



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

In Reply Refer To:
FWS/R4/DH NRDAR

JAN 13 2014

Memorandum

To: Field Supervisor Mississippi Field Office

From: Deputy Deepwater Horizon Department of the Interior Natural Resource Damage Assessment and Restoration (NRDAR) Case Manager *Debra L. Moore*

Subject: Informal Consultation Request for the proposed Restoration Initiatives at the Infinity Science Center, Mississippi

As you are no doubt aware, on or about April 20, 2010, the mobile offshore drilling unit *Deepwater Horizon* experienced an explosion, leading to a fire and its subsequent sinking in the Gulf of Mexico (the Gulf). These events resulted in the discharge of millions of barrels of oil into the Gulf over a period of 87 days. In addition, various response actions were undertaken in an attempt to minimize impacts from spilled oil. These events are hereafter collectively referred to as the Oil Spill.

The Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (the Service) and other Bureaus, is a designated natural resource trustee agency authorized by the Oil Pollution Act of 1990 (OPA) and other applicable federal laws to assess and assert a natural resource damages claim for this Oil Spill. DOI is only one of several Trustees, including the state of Mississippi, Mississippi Department of Environmental Quality, so authorized. Consistent with their federal and state authorities, the Trustees are investigating the resource injuries and losses that occurred as a result of the Oil Spill and have initiated restoration planning to identify the actions that will be needed or appropriate to restore injured resources and to make the public whole for the injuries and losses that occurred. This process is known as a Natural Resource Damage Assessment (NRDA).

On April 20, 2011, DOI, the National Oceanic and Atmospheric Administration and the Trustees for the five Gulf states affected by the Oil Spill entered into an agreement with BP, a responsible party for the Oil Spill, under which BP agreed to provide \$1 billion for early restoration projects in the Gulf to address injuries to natural resources caused by the Oil Spill. The early restoration project has been proposed in a draft early restoration plan that was released for public comment and review on December 6, 2013. If the Trustees select the project after consideration of public comment and a stipulated agreement is reached with BP, the early restoration project will be implemented by the state of Mississippi Department of Environmental Quality. DOI, acting through the Service, will be a co-Trustee for the project, if it is selected and implemented.

The above facts lead us to the conclusion that consultation under Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), is required for this project and we wish to engage in such consultation (and conference). Accordingly, we have reviewed the proposed Restoration Initiatives at the Infinity Science Center, Mississippi for potential impacts to listed, proposed, and candidate species, and proposed and designated critical habitats in accordance with section 7 of the ESA. We have determined that the proposed project may affect, but is not likely to adversely affect, Louisiana black bear (*Ursus americanus pallas*). We have also reviewed the proposed project for impacts to bald eagles and migratory birds in accordance with the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712), respectively. There is no marine or estuarine in-water work. NOAA has reviewed the project and agreed that there are no marine species regulated under ESA or Marine Mammal Protection Act (MMPA) of 1972, that would be impacted by the project.

We request your review of and concurrence/conference with the attached intra-Service Section 7 Biological Evaluation form describing the proposed project, potential effects, conservation measures and justifications for our determinations. If you have questions or concerns regarding this request for consultation, please contact Holly Herod, Fish and Wildlife Biologist, at 404-679-7089 or holly_herod@fws.gov.

Attachment

SOUTHEAST REGION
INTRA-SERVICE SECTION 7
BIOLOGICAL EVALUATION FORM

Originating Person: Holly Herod, holly_herod@fws.gov; prepared by Stephen Parker (representing MS DEQ)

Telephone Number: Holly Herod: 404-679-7089; Stephen Parker: 228-224-9057

E-Mail: colette_charbonneau@fws.gov; sparker@adaptivemngmt.com

Date: December 31, 2013

PROJECT NAME (Grant Title/Number): _Restoration Initiatives at the Infinity Science Center (Early Restoration Project)

I. Service Program:

NRDAR

Ecological Services

Federal Aid

Clean Vessel Act

Coastal Wetlands

Endangered Species Section 6

Partners for Fish and Wildlife

Sport Fish Restoration

Wildlife Restoration

Fisheries

Refuges/Wildlife

II. State/Agency: Mississippi Department of Environmental Quality

III. Station Name: DOI Deepwater Horizon Case Management Team, USFWS Southeast Regional Office, Atlanta, Georgia 30345

VI. Location (attach map): *See Figure 1*

A. Ecoregion Number and Name: Region 4, Southeast

B. County and State: Hancock County, Mississippi

C. Section, township, and range (or latitude and longitude): The approximate centerpoint for the landscaping/nursery/exhibit area is 30.312397,-89.605277. The approximate centerpoint for the education center is 30.290294,-89.628408 and the centerpoint for the turnaround is 30.284034,-89.630201. See map for more detailed project location.

D. Distance (miles) and direction to nearest town: The Infinity Science Center building is approximately 4.3 miles north of Pearlinton, MS.

V. Description of Proposed Action and Habitats in the Action Area (attach additional pages as needed):

Introduction and Background

INFINITY Science Center (INFINITY) is a state of the art, interactive science, research, education, and interpretive center located in Hancock County. This consultation details additional Restoration Initiative features to INFINITY that are intended to restore lost recreational opportunities through the provision of increased access to coastal estuarine habitats, wildlife viewing areas and educational features. 1. The Possum Walk Heritage Trail will bring visitors through multiple coastal habitats that occur throughout the immediate area including marsh, bayhead swamp, cypress swamp, and pine flatwoods. The proposed project would enhance access to a coastal trail system that connects with sandy beach habitats.

The proposed project includes the following elements (Figure1):

- *Native Landscape/Nursery Area:* Development of a native landscape and nursery ground between Interstate 10 and INFINITY.
- *Boardwalk and Outdoor Education Center:* Construction of public Outdoor Education Centers along the Possum Walk Trail to educate visitors of the ecologically sensitive coastal habitats injured by the Oil Spill. . *Possum Walk Trail:* Implement improvements to the existing Possum Walk Trail, and construct two areas along the Possum Walk Trail for use as turnarounds for the transportation of visitors on learning tours organized by INFINITY. The mobile transit system will consist of 4-wheeled vehicles (e.g., golf cart) used to transport visitors to the Outdoor Education Center via the paved Possum Walk Trail.
- *Access Enhancement:* Paving of existing stone parking lot.

The project funding would also be used to develop educational components within the available gallery space in INFINITY. Exhibits would cover a number of topics including marsh ecosystems, oceanography, gulf species, hurricanes, and restoration monitoring. These exhibits would be designed to allow visitors (using computers, simulations and graphics) to experience how scientists model and study the Gulf's ecosystem. The exhibits would highlight the importance of science and scientific research, natural processes, and environmental stewardship, as well as wise economic utilization of these resources.

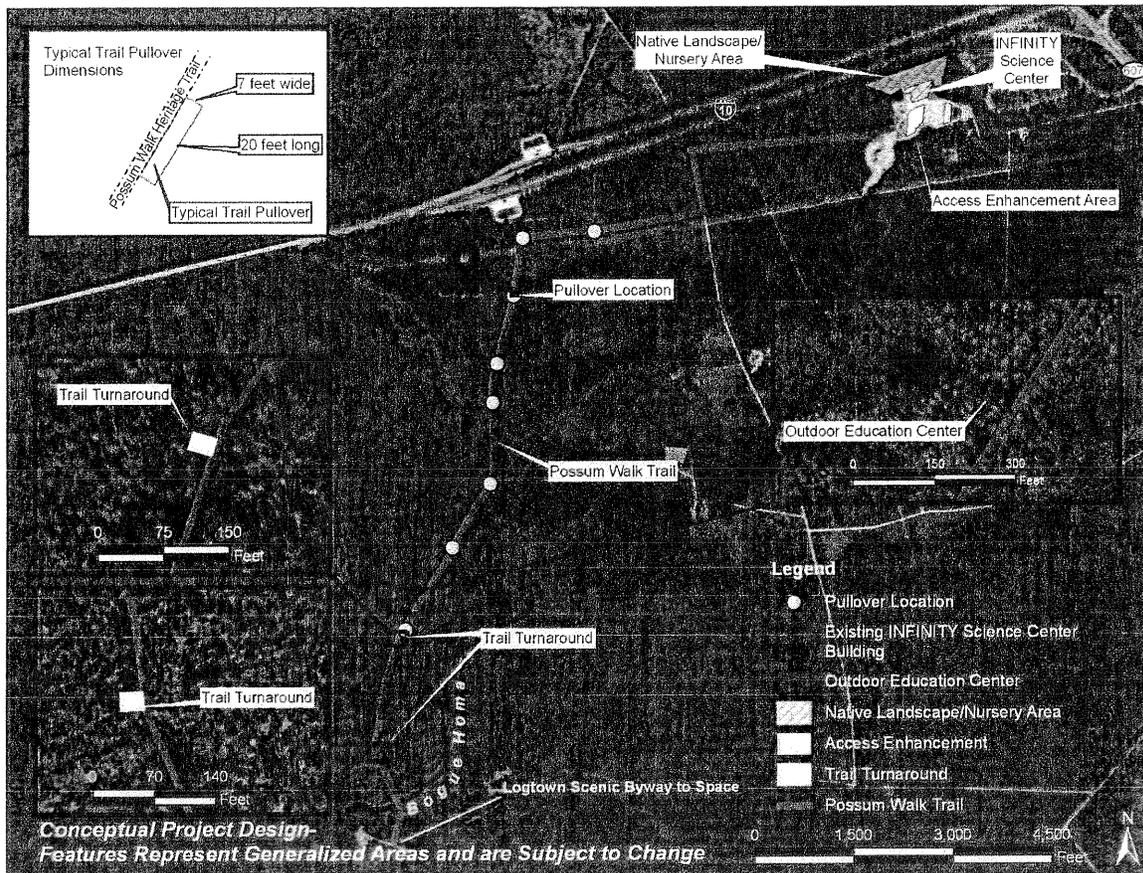


Figure 1: Proposed Restoration Initiatives at INFINITY-Conceptual Plan

1.2 Project Location

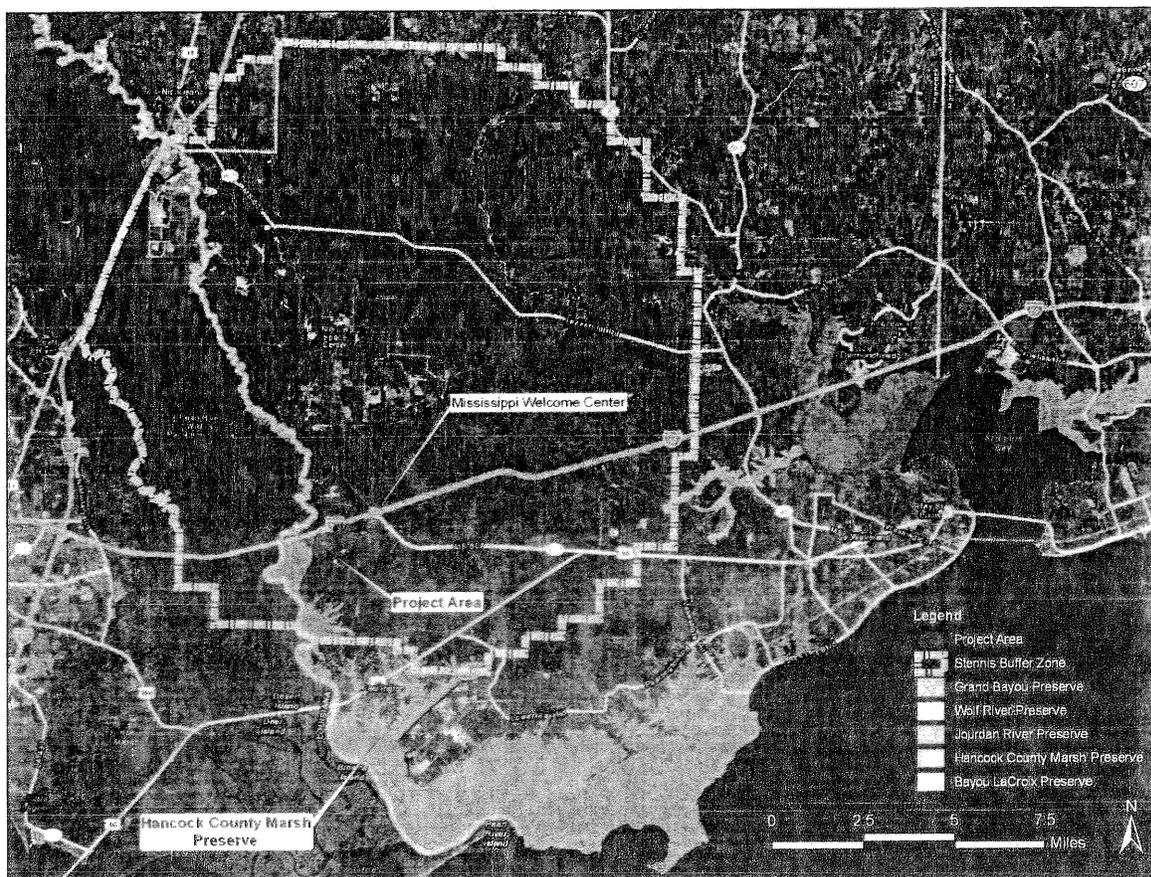
The proposed project is located in the State of Mississippi, in Hancock County, southwest of the intersection between Highway 607 and Interstate 10 (latitude 30.311571N, longitude 89.604742W; Figure 1). The project site is bordered by the Pearl River to the west and would connect to the “Logtown Scenic Byway to Space Trail” to the south to facilitate beach access through byways in Hancock County.

As described in the *John C. Stennis Space Center Environmental Resources Document* (NASA 2012), the Stennis Space Center (SSC) Buffer Zone includes all land within six miles of the smaller Stennis Space Center Fee Zone. The Restoration Initiatives fall within the SSC Buffer Zone. Using a perpetual restrictive easement, the buffer zone was originally developed to provide a cushion for safety and acoustic reasons between the rocket testing activities within the Fee Zone and surrounding human habitation. Although ownership of land within the buffer zone is a mix of federal government, private individuals, and corporations, the perpetual restrictive easement prohibits any “maintenance or construction of dwellings and other buildings suitable

for human habitation” (NASA 2012).

Part of the Mississippi Department of Marine Resources (MDMR) Hancock County Marsh Coastal Preserve is located within the project area; it spans land from the Pearl River east to the Bogue Homa Creek to Hancock County marsh in the Mississippi Sound. The project area in relation to the Stennis Buffer Zone and the Hancock County Marsh Coastal Preserve is shown in Figure 2.

Figure 2: Site Vicinity Map-Restoration Initiatives at Infinity Science Center



Construction and Installation

Project elements, their approximate size, habitat location, and associated construction activities are summarized in Table 1 and described in more detail below.

Table 1: Project Element Summary

Project Element	Size (approx.)	Habitat/Location	Construction Activities
Native Landscape/Nursery Area	6.5 acres	Wetland/uplands; dummy line railroad between Interstate 10 and INFINITY	Clearing of stumps; pond excavation; preserve some wetland and dummy line railroad; trail construction through area
Parking Area	4.5 acres	Existing stone parking lot	Paving: 1 inch new stone cap; 2 inch of base; 1 inch wearing course
Possum Walk Trail	3.0 miles, 2.6 acres	Existing trail roadbed through forested upland/wetland habitat	Asphalt paving of existing stone based trail; Clearing/grading to create two 25 foot x 30 foot turnarounds; trail pullovers
Boardwalk and Outdoor Education Center	75 linear feet of boardwalk, 6 feet wide; 40 feet x 40 feet platform; Total acreage 0.05	Cypress swamp abutting Pearl River marsh	Conventional post and beam pier; pressure-treated materials; 70 helical piers at 10 to 12 inch

Native Landscape/Nursery Area

Land would be graded to create a native landscape/nursery area between Interstate 10 and INFINITY. The area of approximately 6.5 acres would be cleared and grubbed using a track-mounted light dozer, Bobcat and front-end loader; pond areas would be dewatered; walkways would be graded; fill material would be added to the edge of the site; and the site would be landscaped with grass, plants, and other amenities. The existing wetland would be partially preserved for educational purposes.

Access Enhancement

Access enhancement would include paving of the existing parking area. The total area is approximately 4.5 acres. Stormwater from the parking area currently drains to a retention basin to the southwest. Stormwater treatment will not be altered. Activities would include surveying the area to be paved; compaction and proof-rolling of the sub-base; placement of asphalt consisting of 2 inches of base and a 1 inch wearing course; and striping for parking and handicap zones.

Possum Walk Trail

The existing Possum Walk Trail measures approximately 3 miles in length. The first 2.9 miles

consists of a coarsely graded sandy/stone base material suitable for foot traffic, bicycles, wheel chairs and 4 wheeled noncombustible vehicles. The last 0.1 miles of the trail consists of a wooden boardwalk across marsh connected to a wooden bridge that spans the Bogue Homa River – neither of which are rated for 4-wheeled vehicular traffic. The first section of the Possum Walk Trail would be paved with asphalt. At 2.9 miles in length and 7 feet wide this section of trail has an area of 2.6 acres. The trail is bordered on each side by continuous a creosote railroad cross ties pinned to the ground with rebar that would act as side forms for the asphalt to be placed against. It is expected that the established trail would require only limited grading and compaction. Stormwater will runoff from the trail and percolate into the groundwater or collect in nearby drainages. The trail is currently naturally vegetated on both sides.

In addition to the trail paving discussed above, “trail pullovers” would also need to be constructed to allow for two-way traffic. The two-way traffic would consist of 4-wheeled vehicles used to transport visitors and school children to the Outdoor Education Center. These pullovers are a safety measure to facilitate transport of the public in the event of an accident or health related incident in the remote reaches of the trail. The trail pullovers would be placed in previously cleared uplands areas to minimize disturbance to vegetation and wetlands. The trail pullovers would be within the existing trail corridor and would be approximately 20 feet long x 7 feet wide.

Trail Turnarounds: Turnarounds are necessary to accommodate 4-wheeled vehicles on the 7 feet wide trail. Two turnarounds would be constructed in previously cleared upland areas. Each turnaround would have an area of approximately 0.01 acres (25 feet x 30 feet). Activities would include grading and placement of a stone base, and paving with asphalt.

Boardwalk and Outdoor Education Center

A boardwalk and an Outdoor Education Center would be installed in a cypress swamp. The boardwalk would be approximately 70 feet long and 5 feet wide constructed of a conventional helical pier installation serving as its foundation followed by pressure treated framing and capped with a recycled composite decking lumber and associated handrails. The helical pier foundation system is used almost exclusively in environmentally sensitive areas for the following reasons:

- No soil excavation
- Minimal impact on vegetation
- Can be installed in limited access areas
- System is economical in sensitive soils and difficult terrain
- Galvanized steel anchors are engineered to transfer projected loads to bearing capable strata below weak soils

Modern, compact hydraulic-driven equipment such as a Bobcat on “floats” will be used to install the piers without excessive vibration or other intrusive noises.

An Outdoor Education Center (40 feet x 40 feet x 2 stories) would be constructed at the end of the boardwalk where the cypress swamp interfaces with the marsh. The construction approach

for the base platform would be similar to the approach used for the boardwalk. The remaining two story structure on top of the platform would consist of conventional post and beam construction comprised of pressure treated framing lumber, recycled composite decking and galvanized hardware.

All construction materials will be delivered to the site using small vehicles to accommodate the narrow width of Possum Walk Trail and to cause minimal intrusion on the environment.

Operations and Maintenance

Native Landscape/Nursery Area

Visitors would access this area through INFINITY Science Center and the area would be open to the public during the INFINITY Science Center's hours.. General landscape maintenance would include suppression of unwanted vegetation and invasive species using a combination of mechanical and chemical means, watering during the first growing season, periodic watering when needed during times of drought, and regular management to establish native plants in the area. Maintenance and security would be provided by INFINITY staff or subcontractors.

Access Enhancement

The parking area would be open from sunrise to sunset. The pavement would be routinely checked for cracking, sinking, and disrepair. Upon detection of any pavement deformities, appropriate action would be taken to ensure the safety of visitors. Maintenance and security would be provided by INFINITY staff or subcontractors.

Possum Walk Trail and Turnaround

The trail would be open from sunrise to sunset. The trail can be accessed directly by way of the INFINITY parking lot. The pavement would be routinely checked for cracking, sinking, and disrepair. Upon detection of any pavement deformities, appropriate action would be taken to ensure the safety of visitors. Maintenance and security of the trail would be provided by INFINITY staff or subcontractors.

Outdoor Education Center and Boardwalk

The trail would be open from sunrise to sunset. The boardwalk and Outdoor Education Center would be routinely monitored for general wear and tear that might make the features unsafe or unsightly. Upon detection of any deformities, appropriate action would be taken to ensure the safety of visitors. Maintenance and security would be provided by INFINITY staff or subcontractors.

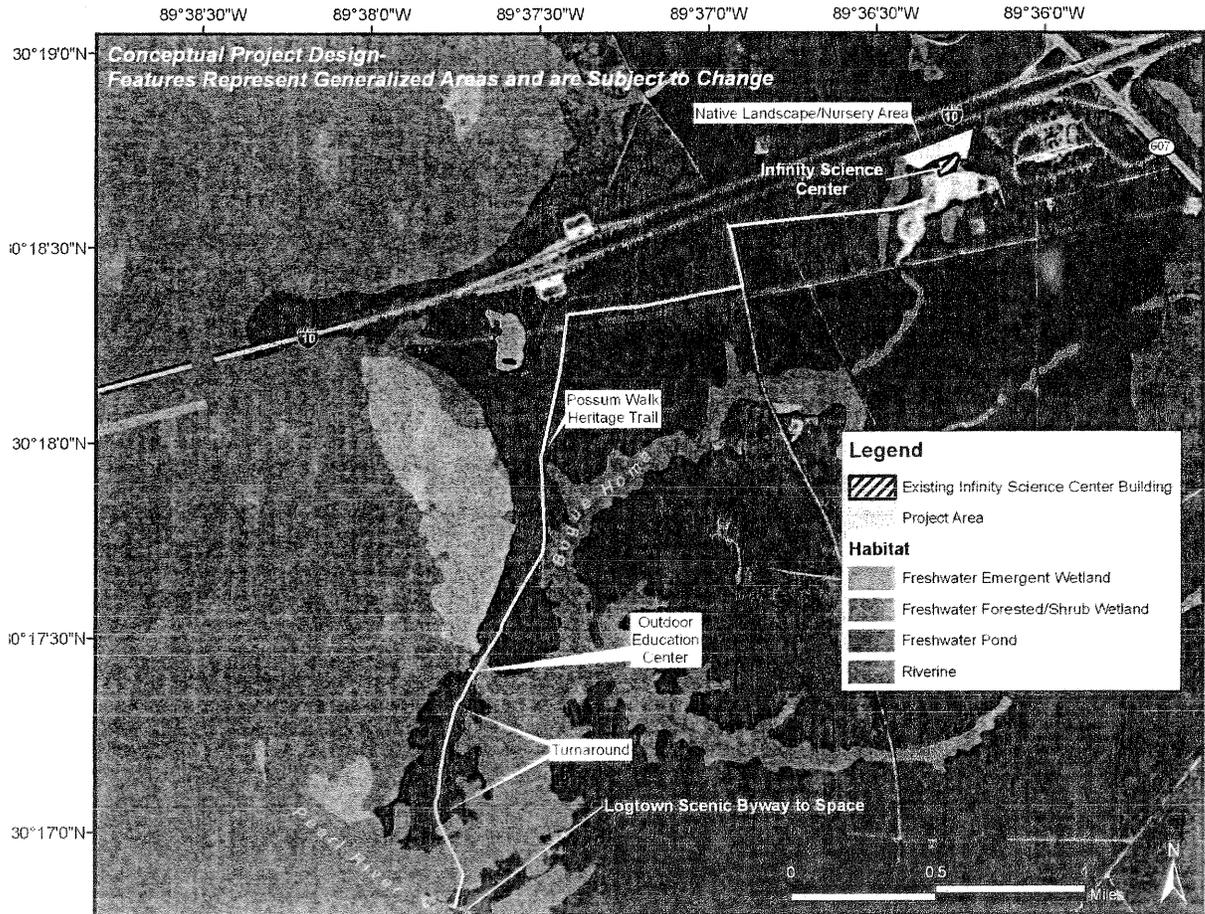
VI. Species and Habitats:

Federally Listed Species in Project County (Hancock, MS species list and habitat descriptions dated Feb 2013 obtained from Mississippi Ecological Services Field Office website)

SPECIES/CRITICAL HABITAT	STATUS ¹	HABITAT PREFERECE	HABITAT OR PCE'S PRESENT
Gopher tortoise (<i>Gopherus polyphemus</i>)	T	Open canopy longleaf pine/scrub oak habitats with well-drained sandy soils	Yes
Black pine snake (<i>Pituophis melanoleucus lodingi</i>)	C	Mature longleaf pine forest with sandy soil, an open canopy and thick, grassy understory	Yes
Green sea turtle (<i>Chelonia mydas</i>)	T	Shallow coastal waters with SAV and algae, nests on open beaches	Terrestrial – No Aquatic – No
Gulf sturgeon (<i>Acipenser oxyrhynchus desotoi</i>)	T	Migrates from large coastal rivers to coastal bays, estuaries, and barrier islands	Adjacent to action area
Critical Habitat Gulf sturgeon	CH	PCEs as summarized: include abundant food items within riverine habitats for larval and juvenile life stages; and estuarine and marine habitats and substrates for subadult and adult life stages; riverine spawning sites with substrates suitable for egg deposition and development; riverine aggregation areas; a flow regime necessary for normal behavior, growth, and survival of all life stages in the riverine environment; water quality chemical characteristics necessary for normal behavior, growth, and viability of all life stages; sediment quality necessary for normal behavior, growth, and viability of all life stages; and safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats.	Adjacent to action area
Inflated heelsplitter (<i>Potamilus inflatus</i>)	T	Lower Pearl River specifically riffles with moderate to fast current and stable sand, gravel, and cobble substrates	No
Kemp's Ridley sea turtle (<i>Lepidochelys kempi</i>)	E	Nearshore and inshore coastal waters; neritic zones with muddy or sandy substrate	Terrestrial – No Aquatic – No
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	E	Open ocean, coastal waters	Terrestrial – No Aquatic – No
Loggerhead Sea Turtle (<i>Caretta caretta</i>)	T	Open ocean; also inshore areas, bays, salt marshes, ship channels, and mouths of large rivers	Terrestrial – No Aquatic – No
Hawksbill sea turtle	E	Coral reefs, open ocean, bays, estuaries	Terrestrial – No Aquatic – No

SPECIES/CRITICAL HABITAT	STATUS ¹	HABITAT PREFERECE	HABITAT OR PCE'S PRESENT
(<i>Eretmochelys imbricata</i>)			
Louisiana black bear (<i>Ursus americanus luteolus</i>)	T	Bottomland hardwood and floodplain forest; habitats must contain hard mast, soft mast, escape cover, denning sites, forested dispersal corridors, and limited human access	Yes
Louisiana quillwort (<i>Isoetes louisianensis</i>)	E	Mineral soil, usually light gray in color, in bottomlands that are periodically washed free of leaves and debris	Yes
Pearl darter (<i>Percina aurora</i>)	C	Freshwater riverine habitats in the Pearl and Pascagoula river systems with stable gravel riffles or sandstone exposures with large sized gravel or rock.	No
Piping Plover (<i>Charadrius melodus</i>)	T	Beaches and mudflats in southeastern coastal areas	No
Critical Habitat piping plover	CH	No piping plover critical habitat is designated in the action area	No
Red knot (<i>Calidris canutus rufa</i>)	P	Sandy beaches, tidal mudflats, salt marshes, and peat banks. May forage along beaches, oyster reefs, and exposed bay bottoms while roosting on high sand, flats, reefs, and other sites protected from high tides.	No
Ringed map turtle (<i>Graptemys oculifera</i>)	T	Pearl Rivers specifically areas of moderate current with sandbars and basking habitat	No
West Indian manatee (<i>Trichechus manatus</i>)	E	Fresh, brackish, and salt water in large coastal rivers, bays and estuaries	No

¹STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species



Habitat in the vicinity of Restoration Initiatives at the Infinity Science Center project.

VII. Determination of Effects:

A. Explanation of effects of the action on species and critical habitats in item VI. (attach additional pages as needed):

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Gopher tortoise	None expected. A 2003 survey in the area of the current Infinity facility found no occurrence of listed species (NASA 2006). Several other surveys for threatened and endangered species in the vicinity of the native landscape/nursery area were performed in 2008, 2010, and 2012 (Mississippi State University, 2008; NASA, January 27, 2010; NASA October 19, 2012). Several species including the gopher tortoise were the specific focus during these surveys. U.S. Fish and Wildlife Service

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
	<p>concluded with the previous surveys findings reporting that threatened and endangered species likely were not present in the area in the past or presently and would likely not be present in the future (USACE General Permit No. 53, CELMK-OD-FE 14-GPD; USACE Authorization, MVK-2012-1131). In 2012, a survey was performed for this species throughout uplands within 20 feet of the existing Possum Walk Trail (HCBS 2012). This survey found no occurrence of the gopher tortoise or its' burrows. The habitat in the survey area was deemed unsuitable for gopher tortoises due to the dominance of dense tree and shrub cover and a minimal herbaceous layer. The proposed project area for the native landscaping, outdoor education center, parking lots, and vehicle turnaround does not contain suitable habitat (i.e. longleaf pine habitat with well-drained soil) for the species. Because recent surveys have not found any gopher tortoises, and there is a lack of preferred gopher tortoise habitat, this species is not expected to be found in the project area. Therefore no effects to this species are anticipated.</p>
Black pine snake	<p>Although the Black Pine Snake range includes several Mississippi counties, there are no recent published reports of the species in Hancock County (MDWFP 2001; HCBS 2012). Studies have determined that black pine snake populations have decreased from historic levels; in Mississippi the species is most common in the DeSoto National Forest to the north of the proposed project area (MDWFP 2001). Suitable habitat includes open canopy longleaf pine forest with herbaceous ground cover and well-drained sandy soils and, less so, hardwood forests (USFWS 2010). Much of the habitat in the proposed project area is not suitable because of dense canopy cover or due to existing disturbance (HCBS 2012). Since no suitable habitat is present in or near the action area and this species is not known to occur within the action area, no effects to this species are anticipated.</p>
Gulf sturgeon and Critical Habitat Gulf sturgeon	<p>No in-water work will occur in critical habitat in the Pearl River and no runoff into the Pearl River from project implementation is anticipated; therefore no effects to this species or its critical habitat are anticipated.</p>
Inflated Heelsplitter	<p>No suitable habitat is present in or near the action area and this species is not known to occur within the action area. Therefore, no effects to this species are anticipated</p>
Green, Kemp's Ridley, Leatherback, Loggerhead, and Hawksbill sea turtles	<p>No suitable habitat is present in or near the action area and this species is not known to occur within the action area. Therefore, no effects to this species are anticipated.</p>
Louisiana Black Bear	<p>A 2003 survey in the area of the current Infinity facility found no occurrence of listed species (NASA 2006). Several other surveys for threatened and endangered species in the vicinity of the native landscape/nursery area were performed in 2008, 2010, and 2012 (Mississippi State University, 2008; NASA, January 27, 2010; NASA October 19, 2012). Several species including the Louisiana black bear</p>

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
	<p>were the specific focus during these surveys. U.S. Fish and Wildlife Service concurred with the previous surveys findings reporting that threatened and endangered species likely were not present in the area in the past or presently and would likely not be present in the future (USACE General Permit No. 53, CELMK-OD-FE 14-GPD; USACE Authorization, MVK-2012-1131). There were no observations of the species in the area north of the existing museum facility or in the vicinity of the education center/turnaround during 2010 or 2012 surveys (HCBS 2012; USACE General Permit 53, CELMK-OD-FE14-GPD, September 25, 2012). There is no known breeding population of bears in this area and any presence would likely be transitory individuals following the river corridor for foraging and cover. Bottomland hardwood, a suitable bear habitat, occurs in the area however the smaller size of this habitat, the presence of human disturbance, and the presence of limited impenetrable cover likely precludes the use of the area by Louisiana black bear. For these reasons, we consider the bear extremely unlikely to be in the project area or directly affected by the project. The project construction and continued human presence could startle a bear using the river corridor. However, we do not anticipate startling during construction or routine human use to affect any normal migratory movement or foraging of the species along the river corridor, the most likely area of use, to the west of the project area. Therefore, we consider any potential effects to be insignificant and discountable.</p>
Louisiana Quillwort	<p>In coastal Mississippi, this species is found associated with perennial streams in bottomland hardwood habitat also harboring bald cypress and possibly other stream macrophytes (Leonard 2011 cited in USFWS 2012). A 2003 survey in the area of the current Infinity facility found no occurrence of listed species (NASA 2006). Several other surveys for threatened and endangered species in the vicinity of the native landscape/nursery area were performed in 2008, 2010, and 2012 (Mississippi State University, 2008; NASA, January 27, 2010; NASA October 19, 2012). Several species including the Louisiana quillwort were the specific focus during these surveys. U.S. Fish and Wildlife Service concurred with the previous surveys findings reporting that threatened and endangered species likely were not present in the area in the past or presently and would likely not be present in the future (USACE General Permit No. 53, CELMK-OD-FE 14-GPD; USACE Authorization, MVK-2012-1131). Surveys performed for other projects during 2010 and 2012 found no observations of the species in the area north of the existing facility proposed for the native landscape/nursery (USACE General Permit 53, CELMK-OD-FE14-GPD; September 25, 2012). A 2012 survey of area within 50 feet of the existing Possum Walk Trail (HCBS 2012) observed suitable habitat in the vicinity of the Possum Walk Trail, however there were no observations of the species (HCBS 2012). Impacts would only occur if this species is present within the construction footprint of the education center (0.03 acres) or the</p>

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
	vehicle turnaround (0.5 acres) however no perennial streams fall within the footprints of these features. No critical habitat is designated for this species. Because recent surveys have found no occurrences of the Louisiana quillwort and no streams (i.e., Louisiana quillwort habitat) are found within the construction footprint no effects to this species are anticipated.
Pearl darter	No suitable habitat is present in or near the action area and this species is not known to occur within the action area. Therefore, no effects to this species are anticipated.
Piping Plover	No suitable habitat is present in or near the action area and this species is not known to occur within the action area. Therefore, no effects to this species are anticipated.
Critical habitat piping plover	No critical habitat for these species is designated in the action area; therefore, none will be adversely modified or destroyed.
Red Knot	No suitable habitat is present in or near the action area and this species is not known to occur within the action area. Therefore, no effects to this species are anticipated.
Ringed Map Turtle	No suitable habitat is present in or near the action area and this species is not known to occur within the action area. Therefore, no effects to this species are anticipated.
West Indian Manatee	No suitable habitat is present in or near the action area and this species is not known to occur within the action area. Therefore, no effects to this species are anticipated.

B. Explanation of actions to be implemented to reduce adverse effects:

SPECIES/ CRITICAL HABITAT	ACTIONS TO MINIMIZE IMPACTS
Gulf Sturgeon (<i>Acipenser oxyrinchus desotoi</i>) and Gulf Sturgeon Critical Habitat	No in-water work will occur in Gulf Sturgeon critical habitat in the Pearl River. All available construction best management practices will be used to prevent and control any runoff to ensure none reaches the Pearl River.
Louisiana Black Bear (<i>Ursus americanus pallas</i>)	All workers will be informed of the potential for Louisiana black bear presence. If this species uses the project area it will likely be transitory in nature and likely will occur to the west of the proposed project area within the river corridor. If any bears are found to be present in the immediate project area during project activities, construction will be halted until the species move away from the project area. Construction best management practices

SPECIES/ CRITICAL HABITAT	ACTIONS TO MINIMIZE IMPACTS
	(i.e., minimize noise and habitat disturbance) will be used to avoid or minimize any impacts during construction.

VIII. Effect Determination and Response Requested:

SPECIES/ CRITICAL HABITAT	DETERMINATION ¹			RESPONSE ¹ REQUESTED
	NE	NLAA	LAA	
Gulf sturgeon (<i>Acipenser oxyrhynchus desotoi</i>) and Gulf Sturgeon Critical Habitat	X			Concurrence
Gopher Tortoise (<i>Gopherus polyphemus</i>)	X			Concurrence
Louisiana Black Bear (<i>Ursus americanus</i> Pallas)		X		Concurrence
Louisiana Quillwort (<i>Isoetes louisianensis</i>)	X			Concurrence

¹DETERMINATION/ RESPONSE REQUESTED:

IX. Bald Eagles

Are bald eagles present in the action area? No Yes

If "Yes", can you implement the conservation measures below? Yes No

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (walking, camping, cleanup, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is *no* line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).
2. If a similar activity (like driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances activities conducted within 660 feet of a nest may result in disturbance, particularly for the eagles occupying the Mississippi barrier islands. If an activity

appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

If not, contact the Service's Migratory Bird Permit Office to determine how to avoid impacts or if a permit may be needed.

X. Migratory Birds

A. Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation.

SPECIES	BEHAVIOR	SPECIES/HABITAT IMPACTS
Wading birds (herons, egrets, ibises)	Foraging, feeding, resting, roosting, nesting	Wading birds primarily forage and feed at the water's edge. The project will not disturb any open water area. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting if they are disturbed by construction activities. These birds primarily roost in trees or shrubs (e.g. pines, <i>Baccharis</i>). The construction of the boardwalk and outdoor education station would occur in cypress tupelo swamp. Trees would be avoided to the extent possible during construction.
Waterfowl (ducks, loons, and grebes)	Foraging, feeding, resting, roosting, nesting	Waterfowl may forage, feed, rest, and roost in the project area and nest nearby. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting. These birds primarily roost and nest in low vegetation.
Raptors (osprey, hawks, owls)	Foraging, feeding, resting, roosting, nesting	Raptors nest, forage, feed, and rest in the project area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting. Most raptors are aerial foragers and soar long distances in search of food. Locations where these birds roost and nest could be in the project area.
Rails and coots	Foraging, feeding, resting, roosting, nesting,	Rails and coots forage, feed, rest, or roost in the project area. As such, they may be impacted locally and temporarily by the project. However they are most likely to favor marshy areas. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting if disturbed by the project. These birds primarily roost and nest in marshes, which are in the project area
Landbirds (white-eyed)	Breeding, foraging,	Various species of migratory birds in Mississippi use

This analysis resulted in a determination that no “take” of a federally listed species would occur. If any of the following occur, then there must be reinitiation on this action:

- (1) any incidental take occurs**
- (2) new information reveals effects of the Service’s action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion;**
- (3) the Service’s action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or**
- (4) a new species is listed or critical habitat designated that may be affected by the action.**

In instances where any incidental take occurs, the operations causing such take must cease until reinitiation.

If reinitiation is required, contact the Mississippi Ecological Services Field Office about the action.

Mississippi Ecological Services Field Office
 6578 Dogwood View Parkway, Suite A
 Jackson, Mississippi 39213
 (p) 601-965-4900
 (f) 601-965-4340

XII. Reviewing Ecological Services Office Evaluation:

A. Concurrence _____ Nonconcurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

Signature **date**

Title **office**

References

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Restoration Initiatives at the Infinity Science Center - Hancock County, ms

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If reinitiation is required, contact the Mississippi Ecological Services Field Office about the action.

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XII. Reviewing Ecological Services Office Evaluation:

A. Concurrence X Nonconcurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

<u>DFL</u>	<u>1/24/2014</u>
Signature	date
<u>Biologist</u>	<u>MS Field Office</u>
Title	office
<u>David Felder</u>	
<u>601 321 1131</u>	



