

APPENDIX 9

ENDANGERED SPECIES

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A9-1 INTRODUCTION

This chapter assesses the potential impacts of excavation of borrow materials and subsequent levee engineering on species federally listed under the Endangered Species Act (ESA) of 1973, as amended, that are known to use bottomland hardwood (BLH) systems within the Mississippi River levee (MRL) project area. For this assessment, we obtained recent biological and ecological data from published literature, and information from available online databases.

We primarily address those listed species that are likely to be present within the project area and therefore have the highest likelihood of being negatively impacted by the proposed project. Secondly, we address listed species that might be present in small numbers, but for which the project impacts are unlikely to have any discernable impacts. We also include some species with very low likelihood of being present (i.e., accidental occurrences), but also likely not impacted by the proposed project. This section also discusses the Louisiana black bear (*Ursus americanus luteolus*), a species listed as threatened during the 1998 report (USACE 1998), but was removed from ESA protection in 2016, and the bald eagle (*Haliaeetusleucocephalus*), which was removed from ESA protection in 2007, but is still protected by the Bald and Golden Eagle Protection Act (1962).

This report presents information on species composition and habitat availability for various federally listed species within the project boundaries of the MRL enlargement and seepage control project in the lower Mississippi Alluvial Valley (MAV) and discusses impacts to these species that could occur due to construction. The project area has been classified into 20 categories that include the following land use types: cropland, forested land, herbaceous land, levee, marsh, open water, pasture/old field, scrub/shrub, tree plantation, and urban land. Land cover maps were derived from recent satellite imagery from Birds Eye® or other imagery sources. These images and subsequent maps were used to estimate land use changes due to project features and develop measures to avoid and minimize impacts to significant resources.

A9-2 THREATENED AND ENDANGERED SPECIES ASSESSMENTS

Wood Stork

Description: The U.S. Fish and Wildlife Service (USFWS) listed the wood stork (*Mycteria americana*) as federally endangered in February 1984 (Federal Register 49:7335) and reclassified as threatened in 2014 (Federal Register 79:37077). The recovery plan was for the breeding population within the United States and was approved 9 September 1986. The wood stork is a large, long-legged water bird, averaging 89 to 102 cm in height, with a wing-span of 152 to 165 cm. (Coulter et al. 1999). The plumage is white, except for black primaries and secondaries and a short black tail. The head and neck are largely unfeathered and gray in color. The bill is large, and thick at the base, and slightly decurved. Juveniles are light gray with a yellowish bill (Coulter et al. 1999).

Taxonomic Status: The wood stork is one of 17 true storks (Ciconiidae) worldwide, and is the only stork regularly occurring in the United States. The wood stork is also known as the wood ibis, ironhead, flinthead and gannet.

Range and Population Level: The wood stork may have formerly bred in all the coastal southeastern United States from Texas to South Carolina. Currently, United States breeding is restricted primarily to Florida. Another distinct, non-endangered population breeds from Mexico to northern Argentina. A post-breeding dispersal brings birds (Mexican population) north up the Mississippi River Valley. The current population of birds is believed to number 11,000 adults. Mexican immigrants number approximately 1,000 to 5,000 birds, depending on the year. In Mississippi, and therefore in the project area, most all detections of wood storks from the endangered eastern population are detected in northeastern Mississippi, based on satellite tagged birds. The Southeast U.S. breeding population of wood storks post breeding dispersal is primarily throughout the Coastal Plain of Florida, Georgia, and South Carolina. A larger number of south Florida wood storks do move into central Alabama and northeastern Mississippi (i.e. Tombigbee Waterway in Alabama to Sam Hamilton National Wildlife Refuge in Mississippi) and it is highly unlikely wood storks in the lower delta are from the listed population (William B Brooks, USFWS wood stork Recovery Lead, personal communication, June 15, 2020). Therefore, most all storks detected in western Mississippi are likely non-endangered Mexican wood storks (Mississippi Museum of Natural Science 2014). For more detailed life-history information, refer to the wood stork section in Appendix 11 of the 1998 Supplement to the Environmental Impact Statement (SEIS) (USACE 1998).

Habitat and Reason for Decline: The United States breeding population of the wood stork occur primarily in the southeastern swamps and wetlands, usually nesting in cyprus or mangrove swamps and feeding in freshwater or brackish wetlands. This bird is highly gregarious in both its feeding and nesting behaviors. Borrow areas where fish become concentrated during periods of low water are particularly important for this species. The wood stork uses a highly adaptive tactolocation technique, called grope foraging. Feeding usually takes place in water approximately 15 to 50 cm (5.9 to 19.7 inches) deep. This foraging technique seems adapted for groups of small fish. Attractive feeding areas include shallow depression marshes or swamps that concentrate the fish during low water periods.

The generally accepted explanation for the decline of the wood stork in the United States has been the reduction in the food base necessary to support breeding colonies. This reduction has been attributed to the loss of wetland habitat, as well as changes in the hydrology of coastal wetlands and swamps. The loss of breeding habitat may have also impacted populations of this bird. Other less significant factors include prolonged drought and flooding, raccoon (*Procyon lotor*) predation on nests, and human disturbances to nesting colonies.

Evaluation of Potential Impacts: The primary limiting factors contributing to the wood stork's decline include loss of wetland habitat and changes in hydrology. Efforts to avoid environmental damage to riverside woodlands and wetlands by relocating borrow areas away from riverside BLH to riverside may be preferable. We used the United States Geological Survey (USGS) Gap Analysis Program (GAP) for our assessment, which identified only a single area as potentially having suitable wood stork habitat (Figure A9-1). And upon further analysis, the identified polygon is unlikely to provide any habitat for this species. Moreover, the year-round frequency of occurrence of the wood storks in the project area ranges 0 to 40+ percent of the time. However, the vast majority of these birds are likely from the non-endangered Mexican population (Mississippi Museum of Natural History 2014). While a prior record documented

potential nesting attempts by wood storks north of Vicksburg, MS, the breeding attempts were not successful (Mueller and McCabe 1997). USACE anticipates Alternatives 2 and 3 may affect but are not likely to adversely affect eastern black rails. As investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS as appropriate.



Figure A9-1. The polygon of potential wood stork habitat, identified in the project area using the USGS GAP Analysis program, is likely not sufficient to support breeding or roosting storks.

Eastern Black Rail

Description: The black rail (*Laterallus jamaicensis*) is the smallest rail species in North America. The rail ranges in length between 10-15 cm (3.9 to 5.9 inches) and has a wing span between 22-28 cm (8.7 to 11 inches) (Eddleman et al. 1994). The adult is generally black with gray head and breast and a black crown, while the upper back is black with white speckling. This rail has distinctive red eyes, and the back of the neck possesses a distinctive brown to chestnut colored patch (Eddleman et al. 1994). This bird is very secretive and is generally detectable through use of playback recordings; it possesses a large vocal repertoire, but is rarely seen. Immature birds have less white speckling, and reddish or hazel eyes that will turn red at about 3 months of age (Eddleman et al. 1994).

Taxonomic Status: There are two black rail subspecies in the conterminous United States. The eastern population (*L. j. jamaicensis*) is partly migratory, wintering in the southeastern United States, Caribbean, and Central America. The eastern population tends to have a smaller bill, brown crown with more chestnut on upper back and neck. A western and central population (*L. j. coturniculus*) in California, Arizona, and Baja California, is largely resident in the region. Because of the black rails secretive nature, relatively little is known about its life-history. Most populations have experienced significant population declines, but populations may have stabilized to some degree due to efforts of wetland restoration during the past 25 years (Eddleman et al. 1994).

Range and Population Level: Two primary populations in western and eastern United States (see above). Populations may have stabilized; however, concern about ongoing declines have led to the eastern subspecies being proposed for Federal listing as threatened in 2010. In September 2013, a 12-month review recommended that the subspecies be listed as threatened. As of March 2020, the black rail is still proposed for listing. This species is listed as State endangered or threatened in seven States within the subspecies range, including Delaware, Illinois, Indiana, Maryland, New Jersey, New York, and Virginia.

Habitat and Reason for Decline: Black rails can be found in tidally or non-tidally influenced freshwater or brackish saltwater meadows and marshes. These habitats are usually densely vegetated; however, this species may occasionally occupy upland portions of these habitats. In addition, black rails may occupy impounded and non-impounded wetlands. Little is known about the black rail during migration; however, some evidence suggest that it may use wet prairies, meadows and hayfields during migration.

The primary cause for population declines of the eastern black rail is habitat loss through wetland drainage and conversion to agriculture, or urban and suburban expansion. Habitat degradation detrimental to this species may be caused by expansion of non-native marsh species, such as the common red (*Phragmites* ssp). This species is also susceptible to harsh winters, and is a common prey item for various avian predators (hawks, egrets, and herons) and mammalian predators (foxes, raccoons, and domestic cats). This rail may be more susceptible to predation during high tides.

Evaluation of Potential Impacts: The proposed levee enhancements along the lower Mississippi River will have minimal impacts on marsh habitats; therefore, impacts on all rail species from levee enhancements are considered to be minimal. Three proposed borrow pits (Items 91.2-L, 90.8-L, and 51-L) include a combined 27 acres of marsh habitat. Prior to any construction activities at these sites, site inspections would occur to assess their suitability as rail habitat and to confirm presence or absence of black rails. USACE anticipates Alternatives 2 and 3 may affect but are not likely to adversely affect eastern black rails. As investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS as appropriate.

Indiana Bat, Northern Long-eared Bat, and Gray Bat

Impacts to these species are detailed in Appendix 7 (Bat Appendix). The federally threatened Indiana bat (*Myotis sodalis*) and the endangered northern long-eared bat (*M. septentrionalis*) are two listed bat species that use forest and forested wetland habitats, where they are known to roost in tree cavities, exfoliated bark and snags. Gray bats could pass through portions of the Memphis District during migration. However, they only use caves for diurnal roosting. There are no caves within any of the proposed Work Item footprints. USACE anticipates Alternatives 2 and 3 may affect but are not likely to adversely affect gray bats. As investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS as appropriate. Indiana and northern long-eared bats are likely to be present in the Memphis District, the most northerly located district in the project area, and the area that is projected to have the least impact on forested habitats (approximately 40 ha lost; Appendix 7). Additionally, there are currently no known maternity colonies within any of the Work Item footprints. Given the very small area impacted and the much larger forested habitat in and adjacent to the project area, USACE anticipates Alternatives 2 and 3 may affect but are not likely to adversely affect Indiana and northern long-eared bats. As investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS as appropriate. As noted in Section 4.2.5 of the SEIS II and Appendix 7, USACE would consult with the local USFWS Ecological Services Field Office with each Work Item after congressional appropriations are received and detailed plans are being developed. USACE would review the most updated Range-wide Indiana Bat Survey Guidelines (currently, USFWS 2019) and northern long-eared bat consultation guidance to determine if presence/absence surveys for listed bats are necessary and how the survey must be conducted in consultation with the USFWS.

Pallid Sturgeon

The pallid sturgeon occurs in the Mississippi River Basin, including the Mississippi and Missouri Rivers, and their major tributaries (i.e., Platte and Yellowstone Rivers), and the Mississippi's major distributary, the Atchafalaya River (Jordan et al. 2016). The Pallid sturgeon was listed as endangered in 1990 (USFWS 1990), with further protection provided with the listing of the shovelnose sturgeon as threatened under the Similarity-of-Appearance Provisions of the ESA in 2010 (USFWS 2010). This provision only provides a protective status in river systems where both species co-occur. Within the Lower Mississippi River (LMR, extends from confluence with the Ohio River downstream to Gulf of Mexico), pallid sturgeon occur primarily in the mainstem

of the river and chutes with relatively deep, flowing water (Killgore et al. 2007, Jordan et al. 2016), and frequently associated with dikes, revetment, islands and secondary channels (Kroboth et al. 2013). It commonly occurs over sandy substrates but often collected over gravel (Bramblett and White 2001, Hurley et al. 2004, Garvey et al. 2009, Koch et al. 2012).

Pallid sturgeon are not found in floodplain habitats near levees. The typical riverine habitat occupied by pallid sturgeon is currently not projected to be impacted by the proposed project; thus, USACE anticipates Alternatives 2 and 3 will cause no effects to pallid sturgeon. As investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS as appropriate.

Fat Pocketbook Mussel

The fat pocketbook is a freshwater mussel of the family Unionidae occurring in the Ohio and Mississippi River systems within the central United States (Watters et al. 2009). Habitats where the species is currently found range from relatively natural and stable (Wabash River watershed), to impounded (Ohio River), channelized (St. Francis River watershed), and in secondary channels (lower Mississippi River) (Miller and Payne 2005, USFWS 2019, Killgore et al. 2014). Historically, the species was likely more common in large river sloughs and oxbows with clay-silt substrate. Current navigation and flood control activities (lock and dams, levees and bank protection measures) have reduced or eliminated much of this depositional habitat generally occurring at the mouths of rivers (Miller and Payne 2005). Today, the fat pocketbook mussel generally occurs in sand, mud, and silt substrates, typically in slow flowing waters of moderate to large-sized rivers. Local populations are rarely encountered in high abundances, and are seldom found in floodplain waterbodies of the LMR (USFWS 2019, Jones et al. 2019).

Fat pocketbook mussels can be found in some secondary channels on the lower Mississippi river (USFWS 2019). Open water habitat within the batture of the MRL project area is not considered typical for the species. Borrow area construction is not in close proximity to fat pocketbook habitat. Thus, USACE anticipates Alternatives 2 and 3 will have no effect to fat pocketbook mussels. As investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS as appropriate.

Other Potential Occurrences of Listed Species in the Project Area

The whooping crane (*Grus americana*) (eastern population), piping plover (*Charadrius melodus*), red knot (*Calidris canutus*), and interior least tern (*Sternula antillarum athalassos*) are four listed species which are not expected to occur in close proximity to the proposed Work Items. Thus, USACE anticipates Alternatives 2 and 3 will have no effect to the whooping crane, piping plover, red knot, and interior least tern. As investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS as appropriate. The piping plover and red knot are potential transient migrant and wintering species that almost exclusively use open sand and beach habitat in the lowest portion of the project area. Such habitats are not proposed to be impacted by the

improvements of levees in this project. The interior least tern is a common breeder on sand bar habitat within the lower Mississippi River channel, but this habitat is currently not projected to be impacted by the proposed project. The whooping crane occupies open wetlands and grasslands during migration, and is likely only to be present as a rare transient in the project area (Urbanek and Lewis 2015). These species are described in more detail in this report (Appendix 8).

The Louisiana black bear was delisted listed in 2016, and is therefore not a concern as a listed species in 2020. The U.S. Army Corps of Engineers SEIS I (USACE 1998) provides a detailed biological assessment of the projected impacts on this species, and the conclusion was that bears would largely be unaffected due to relatively small amounts of impact to forested habitats, habitat improvements due to proposed reforestation efforts, and the amount of large forested habitats available outside of the project area (USACE 1998).

The bald eagle is a formally listed species found in the project area, especially during the winter. The species is a rare and unlikely breeder in the project area. Although no longer listed under ESA, this species is still protected under the Bald and Golden Eagle Protection Act (1962). The likelihood is low for the proposed project to have direct, indirect, or cumulative adverse impacts to the bald eagle. Should any nesting be observed in the project area, construction should not occur within 0.5 mile of any eagle nests during the time of egg-laying, incubation, and the first month after hatching (typically 1 October to 15 May for most Work Items but may extend later in northern reaches) (USFWS 2007). The "no construction" period could be shortened for specific items of proposed construction if it is determined, in consultation with the USFWS, that such construction would not directly, indirectly, or cumulatively have adverse impacts on this species.

Larger numbers of overwintering eagles may be present in the project area. Non-breeding bald eagles are still protected, and efforts should be made to avoid disturbance of wintering communal roosting sites or foraging areas (USFWS 2007). Wintering bald eagle rely on specific roosting sites that are near foraging sites. Often located in mature trees, such communal areas also offer shelter and protection from adverse weather. Human disturbance in such areas may negatively impact survival if few other potential roosting sites are available in the vicinity. First, surveys of roosting or foraging bald eagle would be performed before tree removal and/or borrow construction take place. If eagle are present, then a delay of disturbance activities may be required. Since the project area is largely forested both inside the project area, and in the surrounding landscape, there may be sufficient potential communal roosting sites. However, if eagles are present in the project area, consultation with local USFWS service personnel would occur before activities take place.

A9-3 CONCLUSIONS

USACE anticipates there will be no effect to interior least tern, pallid sturgeon, fat pocketbook mussel, whooping crane, piping plover, and red knot with implementation of the proposed project. USACE anticipates the proposed activities may affect but are not likely to adversely affect the wood stork, gray bat, Indiana bat, northern long-eared bat, and eastern black rail. These conclusions were reached after review of appropriate literature review and scientific data for

each of the species in question and the inclusion, as appropriate, of specific conservation measures to ensure that the proposed project will not impact any of the species. Presence of potential breeding wood storks in the project area, or presence of black rails in marshes near areas targeted for tree removal and burrow construction, should be determined before construction takes place. While it is unlikely that breeding bald eagles are present in the project area, it is still possible, and surveys of potential nest sites would occur prior to construction. It is much more likely that overwintering bald eagles will be present in the project area. Although no longer an ESA listed species, these eagles are still protected and efforts will be needed to ensure that construction activities do not disturb communal roosting sites or foraging areas. Surveys for presence of these birds, plus consultation with the USFWS, would occur before construction takes place.

Pursuant to Section 7 of the ESA, after congressional appropriations are received and as investigations and additional design work for each work item are underway, USACE will re-evaluate this effect determination and will initiate consultation with USFWS, as appropriate. Applicable surveys and ESA coordination, including an official effects determination, will be made for each Work Item during the consultation process.

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