowing research and monitoring on refuges. The Refuge Manual (4 RM 6.2) lists three objectives that can be met by permitting research and monitoring on refuges:

- (1) Promoting new information that would improve the quality of the refuge and other Service management decisions.
- (2) To expand the body of scientific knowledge about fish and wildlife, their habitats, appropriate resource management and the environment in general.
- (3) To provide the opportunity for students and others to learn the principles of field research.

The Service Manual (603 FW 1.10D (4)) provides supplemental guidance in terms of the appropriateness of research on refuges, as follows: "We actively encourage cooperative natural and cultural research activities that address our management needs. We also encourage research related to the management of priority general public uses. Such research activities are generally appropriate. However, we must review all research activities to decide if they are appropriate or not as defined in section 1.11. Research that directly benefits refuge management has priority over other research."

The rationale for this conclusion is clearly stated in the preamble to that policy (71 Federal Regulation 36415):

Not all research and monitoring may be appropriate. Some research may affect fish, wildlife, and plants in a manner neither consistent with refuge management plans nor compatible with refuge purposes or the Refuge System mission. Some research may interfere with or preclude refuge management activities, appropriate and compatible public uses, or other research. Some research may be appropriate off the refuge, but not on the refuge. For example, some natural and physical research may not be wildlife-dependent and may be accomplished successfully at locations off the refuge. Because not all research supports the establishing purposes of refuges or the NWRS mission, we cannot define research as a refuge management activity.

Research and monitoring activities that typically occur at TSS include scientific research, baseline inventories of plants and animals, long-term monitoring, and scientific collecting (e.g. voucher specimens) conducted by non-refuge personnel on refuge lands. Research at the Refuge is wide-ranging in nature and includes activities such as radio-tracking manatees, capture of manatees for

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health assessments, disease monitoring of animals, other biological studies (including water quality and quantity monitoring), and vegetation surveys, etc. Research and monitoring are used to increase the Refuge Manager's knowledge, understanding, and ability to manage animals, plants, habitats, and ecosystem processes found on the Refuge. These activities support short- and long-term research projects by resource agencies, universities, nonprofit organizations, and other research entities. Conclusions derived from research and monitoring allow Refuge Managers to evaluate management activities and adapt those activities to be more effective.

**Availability of Resources:** Some Refuge resources above general operational costs may be required for this use. The cost of most field studies is borne by the researchers with the exception of staff time to review proposals, issue SUPs, provide logistical support, and monitor projects. These are considered regular (routine) duties of biologists and managers. Researchers typically provide all the materials needed and, depending on the project, the Refuge may provide support with office space, housing, boats, and/or vehicles.

Refuge support for research may take the form of funding, in-kind services such as housing, the use of other Refuge facilities, vehicles, boats, or equipment, the direct assistance of Refuge staff in collecting data, providing historical records, conducting management treatments, or providing other assistance as appropriate. Generally, however, the bulk of the costs are incurred in staff time to review research proposals, coordinate with researchers, and write SUPs. In some cases, a research project may require only a few hours of staff time to review the proposal, coordinate with other reviewers, and write a SUP. In other cases, a research project may involve more significant staff time, because the Refuge staff must coordinate with students and advisors and accompany researchers on site visits.

The Refuge does not collect fees from visitors and does not receive funding from the City of Crystal River or Southwest Florida Water Management District to offset management expenses or site development. The Refuge may propose an entrance fee in the future, which would assist in the administration of this use.

**Anticipated Impacts of the Use:** Disturbance to wildlife, vegetation, water, soils, or cultural resources could occur while researchers are accessing study sites on vehicles or by foot, or while they are engaged in their project. The presence of researchers could also indirectly disturb wildlife. Potential impacts include:

- Trampling, damage, and killing of vegetation from walking off trail (Kuss 1986, Roovers et al. 2004, Hammitt and Cole 1998).
- Soil compaction, soil erosion, and changes in hydrology from hiking on and off trail (Kuss 1986, Roovers et al. 2004).
- Disturbance to wildlife that causes shifts in habitat use, abandonment of habitat, increased energy demands on affected wildlife, changes in nesting and reproductive success, and singing behavior (Knight and Cole 1991, Miller et al. 1998, Shulz and Stock 1993, Gill et al. 1996, Arrese 1987, Gill et al. 2001).

Overall, allowing well designed and properly reviewed research is likely to have little impact on Refuge wildlife populations. The Refuge does not anticipate adverse impacts on non-target species or other resources from research activities as these activities are typically geared towards benefiting Refuge management of trust resources. The proposed use would cause only minor and short-term disturbances to some wildlife and little or no disturbance to Refuge visitors. Long-term effects would be eliminated/ reduced because Refuge evaluation of research proposals would insure only proposals with adequate safeguards to avoid/minimize impacts would be accepted. Potential impacts

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associated with research activities would be minimized because sufficient restrictions would be included as part of the study design and researcher activities would be monitored by Refuge staff. The continuance of research projects is an important management tool that can have significant beneficial effects on Refuge lands and waters. Research findings would assist Refuge Management in providing quality wildlife and habitat management in furthering the primary purposes for which this Refuge was acquired. Furthermore, research can allow us to meet management goals at a modest cost to the Refuge. This use should not result in short- or long-term impacts that adversely affect the purpose for this Refuge or the mission of the NWRS.

There may be short-term disturbance to plants and wildlife during field investigations that may be unavoidable in some cases. We would conduct Intra-Service Section 7 Biological Evaluations for any proposal that could be anticipated to have an impact on any federally threatened or endangered species.

**Determination (check one below):**

☐ Use is Not Compatible

☒ Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** All researchers are required to obtain SUPs from the Refuge and comply with all federal wildlife permitting processes and standards. The SUP specifies the purpose and duration of the project, location of fieldwork, and any special conditions that the permittee is required to follow. SUPs include study-specific restrictions applicable to methods, study site(s), and other project elements. These are done on a case-by-case basis. All research proposals are reviewed by Refuge staff before approval is given. Refuge personnel regularly monitor the progress of all fieldwork and permittees are required to submit interim reports and annual report of the work accomplished, and/or a final report of the study. In applying for SUPs, researchers are required to show proof that they have fulfilled all other applicable permitting requirements, such as state collecting permits and endangered species permits. Research involving manatees requires a Federal ESA/MMPA Marine Mammal Scientific Research Permit obtained through the Service's Division of Management Authority.

All Refuge regulations would be enforced and the permittee shall be responsible for the actions of all research and support personnel. Feeding any wildlife is prohibited. No fishing would be permitted while on location. Field personnel can fish on their own time when properly licensed and in areas open and accessible to the general public. No pets or other animals are allowed on the Refuge during activities conducted under this permit. Violations of applicable laws or regulations may subject the Permittee and/or their agents to prosecution under State and/or Federal laws, and jeopardize the continuance of the SUP.

The failure of the United States to enforce strict performance of the terms, conditions, covenants, agreements, or stipulations of SUPs, for access to conduct research and monitoring activities on national wildlife Refuge lands, shall not constitute a waiver or relinquishment of the right of the United States to strictly enforce thereafter such terms, conditions, covenants, agreements, or stipulations which shall, at all times, continue in full force and effect.

The Permittee shall save, hold harmless, defend, and indemnify the United States of America, its agents and employees for loss, damages, or judgments and expenses on account of bodily injury, death or property damage, or claims for bodily injury, death, or property damage of any nature whatsoever, and by whomever made, arising out of the Permittees, his employees, subcontractors or

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agents with respect to conducting monitoring within the lands administered by Crystal River National Wildlife Refuge Complex.

Firearms of any kind are prohibited on the Refuge. Killing or harassing of wildlife is prohibited. It is illegal to molest or destroy the home, nest, or dens of wildlife. Adverse impacts on fish, wildlife, and the environment shall be minimized to the maximum extent possible.

Littering is prohibited. All cans, bottles, lunch papers, and other trash must be removed daily. All vehicles will be equipped with a container to carry out and contain trash.

All applicable Federal and State regulations apply.

Permittee shall provide at least one written update annually that summarizes the permitted research and its current findings. Written reports should be of peer-review quality. A final report, of peer-review quality, will be provided to the Refuge within 12 months of the completion of fieldwork. Copies of all publications related to this permit will be provided to the Refuge free of cost.

Publications and presentations should provide appropriate credit to the U.S. Fish and Wildlife Service, Crystal River National Wildlife Refuge.

Permits shall not be altered, erased, or mutilated, and any permit that has been altered, erased, or mutilated shall immediately become invalid.

All individuals utilizing the Refuge are subject to inspection of permit, equipment, vehicles, boats, and their contents by federal or state officers upon request.

**Justification:** The Service encourages research and monitoring on national wildlife refuges to promote new information that would improve the quality of refuge and other Service management decisions. Research and monitoring expands the body of scientific knowledge about fish and wildlife, and their habitats; the use of these resources, the appropriate resource management, and the environment in general, and provides the opportunity for students and others to learn the principles of field research.

Research and monitoring can provide important benefits to the Refuge and the natural resources supported by the Refuge. Research conducted on the refuge can lead to new discoveries, new facts, verified information, and better management decisions. Research and monitoring is vital for furthering knowledge and understanding of Refuge resources. Research and monitoring is also important because it provides the Service with scientific information that can be used to manage natural resources. Species identification, resource inventories, and monitoring provide valuable data for refuge operations. Access to current and state-of-the art research can aid management decisions and be used in adaptive management strategies to manage resources.

This activity would not materially interfere with, or detract from, the mission of the NWRS or the purpose for which the Refuge was established. This determination is based on sound professional judgement and best available science.

**NEPA Compliance for Refuge Use Description:** *Place an X in appropriate space.*

- ☐ Categorical Exclusion without Environmental Action Statement
- ☐ Categorical Exclusion and Environmental Action Statement
- ☒ Environmental Assessment and Finding of No Significant Impact

**Mandatory 10-year Re-evaluation Date:**

**References:**

Arrese, P. 1987. Age, intrusion pressure and defense against floaters by territorial male Song Sparrows. *Animal Behavior* 35:773-784.

Gill, J. A., W.J. Sutherland, and A.R. Watkinson. 1996. A method to quantify the effects of human disturbance on animal populations. *Journal of Applied Ecology* 33:786-792.

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Knight, R.L., and D.N. Cole. 1991. Effects of recreational activity on wildlife in wildlands. *Transactions of the 56th North American Wildlife and Natural Resources Conference* pp.238-247.

Kuss, F.R. 1986. A review of major factors influencing plant responses to recreation impacts. *Environmental Management*, 10:638-650.

Miller, S.G., R.L. Knight, and C.K. Miller. 1998. Influence of recreational trails on breeding bird communities. *Ecological Applications* 8:162-169.

Roovers, P., K. Verheyen, M. Hermy, and H. Gulinck. 2004. Experimental trampling and vegetation recovery in some forest and heathland communities. *Applied Vegetation Science* 7:111-118.

Schultz, R.D., and M. Stock. 1993. Kentish plovers

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**Use:** Land-based commercial services

**Supporting Uses and Associated Facilities, Structures, and Improvement as Appropriate:**

Walking, hiking, jogging, bicycle use, picnicking, motorized vehicle use for mobility-impaired access, construction of environmental education center, boardwalk, improvement of trails, and installation of interpretive panels and observation platforms.

**Description of Use:**

**(a) What is the use? Is the use a priority public use?** The Refuge would authorize land-based commercial services within the Refuge and would regulate such use through the issuance of special use permits (SUPs) with conditions. Commercial means that clients pay a fee for the program and the intent of the permittee is to generate profit. This does not include individuals who perform these services for no fee, not-for-profit groups, schools, colleges, or other governmental agencies. Commercial services on the Refuge would include a trolley or bus service that transports visitors to and from the Refuge and an off-site parking location with or without an interpretive guide. As parking is limited on-site, this activity would provide access to recreational, and often educational, opportunities for the paying public who desire a successful, quality experience, but who may not be able to travel by foot or bicycle to otherwise experience the Refuge.

Commercial services are not a priority public use of the National Wildlife Refuge System (NWRS) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997. Commercial services can contribute to the fulfillment of the refuge purpose and to the NWRS mission by facilitating priority and/or compatible public uses.

**(b) Where would the use be conducted?** Opportunities for land-based commercial services are available via the existing road network boardwalk on the 57-acre Three Sisters Springs (TSS) Unit. Using existing roads would minimize impacts to Refuge resources.

**(c) When would the use be conducted?** The use would be allowed during hours (8am to 5pm) that the refuge is open to the public, year-round.

**(d) How would the use be conducted?** Administration of commercial services would be conducted in accordance with stipulations identified below and additional conditions that may be specified in a SUP. The stipulations are developed to ensure consistency throughout the Refuge; provide a safe, quality experience; protect resources; and to ensure compliance with pertinent NWRS regulations and policies.

Each request for this use would be considered, and if appropriate, the Refuge Manager would decide if the proposed use could be administered with existing resources before issuing an SUP to allow the use. Each request must be presented in writing with details of who, what, where, when, why, and how the commercial operation would be conducted. Each request would be evaluated on its own merit. The Refuge Manager would use professional judgment and ensure that the request would have no considerable negative impacts to natural resources, cultural resources, or visitor services, does not violate refuge regulations, and contributes to the achievement of the Refuge purpose or the NWRS mission. Special needs would be considered on a case-by-case basis and are subject to the Refuge Manager's approval. Any approved SUP would outline the framework in which the use can be conducted and Refuge staff would ensure compliance with the permit.

**(e) Why is the use being proposed?** Wildlife observation is an appropriate educational and recreational opportunity for visitors to enjoy the resource and to gain understanding and appreciation



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for fish and wildlife, the relationships of plant and animal populations within the ecosystem, and wildlife management. Based on apparent existing client demand, a significant number of the public are willing to pay for the access provided by commercial businesses and guides. The Refuge provides excellent populations of watchable wildlife including manatees, in a wild and scenic setting. It is expected that demand for mass transportation to the refuge would continue to increase.

**Availability of Resources:** Resources involved in the administration and management of the use includes personnel time associated with administration and law enforcement. Existing staffing and funding are adequate to support these activities. Additional staff costs are incurred to review requests, analyze affected habitats and wildlife, coordinate with the outside entity, and process a permit if necessary. Compliance with the terms of the permit is within the regular duties of the Refuge's federal wildlife officers.

Minimal costs are associated with these uses to monitor consequences of public having access to the refuge, such as degree of littering and vandalism. Plants and wildlife will be monitored to determine any impacts as a result of public use.

The Refuge does not collect fees from visitors and does not receive funding from the City of Crystal River or Southwest Florida Water Management District to offset management expenses or for site development. The Refuge may propose an entrance fee in the future, which would assist in the administration of this use.

**Anticipated Impacts of the Use:** Disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole, 1991). Flight in response to disturbance can lower nesting productivity and cause disease and death. Hammitt and Cole (1998) conclude that the frequent presence of humans in "wildland" areas can dramatically change the normal behavior of wildlife mostly through "unintentional harassment." Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young are more likely to flee from a disturbance than those without young. Several studies have examined the effects of recreationists on birds using shallow-water habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the eastern United States (Burger 1981; Burger 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers & Smith 1995, 1997; Burger & Gochfeld 1998). Overall, the existing research clearly demonstrates that disturbance from recreation activities always has at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers & Smith 1997; Burger & Gochfeld 1998).

The following anticipated impacts of this use relates only to impacts from visitors while on land-based trails, facilities, and structures.

Land-based commercial services can result in positive or negative impacts to the wildlife resource. A positive effect of allowing visitor's access to the Refuge would be the provision of additional wildlife-dependent recreational opportunities and a better appreciation and more complete understanding of manatees, wildlife, and habitats associated with the ecosystem. Each application would be evaluated on its own merit and stipulations would be adapted to individual requests to minimize impacts to vegetation and wildlife and ensure that the use is consistent with goals of the Refuge and the NWRS. Disturbance of Refuge resources is the primary concern regarding commercially guided activities for wildlife observation.

Facilities most utilized by Refuge visitors accessing the refuge through commercial services are roads, boardwalk, parking lots, and trails. Maintenance or improvement of these facilities would

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cause negligible short-term impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation. Impacts from the construction of facilities (e.g. environmental education center) for visitor services programs that would accommodate commercial services are expected to be short-term.

Land-based commercial services are expected to have negligible adverse short-term, long-term, or cumulative impacts on local or regional air and water quality. Localized increases in emissions from visitor's vehicles would be reduced due to visitors using the commercial transportation services. We do not expect emissions from vehicles to substantially affect the water quality of the region due to the low level of use authorized.

Land-based commercial services are expected to have negligible adverse short-term, long-term, or cumulative impacts on soils and vegetation. Some short-term disturbances to vegetation would occur during the construction of new trails, boardwalks, and informational kiosks to facilitate wildlife observation/photography activities. No known cultural resources are on TSS so impacts are not anticipated. However, the Refuge would restore disturbed areas not included in visitor infrastructure to native vegetation, which would minimize any long-term impacts. Further, the Refuge Manager would evaluate potential disturbance to all listed species before any new infrastructure is added to the Refuge.

Commercial services may conflict with other Refuge users, including commercial or non-commercial tours that would likely use the same areas as independent wildlife viewers during open seasons. Unregulated or inadequately regulated commercial services may adversely affect the safety of other refuge users, the quality of their experience, and the equity of opportunity. The Refuge's visitor use programs would be adjusted as needed to eliminate or minimize each conflict and provide quality wildlife dependent recreational opportunities.

**Determination (check one below):**

☐ Use is Not Compatible

☒ Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** Stipulations would be defined in the SUPs issued for land-based commercial services. Impacts of commercial services for wildlife observation would continue to be assessed and adjustments made to the program to prevent conflicts to wildlife, habitats, and other Refuge users. Law enforcement and administrative monitoring of permit holders will continue for compliance with the following conditions, which are incorporated into all permits to minimize impacts on refuge lands and resources:

**Special Conditions for Land Access Special Use Permit Holder**

- 1) No water access from land into TSS. Visitor access is limited to the boardwalk, treatment wetlands and existing visitor access road and trails.
- 2) SUP holder must provide adequate off-site ADA compliant parking and restroom facilities; ADA compliant buses/shuttles and licensed drivers. Vendor must keep all facilities clean, neat and organized during hours of operation.
- 3) The SUP holder will be required to verify the following insurance coverage:

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(a) Worker's Compensation: The SUP holder shall comply with the provisions of the Workmen's Compensation Act of the State of FL during the term of the SUP, including extensions or renewals thereof.

(b) Liability Insurance: The SUP or shall procure and maintain during the term of this SUP and any extension thereof liability insurance furnished by an insurance company that is acceptable by the FWS. The named insured parties under the policy shall be the SUP or, the Department of the Interior U.S. Fish and Wildlife Service, Southwest Florida Water Management District and City of Crystal River. The amounts of the insurance shall be not less than as follows:

\$300,000 each person\*

\$300,000 each occurrence\*

\$500,000 property damage\*

The insurance policy or policies must specify that the insurer has no recourse against the Department of the Interior and the Service, Southwest Florida Water Management District, and City of Crystal River for claim expenses, payments of any premiums, or deductibles due. All listed parties will not be responsible for any omissions or inadequacies of insurance coverage and amounts if the insurance purchased by the SUP holder is inadequate or otherwise insufficient.

- 4) SUP holder is responsible for compliance of all City, County, State, and Federal requirements as it relates to this public access operation including city business license and taxes.
- 5) SUP holder is responsible for ensuring safety of shuttles/buses, restroom facilities, the boardwalk including removal of litter and remediation of tripping hazards; and protocols for lost and found visitor items.
- 6) SUP holder is responsible for reporting any major safety hazards or issues to Refuge Manager immediately.
- 7) All areas on the property, except for the toilets, loading area, access roads, trails, and boardwalk are strictly off-limits. Restroom access will be marked and readily understood.
- 8) Children under the age of 16 must be under adult supervision at all times.
- 9) Any visitors in violation of Refuge regulations will be immediately reported to USFWS law enforcement personnel. The SUP holder is not expected to enforce Refuge regulations outside of these SUP conditions (e.g. no access to water from land, etc).
- 10) Any accidents or injuries will be immediately reported to USFWS law enforcement personnel or Refuge management.
- 11) SUP holder must indemnify, save, and hold harmless the Department of the Interior, the Service, Southwest Florida Water Management District, City of Crystal River and its agents and employees from any and all liabilities, obligations, losses, damages, judgments, claims, actions, suits, penalties, fines, costs, and expenses (including reasonable attorneys' fees and experts' fees) of any kind and nature arising out of acts or omissions of its employees, agents, and contractors (including any contractors' subcontractors). This includes

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injury to people (including injury resulting in death) and damage to property in connection with activities under this agreement.

For activities or events which are authorized or hosted by The Department of the Interior, the Service, the Southwest Florida Water Management District, and the City of Crystal River which are not part of the SUP holder's domain, these parties must indemnify, save, and hold harmless the SUP holder and its agents and employees from any and all liabilities, obligations, losses, damages, judgments, claims, actions, suits, penalties, fines, costs, and expenses (including reasonable attorneys' fees and experts' fees) of any kind and nature arising out of acts or omissions of its employees, agents, and contractors (including any contractors' subcontractors). This includes injury to people (including injury resulting in death) and damage to property in connection with activities under this agreement. This includes, but is not limited to, Refuge Open House events, special trips with guests, staff's day-to-day work on site, in-house tours or events, volunteers on duty and special education groups scheduled by the Service (e.g. Boy/Girl Scouts, school programs, etc.).

12) SUP holder must promptly pay the Service the full value of all damages to the lands or other property of the Service caused by SUP holder, its employees, agents, representatives, or contractors (including any contractors' subcontractors) or, as agreed to by the parties, must work to repair or replace the damaged lands or property.

13) SUP holder will cooperate with the Service in the investigation of any claim that may be filed with the Service because of the activities of the SUP holder, its employees, agents, representatives, or contractors (including any contractors' subcontractors).

The Service will cooperate with the SUP holder in the investigation of any claim that may be filed with the SUP holder because of the activities of the Service, its employees, agents, representatives, or contractors (including any contractors' subcontractors).

14) SUP holder will meet weekly, or as needed, with USFWS representatives and provide Refuge specific monthly visitation information including but not limited to number of visitors; revenues; costs; and other related administration information.

15) If SUP holder has requests for special event trips outside of or with the daily operations, it will require coordination and approval by USFWS.

16) The U.S. Fish and Wildlife Service will continue to provide daily access to volunteers on duty and special education groups scheduled by the Service (e.g. Boy/Girl Scouts, school programs, etc.).

17) SUP holder will use radio communications between the trolley/bus driver and boardwalk volunteers to notify visitors when the trolley is on site for pick up instead of blowing a horn. This will reduce noise disturbance of manatees utilizing the springs.

**Justification:** Allowing land-based commercial services on the Refuge would not materially interfere with the purposes of the Refuge or the mission of the NWRS because:

(1) Existing federal and state agency oversight and regulation of affected species and habitat is sufficient to ensure healthy populations. Disturbance to fish and wildlife would be local, short-term, and not adversely impact overall populations.

(2) There are adequate state and federal enforcement officials to enforce state and federal regulations.

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(6) Administrative (application) fees would help offset costs to administer and provide oversight to this use. The addition of a future recreational fee for Refuge visitors also would assist in the administration of this use.

This activity would not materially interfere with, or detract from, the mission of the NWRS or purposes for which the Refuge was established and is based on sound professional judgement and best available science. In addition, this activity would fulfill one or more purposes of the Refuge or NWRS.

**NEPA Compliance for Refuge Use Description:** *Place an X in appropriate space.*

\_\_\_\_\_ Categorical Exclusion without Environmental Action Statement

\_\_\_\_\_ Categorical Exclusion and Environmental Action Statement

  X   Environmental Assessment and Finding of No Significant Impact

\_\_\_\_\_ Environmental Impact Statement and Record of Decision

**Mandatory 10-year Re-evaluation Date:**

**References:**

Burger, J. 1981. Effect of human activity on birds at a coastal bay. *Biol. Conserv.* 21:231-241.

Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. *Biological Conservation* 13:123-130.

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Rodgers, J. A., and H. T. Smith. 1995. Set-back distances to protect nesting bird colonies from human disturbance in Florida. Conservation Biology 9:89-99.

Rodgers, J. A., and H. T. Smith. 1997. Buffer zone distances to protect foraging and loafing waterbirds from human disturbance in Florida. Wildlife Society Bulletin 25:139-145.

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**Use:** Commercial wildlife and nature photography, filming, and other art forms from land

**Supporting Uses and Associated Facilities, Structures, and Improvement as Appropriate:**

Walking, hiking, jogging, bicycle use, picnicking, motorized vehicle use for mobility-impaired access, construction of environmental education center, boardwalk, improvement of trails, and installation of interpretive panels and observation platforms.

**Description of Use:**

**(a) What is the use? Is the use a priority public use?** The use is land-based commercial photography, either still or motion pictures, of wildlife, or nature scenes for conservation uses or other art forms including but not limited to painting and sketching. This use typically involves creating a documentary film, taking still photographs, or recording wildlife sounds that are intended to be or could be sold for income or revenue or traded for goods or services. Commercial recording of natural, historic, or cultural subjects are covered under this compatibility determination (CD). Commercial wildlife and nature photography, filming, and other art forms are not a priority public use of the National Wildlife Refuge System (NWRS) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997. Commercial photography can contribute to the fulfillment of the refuge purpose and to the NWRS mission by facilitating priority and/or compatible public uses.

**(b) Where would the use be conducted?** This use would be conducted on established roads and trails on the 57-acre Unit.

**(c) When would the use be conducted?** The use would be conducted at specified times agreed upon in the special use permit (SUP). The Refuge Unit is open to the public, year-round, from 8am to 5pm.

**(d) How would the use be conducted?** Each request for this use would be considered, and if appropriate, the Refuge Manager would decide if the proposed use could be administered with existing resources before issuing an SUP to allow the use. Each request must be presented in writing with details of who, what, where, when, why, and how the commercial operation would be conducted. Each request would be evaluated on its own merit. The Refuge Manager would use professional judgment and ensure that the request would have no considerable negative impacts to natural, cultural, or visitor services, does not violate refuge regulations, and contributes to the achievement of the Refuge purpose or the NWRS mission. Special needs would be considered on a case-by-case basis and are subject to the Refuge Manager's approval. All SUPs will outline the framework in which the use can be conducted and Refuge staff would ensure compliance with the permit.

**(e) Why is the use being proposed?** Commercial photography is frequently requested on the Refuge due to the scenic natural habitats and abundant wildlife in the area. Photographers and videographers are particularly interested in capturing manatees on film during the winter months in the springs. The Refuge staff anticipates that an increase in commercial photography would occur over the next few years as the Refuge gains visibility and areas of natural habitat in the surrounding area decrease.

**Availability of Resources:** Permitting this use is within the resources available to administer by the visitor services program. Additional staff costs are incurred to review each request, analyze affected habitats and wildlife, coordinate with the outside entity, and process a SUP, if necessary. Compliance with the terms of the SUP is within the regular duties of the Refuge's law enforcement

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officer. Additionally, costs may be assumed by the requestor as appropriate given the level of oversight needed. The Service requires the permittee to offset any cost incurred by the Refuge. This will be determined on a case-by-case basis. The offsetting cost should always be equal to the Refuge incurred cost and would come to the Refuge in the form of fees paid by the commercial media permittee. These fees should at least equal our cost to administer the use, including any costs associated with facilities, equipment, supplies, and services.

The Refuge does not collect fees from visitors and does not receive funding from the City of Crystal River or Southwest Florida Water Management District to offset management expenses or site development. The Refuge may propose an entrance fee in the future, which would assist in the administration of this use.

**Anticipated Impacts of the Use:** Commercial wildlife and nature filming and photography can impact wildlife resources. Visitors engaging in commercial photography are required to use and stay on established trails or roads to access the interior of the Refuge. To minimize disturbance to natural resources and ensure public safety, the Refuge has implemented restrictions on public entry such as closed areas, seasonally restricted areas, and daily hour restrictions. Facilities most utilized by Refuge visitors engaging in commercial photography are boardwalk, roads, parking lots, and trails. Maintenance or improvement of these facilities would cause negligible to short-term minor impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation. Commercial filming and photography, as with other uses, has the potential to disrupt cultural resources. Refuge visitors may inadvertently or even intentionally damage or disturb known or undiscovered cultural artifacts or historic properties. Impacts are expected to be negligible based on our observations of past visitor impacts from these uses.

Wildlife photography can negatively impact wildlife by altering wildlife behavior, reproduction, distribution, and habitat (Purdy et al 1987, Knight and Cole 1995). Of the wildlife observation techniques, photographers tend to have the largest disturbance impacts (Klein 1993, Morton 1995, Dobb 1998). While wildlife observers frequently stop to view species, wildlife photographers are more likely to approach wildlife (Klein 1993). Even a slow approach by photographers tends to have behavioral consequences to wildlife species (Klein 1993). Other impacts include the potential for photographers to remain close to wildlife for extended periods of time, in an attempt to habituate the wildlife subject to their presence (Dobb 1998) and the tendency of casual photographers, with low power lenses, to get much closer to their subjects than other activities would require (Morton 1995), including wandering off trails. This usually results in increased disturbance to wildlife and habitat, including trampling of plants. Large commercial activities could also interfere with priority public uses.

Special use permit conditions and associated monitoring of permitted activities would be designed to minimize wildlife and habitat impacts of this use. Some requests may require further analysis of the impacts of the proposed activity, which may also require additional compliance with the National Environmental Policy Act (NEPA) and consultation under any relevant laws.

**Determination (Check One Below):**

☐ Use is not compatible

☒ Use is compatible, with the following stipulations

**Stipulations Necessary to Ensure Compatibility:** Each request must comply with 43 CFR Part 5, Public Law 106-206 of May 2000, 8 RM 16 (Refuge Manual). To ensure compatibility with the NWRS and refuge goals and objectives and to minimize or exclude adverse impacts as described above, the activity will be subject to the following stipulations:



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1. Permittee shall provide a detailed description of photography and filming plans including site specific location, support equipment, number of persons involved, client name, story board describing themes and key messaging, and other details that would allow for evaluation of the project.
  2. Permittee(s), designated representative, and associates will comply with all refuge regulations and conditions of the SUP as provided by the refuge manager. The SUP will detail who, what, where, when, why, and how the commercial operation will be conducted.
  3. Alterations to any vegetation are prohibited.
  4. Permittee will be required to minimize potential impacts to refuge visitors and natural and/or cultural resources within the refuge.
  5. Permittee is responsible for acquiring and/or renewing any necessary state and federal permits prior to beginning or continuing their project.
  6. The refuge manager or designee can suspend the project, modify conditions, and/or terminate the project that is already permitted and in progress should unacceptable, unforeseen, or unexpected impacts or issues arise or be noted.
  7. Proper credit should be given to the refuge and the U.S. Fish and Wildlife Service for all commercial filming, including commercial recordings of images and sounds collected on the refuge. Photos must be credited or watermarked with permit number.
  8. Permittee will clean up all sites of trash and litter to the satisfaction of the refuge manager.
  9. Permittee will provide the U.S. Fish and Wildlife Service with at least one free copy of all commercial products generated on the refuge.
  10. Permittee will not capture or retain wildlife without specific written permission from the Service as well as having all required permits.
  11. Permittees are required to keep a copy of the SUP on site at all times.
  12. Permittees and their designees are subject to all applicable Federal, State, and local regulations and will ensure compliance with these regulations.
  13. All activities are prohibited on the Unit between 5PM and 8AM year round.
  14. Prior to photography, filming, or associated activities, permittees and their designees are required to review regulatory prohibitions.
  15. A 15 minutes meeting with the Visitor Services Specialist is required to receive the SUP in person, receive a vest, and discuss updated information regarding regulations associated to the permit holder.
  16. Permittee will notify the Crystal River NWR Refuge Manager or Visitor Services Specialist within 24 hours of filming and associated activities for each day of filming or associated

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activities. For activities occurring on federal holidays and/or the weekends, the permittee will notify the Crystal River NWR Refuge Manager on the last federal workday before the holiday or weekend.

17. Permittee will provide the Crystal River NWR Refuge Manager with a copy of the final results/product of this project within 180 days of development of the product(s).
18. At no time will the permittee, designees, or film crew enter any designated closed areas.
19. The permittee, designee, and/or film crew will not impede or prohibit visitor use within the Unit during filming or associated activities.
20. The permittee acknowledges and agrees that the SUP does not give the permittee or its designee exclusive use or access to any site, facility, or wildlife.
21. The Service is not responsible for any mishaps or injuries that may occur during filming and associated activities. The permittee acknowledges and agrees to provide appropriate safety equipment and caution all people participating in the filming/photographic and associated activities about the hazards likely to be encountered on Crystal River NWR managed lands.
22. Indemnification: The permittee shall save, hold harmless, defend and indemnify the United States of America, its agents, and employees for losses, damages, or judgments and expenses on account of fire or other peril, bodily injury, death, or property damage, or claims for bodily injury, death, or property damage of any nature whatsoever, and by whomsoever made, arising out of the activities of the permittee, its employees, subcontractors, or agents under this SUP.
23. The permittee shall purchase at a minimum the types and amounts of insurance coverage as stated herein and agrees to comply with any revised insurance limits that the Crystal River NWR Refuge Manager may require during the term of this SUP.
24. Upon request of the Crystal River NWR Refuge Manager, the permittee shall provide a Statement of Insurance and Certificate of Insurance.
25. The U.S. Fish and Wildlife Service will not be responsible for any omissions or inadequacies of insurance coverages and amounts if such prove to be inadequate or otherwise insufficient for any reason whatsoever.
26. Public Liability. The permittee shall provide comprehensive general liability insurance against claims occasioned by actions or omissions of the permittee or its designees in carrying out the activities and operations authorized hereunder. Such insurance shall be in the amount commensurate with the degree of risk and the scope and size of such activities authorized herein, but in any event, the limits of liability shall not be less than (\$300,000) per occurrence covering both bodily injury and property damage. If claims reduce available insurance below the required per occurrence limits, the permittee shall obtain additional insurance to restore the required limits. An umbrella or excess liability policy, in addition to a comprehensive general liability policy, may be used to achieve the required limits.

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27. All liability policies shall specify that the insurance company shall have no right of subrogation against the United States of America or shall provide that the United States of America is named an additional insured.
28. The permittee agrees that the U.S. Fish and Wildlife Service does not take any responsibility or liability for the security, loss, damage, or otherwise of any vehicle, machinery, equipment, or other goods or property owned by, or under the control of, the permittee.
29. The permittee agrees to:
- remove all equipment and completely clear and clean each location of any materials brought to the site upon leaving a site each day;
  - not erect any facilities or structures, whether temporary or permanent, without written approval of the Crystal River NWR Refuge Manager;
  - not clear, trim, cut, or disturb vegetation.
30. The permittee acknowledges that supervision by U.S. Fish and Wildlife Service staff may be required during any photography, filming, or associated activities.
31. Any footage used from Crystal River NWR must include a credit, acknowledgement, or caption acknowledging the U.S. Fish and Wildlife Service: "Filmed on location at Crystal River National Wildlife Refuge, Crystal River, Florida courtesy of the U.S. Fish and Wildlife Service."
32. Failure to comply with all SUP conditions may result in the suspension or cancellation of a SUP, including the possible loss of future SUP privileges at the discretion of the Refuge Manager.
33. The refuge shall also collect any costs incurred by the refuge as a result of photography activities, including but not limited to administrative, security and personnel costs. All costs recovered shall be in addition to any use fee.

**Justification:** Commercial filming and photography has the potential to inspire and educate the public about the NWRS, natural habitats, and wildlife. Wildlife photography is a priority wildlife-dependent use for the NWRS through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and The National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57)). The Service's policy is to provide expanded opportunities for wildlife-dependent uses when compatible and consistent with sound fish and wildlife management, ensuring that they receive enhanced attention during planning and management.

Specific Refuge regulations address equity and quality of opportunities for visitors and help safeguard wildlife habitats. Impacts from this proposal, short-term and long-term, direct, indirect, and cumulative, are expected to be minor and are not expected to diminish the value of the Refuge for its stated objectives.

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Stipulations above would ensure proper control of the use and provide management flexibility should detrimental impacts develop. Allowing this use also furthers the mission of the NWRS by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the Refuge.

Commercial filming and photography is considered an economic use of a national wildlife refuge and is guided by the following policies:

16USC668dd, 50 CFR 27.71, Commercial filming and still photography and audio recording.

The taking or filming of any motion or sound pictures on a national wildlife refuge for subsequent commercial use is prohibited except as may be authorized under the provisions of 43 CFR part 5.

16USC668dd, 50 CFR 27.97, Private Operations

Soliciting business or conducting a commercial enterprise on any national wildlife refuge is prohibited except as may be authorized by special permit.

16USC668dd, 50 CFR 27.86, Begging

Begging on any national wildlife refuge is prohibited. Soliciting of funds for the support or assistance of any cause or organization is also prohibited unless properly authorized.

16USC668dd, 50 CFR, Subpart A, 29.1 Allowing Economic Uses on National Wildlife Refuges

Public or private economic use of the natural resources of any national wildlife refuge may only be authorized, in accordance with 16 U.S.C. 715s, when determined that the use contributes to the achievement of the Refuge purposes or the NWRS mission.

8 RM 16, Audio Visual Productions

5 RM 17, Commercial and Economic Uses on National Wildlife Refuges

43 CFR Part 5, Making Pictures, Television Productions or Sound Tracks on Certain Areas Under the

Jurisdiction of the Department of the Interior

Public Law 106-206, Commercial Filming

These activities would not materially interfere with, or detract from, the mission of the NWRS or purposes for which the Refuge was established and is based on sound professional judgement and best available science. In addition, these activities would fulfill one or more purposes of the Refuge or the NWRS. A SUP would be issued for each commercial operation and special conditions would be determined on an individual bases.

**NEPA Compliance for Refuge Use Description:** *Place an X in appropriate space.*

- ☐ Categorical Exclusion without Environmental Action Statement
- ☐ Categorical Exclusion and Environmental Action Statement
- ☒ Environmental Assessment and Finding of No Significant Impact
- ☐ Environmental Impact Statement and Record of Decision

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**Mandatory 10-year Re-evaluation Date:**

**References:**

Knight, R.L. and D.N. Cole. 1995. Wildlife response to recreationists. Pages 71-79 in R.L. Knight and K.J. Gutzwiller, eds., *Wildlife and Recreationists: Coexistence through Management and Research*. Island Press, Washington, D.C. 372 pp.

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Purdy, K.G., G.R. Goft, O.J. Decker, G.A. Pomerantz, and N.A. Connelly. 1987. A guide to managing human activity on National Wildlife Refuges. Office of Information Transfer, U.S. Fish and Wildlife Service, Ft. Collins, CO. 57 pp.

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**Use:** Bicycling use on main access road and designated trails

**Supporting Uses: Supporting Uses and Associated Facilities, Structures, and Improvement as Appropriate:** Road and trail improvements

**Description of Use:**

**(a) What is the use? Is the use a priority public use?** Recreational bicycling as a mode of transportation facilitates travel and access to the Refuge for priority public uses.

**(b) Where would the use be conducted?** Bicycle use would be permitted on the entrance road for access and on designated trails of the TSS Unit.

**(c) When would the use be conducted?** Bicycle use would be permitted daily from 8am to 5pm year round.

**(d) How would the use be conducted?** Access to the refuge is open every day; however, certain portions of the Refuge may be closed to access by the public for purposes of management activities. In addition, entry may be temporarily suspended by posting upon occasions of unusual or critical conditions affecting land, water, vegetation, wildlife populations, or public safety.

**(e) Why is the use being proposed?** Bicycling as a lone activity is not identified as a priority public use of the NWRS under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Bicycles are considered legal modes of transportation on local state and county roads. Like walking, bicycling can be used as transportation to wildlife observation and photography areas. Increasing numbers of visitors are using bicycles on the Refuge as a form of exercise.

**Availability of Resources:** Maintenance, periodic upgrades, and improvements to public use facilities and roads would continue to be a major component of Refuge activities.

The human resources to conduct a successful public use program would be provided by staff, volunteers, and partners. The Service would have to provide upgraded facilities and require a significant commitment in staff to be able to provide bicycling opportunities. To date, annual requirements in time, materials and supplies needed to manage and ensure the success of this area have been from within existing Refuge resources.

The Refuge does not collect fees from visitors and does not receive funding from the City of Crystal River or Southwest Florida Water Management District to offset management expenses or site development. The Refuge may propose an entrance fee in the future, which would assist in the administration of this use.

**Anticipated Impacts of the Use:** Disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole, 1991). Flight in response to disturbance can lower nesting productivity and cause disease and death. Hammitt and Cole (1998) conclude that the frequent presence of humans in “wildland” areas can dramatically change the normal behavior of wildlife mostly through “unintentional harassment.” Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young (such as white-tailed deer) are more likely to flee from a disturbance than those without young. Several

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studies have examined the effects of recreationists on birds using shallow-water habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the eastern United States (Burger 1981; Burger 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers & Smith 1995, 1997; Burger & Gochfeld 1998). Overall, the existing research clearly demonstrates that disturbance from recreation activities always have at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers & Smith 1997; Burger & Gochfeld 1998). The findings that were reported in these studies are summarized as follows in terms of visitor activity and avian response to disturbance.

*Presence:* Birds avoided places where people were present and when visitor activity was high (Burger 1981; Klein et al. 1995; Burger & Gochfeld 1998).

*Distance:* Disturbance increased with decreased distance between visitors and species (Burger 1986), though exact measurements were not reported. *Approach Angle:* Visitors directly approaching birds on foot caused more disturbance than visitors driving by in vehicles, stopping vehicles near birds, and stopping vehicles and getting out without approaching birds (Klein 1993). Direct approaches may also cause greater disturbance than tangential approaches to birds (Burger & Gochfeld 1981; Burger et al. 1995; Knight & Cole 1995a; Rodgers & Smith 1995, 1997).

*Type and Speed of Activity:* Joggers and landscapers caused birds to flush more than fishermen, sunbathers, and some pedestrians, possibly because the former groups move quickly (joggers) or create more noise (landscapers). The latter groups tend to move more slowly or stay in one place for longer periods, and thus birds likely perceive these activities as less threatening (Burger 1981, 1986; Burger et al. 1995; Knight and Cole 1995a). Alternatively, birds may tolerate passing by with unabated speed whereas if the activity stops or slacks birds may flush (Burger et al. 1995).

*Noise:* Noise caused by visitors resulted in increased levels of disturbance (Burger 1986; Klein 1993; Burger & Gochfeld 1998), though noise was not correlated with visitor group size (Burger & Gochfeld 1998). Unpublished refuge data suggests loud noises associated with wildlife observation, photography, environmental education, and interpretation on the boardwalk may disturb manatees using the springs.

In determining compatibility, the cumulative effects of all public use on the Unit are considered. Due to the limitations, (e.g. only allowed on designated roads and trails) put on this activity; bicycle use is not expected to greatly increase the disturbance to wildlife. Mountain bike activities, off-trail, would be prohibited.

**Determination (check one below):**

☐ Use is Not Compatible

☒ Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** Bicycling would occur only in designated areas specifically developed to prevent the erosion and degradation of wetlands or water quality and ensure public safety. Bicycles would not be allowed in areas or along trails if there are safety issues or wildlife disturbance issues. Bicycles would be allowed for wildlife observation. Mountain biking activities and use of bicycles to go cross-country or off designated trails would be prohibited. Bicycle riding as a general mode of transportation would be allowed on roads open to motor vehicles.

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Organized rides and club rides involving more than 10 bicycles would be required to obtain a SUP as these large groups may require greater management to prevent negative interactions with other public users and wildlife. Motorized vehicle speeds on roadways shared by bicycles would be limited to no higher than 15 mph within the TSS Unit.

Visitors are also encouraged to refrain from making loud noises while on the boardwalk and from sounding vehicle horns near the boardwalk.

**Justification:** Hunting, fishing wildlife observation and photography, and environmental education and interpretation are the six priority public uses of the Refuge System, and have been determined to be compatible activities on many refuges nationwide. The Refuge System Improvement Act of 1997 instructs refuge managers to seek ways to accommodate those six uses. Bicycling is allowed as a means to facilitate these priority public uses. Bicycling activities will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established and is based on sound professional judgement and best available science. Bicycling will not pose significant adverse effects on refuge resources; interfere with public use of the refuge; nor cause an undue administrative burden.

**NEPA Compliance for Refuge Use Description:** *Place an X in appropriate space.*

☐ Categorical Exclusion without Environmental Action Statement  
☐ Categorical Exclusion and Environmental Action Statement  
☒ Environmental Assessment and Finding of No Significant Impact  
☐ Environmental Impact Statement and Record of Decision

**Mandatory 10-year Re-evaluation Date:**

**References:**

- Burger, J. 1981. Effect of human activity on birds at a coastal bay. *Biol. Conserv.* 21:231-241.
- Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. *Biological Conservation* 13:123-130.
- Burger, J. 1987. New Jersey Endangered Beach-Nesting Bird Project: 1986 Research. Unpublished report. New Jersey Department of Environmental Protection, New Jersey. 37 pp.
- Burger, J., and M. Gochfeld. 1981. Discrimination of the threat of direct versus tangential approach to the nest by incubating herring and great black-backed gulls. *J. Comparative Physiological Psychology* 95:676-684.
- Burger, J., M. Gochfeld, and L. J. Niles. 1995. Ecotourism and birds in coastal New Jersey: Contrasting responses of birds, tourists, and managers. *Environmental Conservation* 22:56-65.
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- Hammit, W. E. and D.N. Cole. 1998. *Wildland Recreation*. John Wiley & Sons, New York, 361pp.
- Klein, M. L. 1993. Waterbird behavioral responses to human disturbance. *Wildl. Soc. Bull.* 21:31-39.



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Klein, M. L., S. R. Humphrey, and H. F. Percival. 1995. Effects of ecotourism on distribution of waterbirds in a wildlife refuge. *Conservation Biology* 9:1454-1465.

Knight, R.L. and D. N. Cole. 1991. Effects of recreational activity on wildlife in wildlands. *Trans. 56th N.A. Wildl. & Nat. Res. Conf.* Pages 238-247.

Knight R. L. and D. N. Cole. 1995. Wildlife responses to recreationists. Pages 51-69 in R.L. Knight and D.N. Cole, editors. *Wildlife and recreationists: coexistence through management and research*. Washington, D.C., Island Press. Knight, R. L., and K. J. Gutzwiller eds. 1995. *Wildlife and recreationalists: coexistence through management and research*. Island Press, Washington, D.C. 372 pp.

Rodgers, J. A., and H. T. Smith. 1995. Set-back distances to protect nesting bird colonies from human disturbance in Florida. *Conservation Biology* 9:89-99.

Rodgers, J. A., and H. T. Smith. 1997. Buffer zone distances to protect foraging and loafing waterbirds from human disturbance in Florida. *Wildlife Society Bulletin* 25:139-145.

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## Approval of Compatibility Determinations

The signature of approval is for all compatibility determinations considered within the Environmental Assessment for Crystal River National Wildlife Refuge. If one of the descriptive uses is considered for compatibility outside of the comprehensive conservation plan, the approval signature becomes part of that determination.

Refuge Manager: \_\_\_\_\_  
(Signature/Date)

Regional Compatibility  
Coordinator: \_\_\_\_\_  
(Signature/Date)

Refuge Supervisor: \_\_\_\_\_  
(Signature/Date)

Regional Chief, National  
Wildlife Refuge System,  
Southeast Region: \_\_\_\_\_  
(Signature/Date)

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## Appendix D. Section 7 Evaluation

### INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

**Originating Person:** Joyce Palmer

**Telephone Number:** 352 563-2088 x. 202; Cell 352-436-7156

**E-mail Address:** [Joyce\\_Palmer@fws.gov](mailto:Joyce_Palmer@fws.gov)

**Date:** May 1, 2017

**I. Region:** Region 4 (Southeast)

**II. Service Activity (Program):** National Wildlife Refuge System

**III. Geographic area or station name:** Crystal River National Wildlife Refuge (NWR)

**IV. Location:** Three Sisters Springs

**A. Ecoregion Number and Name:** 32-North Florida Ecosystem

**B. County and State:** Citrus County, Florida

**C. Section, township, and range (or latitude and longitude):** Section 28, Township 18S, Range 17E; Latitude: 28.88872533, Longitude: -82.58919102

**D. Distance (miles) and direction to nearest town:**

Within City of Crystal River city limits (Figure 1)

**V. Action Area:** Three Sisters Springs Upland Unit of Crystal River NWR (Figure 2)

Three Sisters Springs (57 acres) is located at the eastern edge of Kings Bay, the headwaters of the Crystal River, and is within the City of Crystal River, Citrus County, Florida. It is bounded to the north by SE Kings Bay Drive with private residences on the other side of the road, to the east by Three Sisters Springs Trail with commercial development on the other side of the road, and to the south and west by dredged large navigational canals with private residences on the other sides of the canals. Three natural, small, second-order magnitude warm water springs are located in the south central portion of the property.

**VI. Pertinent Species and Habitat:**

**A. Listed species potentially present within the action area:**

- 1) Wood stork (*Mycteria americana*)
- 2) American alligator (*Alligator mississippiensis*)
- 3) Florida manatee (*Trichechus manatus latirostris*)
- 4) Eastern indigo snake (*Drymarchon couperi*)

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**B. Proposed species and/or proposed critical habitat within the action area:**

Wood storks and American alligators may be found in the uplands of Three Sisters Springs. Florida manatees are found in the springs, wetlands, and in the canals surrounding Three Sisters Springs.

**C. Candidate species within the action area:**

None

**D. Include species/habitat occurrence on a map:**

Local species/habitat occurrence maps are available for Florida manatees (Figures 3 and 4).

**VII. Species/habitat occurrence:**

Wood storks may be found perched in the trees at Three Sisters Springs and may forage in the springs.

At least one alligator has been seen in Lake Crystal on Three Sisters Springs and it is known to move between Lake Crystal and Magnolia Springs Sanctuary on the west side of the property.

Large numbers of Florida manatees are found wintering in the springs and spring run of Three Sisters Springs (500+) and in the surrounding waters of Kings Bay (600+, including Three Sisters Springs). Smaller numbers of manatees may be found in the Kings Bay area (30-70) during the summer months, with occasional visits to Three Sisters Springs. The site is located within the Kings Bay Manatee Protection Area and manatee sanctuaries are designated adjacent and nearby the site. Approximately 100 manatees may be found in the Magnolia Springs/Gator Hole sanctuary and an additional 100 manatees may be found in the Three Sisters Springs Sanctuary.

Eastern indigo snakes are occasionally associated with human-altered habitats such as Three Sisters Springs. There are no records of the snake on the site.

**VIII. Need for the Proposed Action**

The U.S. Fish and Wildlife Service (Service) proposes to improve the uplands of a unit of Crystal River National Wildlife Refuge called Three Sisters Springs within the city limits of the municipality of Crystal River, Citrus County, Florida. Three Sisters Springs property is owned by the City of Crystal River (City) and the Southwest Florida Water Management District (SWFWMD). The Service is managing the property through a management agreement between the City, SWFWMD, and the Service under a Florida Communities Trust (FCT) Grant Agreement.

The purpose for proposing an action for upland visitor facilities at Three Sisters Springs is to meet the FCT Grant Agreement and the Project Management Plan (PMP), while serving the purposes of Crystal River NWR, which include the primary purpose of conserving threatened and endangered species. The need to propose an action for upland visitor facilities at Three Sisters Springs is to protect wildlife and habitat values associated with the Three Sisters Springs property and associated and adjacent springs, while also providing opportunities for appropriate and compatible wildlife-dependent public use activities in the local community. The Service is also responding to increasing demands for use of and access to the Crystal River NWR and opportunities to view manatees.

**IX. Description of the Proposed Action**

The Proposed Action would develop additional visitor facilities, manatee-viewing areas, improve trails, and improve wildlife habitat and aesthetics of the property. The Proposed Action would develop an on-site environmental education center on the northern half of the property, including a 40-vehicle main parking area; three viewing platforms; a restroom building; a pier; a maintenance shed; and a weather shelter. All of these structures would be tied together with decking and boardwalks for easy accessibility. Additionally, nature trails and pollinator garden would be improved and created.

#### **X. Explanation of Effects of the Action on Species in Section VI:**

- 1) Wood storks may be temporarily displaced from feeding/perching during the construction of facilities on the Three Sisters Springs property. Restoration of littoral shelves within the deep manmade Lake Crystal and the newly created wetland area would provide additional habitat for wood storks. American alligators could be temporarily disturbed from Lake Crystal while the facilities on the Three Sisters Springs Unit are being built. Additional habitat has been created for alligators with the wetland restoration area and the hydric hammock.

##### **A. Explanation of actions to be implemented to reduce adverse effects:**

- 1) Wood storks are usually present during the winter months and construction could occur during the summer months when wood storks are not present to reduce adverse effects. Should construction occur during the winter months, wood storks would be temporarily displaced but could find additional habitat in the wetland restoration area.
- 2) Any disturbance to the alligators on the property would be temporary during the construction of the facilities.

#### **XI. Effect determination and response requested:**

##### **A. Species**

Species	Determination			Response Requested
	No Effect	Not Likely to Adversely Affect	May Affect	Concur
Wood stork		X		
American alligator		X		
Florida manatee		X		
Eastern indigo snake		X		

##### **B. Designated critical habitat**

Species	Determination			Response Requested
	No Effect/ No Adverse Modification	Not Likely to Adversely Affect	May Affect	Concur
Florida Manatees		X		

\_\_\_\_\_  
Signature  
Refuge Manager, Crystal River NWR Complex

\_\_\_\_\_  
Date

**XII. Reviewing ESO Evaluation:**

A. Concurrence \_\_\_\_\_ Non-concurrence \_\_\_\_\_

B. Formal consultation required \_\_\_\_\_

C. Conference required \_\_\_\_\_

D. Informal conference required \_\_\_\_\_

E. Remarks: None

\_\_\_\_\_  
Signature  
Jay Herrington, North Florida Ecological Services Office

\_\_\_\_\_  
Date



Figure 1. Location of Three Sisters Springs Unit of Crystal River National Wildlife Refuge

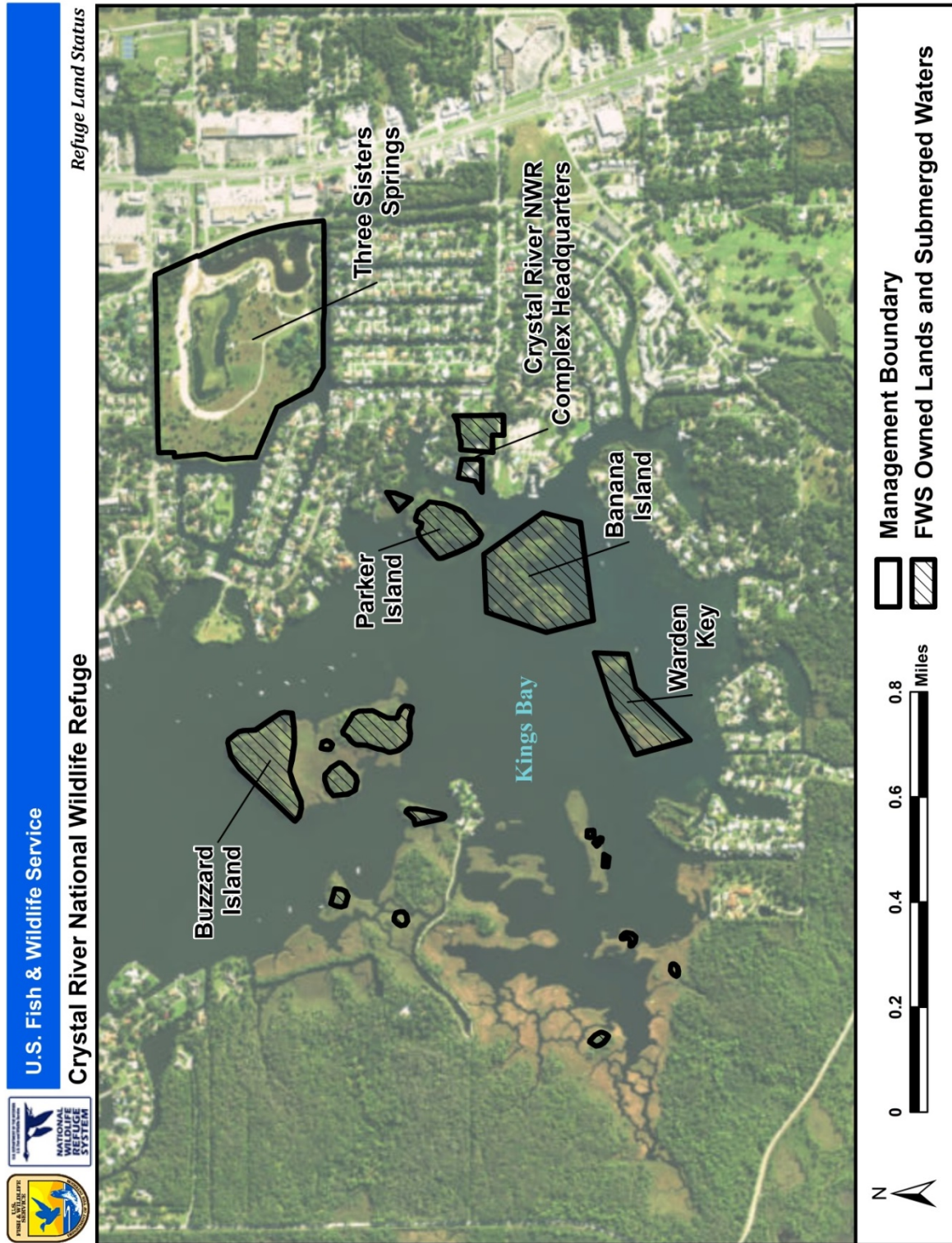




Figure 2. Alternative B: Proposed construction of new or improved existing facilities, infrastructure, and improved habitat conditions (Proposed Alternative).





Figure 3. Florida manatee locations in summer (April-October) 1983-2015 from aerial manatee surveys, Crystal River National Wildlife Refuge.

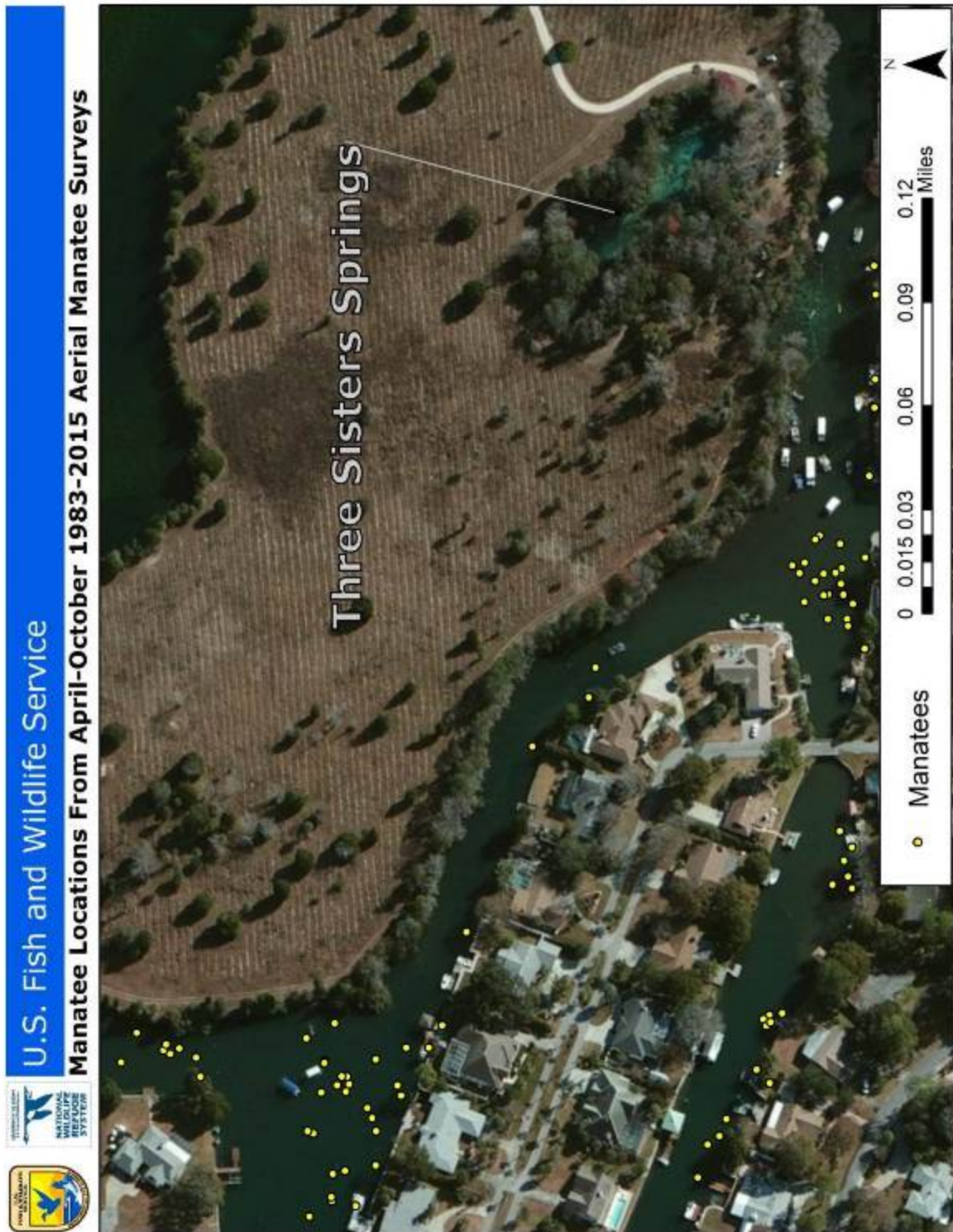
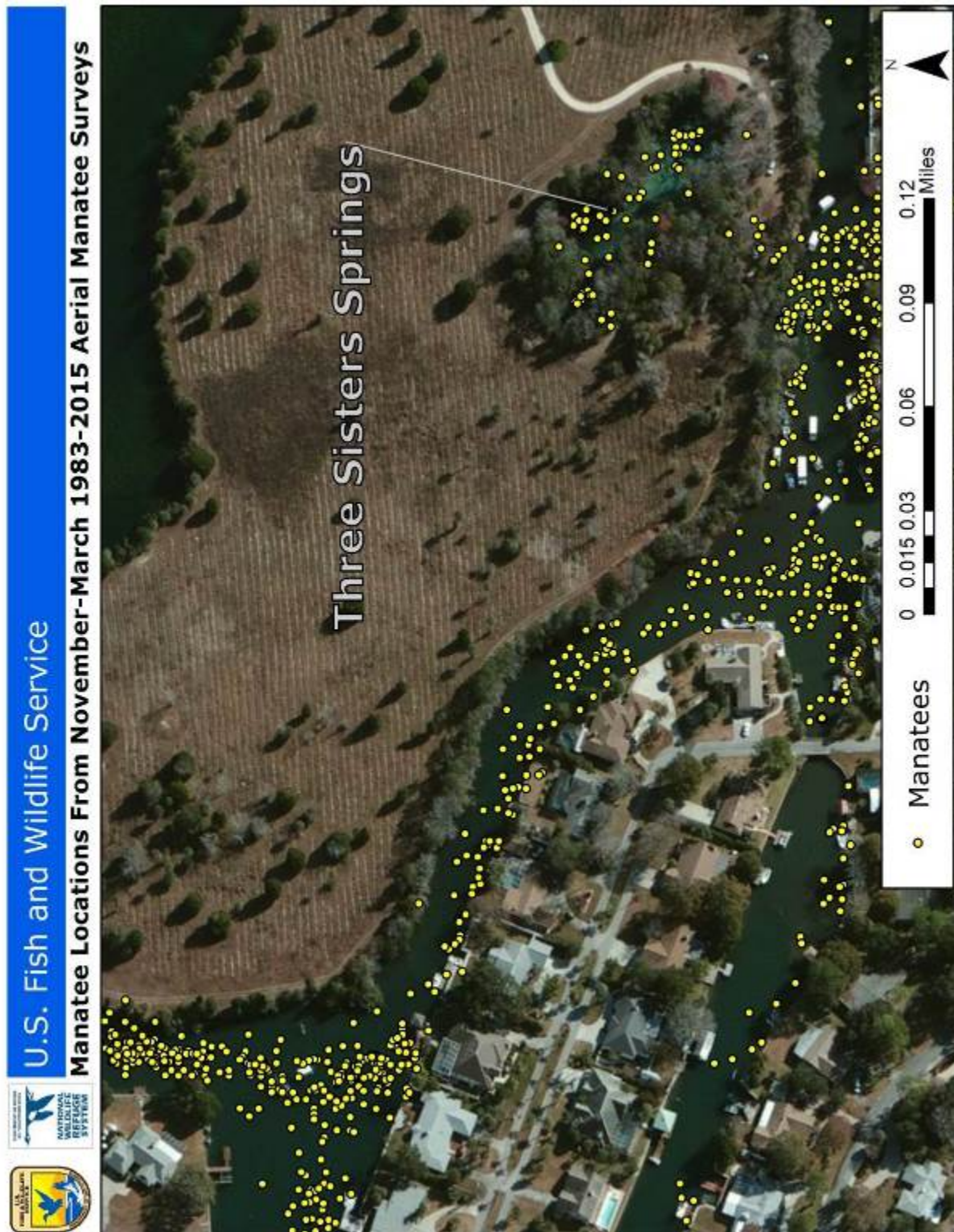




Figure 4. Florida manatee locations in winter (November-March) 1983-2015 from aerial manatee surveys, Crystal River National Wildlife Refuge.



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## Appendix E. Information on Preparers

### Preparers:

- Joyce Palmer, Project Leader, Crystal River NWR Complex, SE Region, USFWS
- Joyce Kleen, Wildlife Biologist, Crystal River NWR Complex, SE Region, USFWS
- Ivan Vicente, Visitor Services Specialist, Crystal River Complex, SE Region, USFWS
- Trisha Phy, Biological Technician, Crystal River Complex, SE Region, USFWS
- Laura Housh, Natural Resource Planner, Crystal River NWR Complex, SE Region, USFWS

### Reviewers:

- Kathleen Burchett, Area Supervisor, Area II, SE Region, USFWS
- Ernest Clarke, Deputy Area Supervisor, Area II, SE Region, USFWS
- Megan Reed, Assistant Area supervisor, Area II, SE Region, USFWS
- Christopher Swanson, Chief of Planning and Visitor Services, SE Region, USFWS
- Jerome Phillips, Acting Area Supervisor, Area II, SE Region, USFWS
- Robert Tawes, Chief of Division of Environmental Review, Ecological Services, USFWS
- Christine Willis, Energy Coordinator, Ecological Services, USFWS
- Jim Valade, Fish and Wildlife Service Biologist, Ecological Services, USFWS
- Teresa Calleson, Fish and Wildlife Service Biologist, Ecological Services, USFWS
- Garry Tucker, Retired Chief of Visitor Services, SE Region, USFWS