

**SUPPLEMENTAL BIOLOGICAL ASSESSMENT  
OF THE  
IVORY-BILLED WOODPECKER  
FOR THE GRAND PRAIRIE AREA DEMONSTRATION PROJECT  
JUNE 2007**

**INTRODUCTION**

This document is the U.S. Army Corps of Engineer's supplement to the 2005 Biological Assessment (BA) which evaluated the potential impacts of work associated with the Grand Prairie Area Demonstration Project (GPADP) to the federally listed ivory-billed woodpecker (*Campephilus principalis*), and describes in detail the methods that have been and will be employed to ensure that the GPADP does not adversely affect either the ivory-billed woodpecker, or its preferred habitat. This supplement is the result of a lawsuit filed in Federal court alleging that the informal consultation process between the U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (USACE) that had been underway since the rediscovery of the ivory-billed woodpecker (IBW) was inadequate. Therefore, both USACE and USFWS decided to supplement the analysis to ensure that consideration was given to the full range of activities designed to protect the IBW from potential disturbance or harm from implementation of the GPADP.

Biological and ecological data for this endangered species is based on published literature, web-based resources, and communications with experts. The original BA was peer reviewed internally and externally. Reviewers included Dr. Leigh H. Frederickson, Professor Emeritus, University of Missouri-Columbia, Gaylord Memorial Laboratory; Dr. Mickey E. Heitmeyer, Research Associate, University of Missouri-Columbia, Gaylord Memorial Laboratory, and Dr. Richard A. Fischer, Research Wildlife Biologist, Engineer Research and Development Center, U.S. Army Corps of Engineers. All reviewers agreed with the findings of the BA, which concluded that the proposed project was unlikely to adversely affect the IBW or its preferred habitat.

This supplemental BA includes the results of surveys performed in accordance with methods prescribed by the USFWS (see attachments in Appendix A) and an Adaptive Management Plan (which includes both a vegetative and hydrologic component) which is designed to determine whether project operations have negative impacts on the preferred habitat of the IBW (Appendix B). This document was peer reviewed by Dr. Mickey E. Heitmeyer, Research Associate, University of Missouri-Columbia, Gaylord Memorial Laboratory and Dr. Richard A. Fischer, Research Wildlife Biologist, Engineer Research and Development Center, U.S. Army Corps of Engineers.

This supplemental BA is being submitted to the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act, as amended.

## **PROJECT DESCRIPTION**

The GPADP is located in eastern Arkansas approximately 15 linear miles from the location of the initial IBW sighting. The project area includes significant portions of Arkansas and Prairie counties and small portions of Monroe and Lonoke counties (Figure 1). The GPADP will provide agricultural water supply, water conservation, aquifer protection, waterfowl management, and prairie grass restoration. A general reevaluation report (GRR) and final environmental impact statement (EIS) were prepared by USACE, Memphis District, and circulated for public review in December 1999. The record of decision was signed in February 2000.

The selected plan as presented in the GRR and EIS would include a 1,640-cubic feet per second (cfs) pumping station to divert surface water from the White River to the 362,662-acre project area, 8,849 acres of new on-farm irrigation reservoirs, on-farm tail water recovery systems, establishment of native prairie vegetation on approximately 3,000 acres of canal rights-of-way, and the annual flooding of 38,529 acres of harvested rice fields for waterfowl. In addition to the pumping station, the project delivery system would incorporate 184 miles of new canals, 177 miles of pipelines, and the use of approximately 291 miles of existing streams and channels. One hundred twenty weirs would be constructed in existing streams, and numerous other hydraulic structures (e.g., gated check structures, wasteways, culverts, siphons, turnouts) would be constructed in association with the water delivery system. The portion of the White River and its adjacent floodplain from Interstate 40 (mile 126.6) downstream to St. Charles (mile 57.0) was designated as the reach of the River potentially affected hydrologically by the project. The EIS found that there should be no adverse environmental impact to the White River floodplain wetlands in this reach as a result of water withdrawals. Because there were no anticipated impacts to wetlands, the Adaptive Management Plan did not include monitoring of the entire reach. Instead, the monitoring effort will focus on the reach between Interstate 40 to just downstream of Clarendon, AR. Potential impacts due to water withdrawals, if any, will be greatest in this reach. In the event that the monitoring effort does identify negative impacts, measures to adaptively manage the project will be implemented to minimize project effects. Should monitoring results reveal negative impacts within parameters evaluated, the monitoring plan can be extended further downstream in increments to capture the extent of impacts.

Detailed design of the GPADP was initiated following completion of the general reevaluation study. During detailed design, it became apparent that some modifications to the project were needed in order to increase efficiency and flexibility, resolve landowner disputes, and/or reduce costs. A draft environmental assessment (EA) for proposed project changes was prepared and released for public review on 2 March 2004. The proposed modifications contained in the draft EA were: (1) relocation of administrative offices and control room, (2) construction of 113 acres of borrow pits, (3) elimination of the use of existing streams (and associated weir) for delivery of irrigation

water, (4) conversion of approximately 29 miles of small canals to pipelines, (5) replacement of Canal 3200 with pipelines, (6) a 232-acre regulation reservoir to improve operation efficiency, (7) alignment changes to canals and pipelines, and (8) rehabilitation/alteration of existing on-farm reservoirs.

Several reviewers expressed concern over impacts associated with the regulation reservoir. Therefore, an engineering study was conducted to reexamine the purpose and design of this reservoir. The study resulted in a recommendation to eliminate the 232-acre regulation reservoir and replace it with a 99-acre widened section of Canal 1000. The widened canal section would greatly reduce upland hardwood impacts as well as monetary costs. The final EA contained all modifications presented in the draft EA, except the widened canal section replaced the regulation reservoir. A finding of no significant impact was signed on 2 July 2004, and all of the proposed modifications were incorporated in the GPADP.

With the rediscovery of the IBW in nearby forests, it was necessary to add measures to the project to ensure the protection of the species and its preferred habitat to the project plan. These measures include long-term monitoring of the health of the bottomland hardwood forests by developing an adaptive management plan and surveying all appropriate forested areas for the presence of IBW or signs of habitation. The final EIS and final EA can be viewed on the GPADP web site at <http://www.mvm.usace.army.mil/grandprairie>

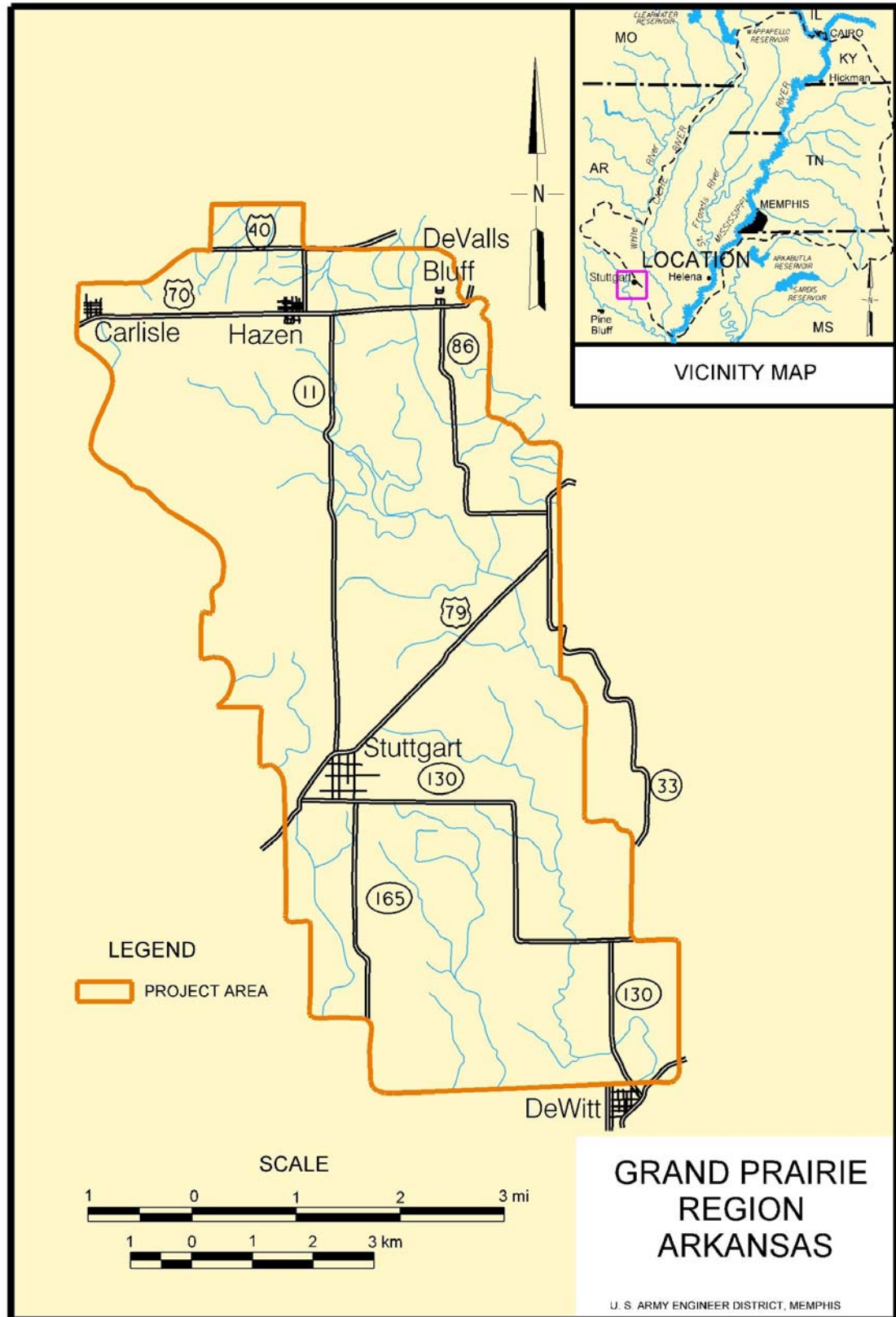


Figure 1. Project Area Map

## **ENDANGERED SPECIES ASSESSMENT**

### **Description**

The ivory-billed woodpecker was thought to be extinct since 1944 when the last documented sighting in North America occurred in northeastern Louisiana (Eckelberry 1961). Although potential sightings of ivory-billed woodpeckers have been reported since that time, none have been conclusively documented until 2004, when researchers encountered the species and recorded visual and audio evidence that confirmed their presence in the Cache River National Wildlife Refuge in Eastern Arkansas (Fitzpatrick et al. 2005). Subsequent evidence suggests that the ivory-billed woodpecker may be present in the Florida panhandle as well (Hill et al. 2006).

The ivory-billed woodpecker was federally listed on 11 March 1967 as endangered and came under the protection of the Endangered Species Act of 1973 (as amended), as a pre-act species.

The ivory-billed woodpecker is one of the largest woodpeckers in the world with an average length of 20 inches and a wingspan of 30-32 inches. Adult males have a prominent scarlet crest, while the female's crest is black. Overall plumage is a deep black in color. Both sexes have a white stripe on the side of the head that extends from below the eye down the side of the neck and onto the side of the back. The white inner primaries and secondary feathers create a "saddle" or "shield" shape on the back of the bird (Ridgway 1914). The "ivory" portion of the name is derived from the keratin sheath that overlays the bone on the bill. Large woodpeckers, such as the ivory-billed woodpecker may live for up to 15 years. Juveniles of both sexes are similar to the adults although plumage is generally browner.

### **Life History**

Historically, nesting would begin in early to mid-February in the southern parts of the range and slightly later in the northern portion. Bent (1939) reported the nesting time as March through early May. It is believed that ivory-billed woodpeckers mate for life, with females laying about three eggs per clutch. Incubation lasts about two weeks, with juveniles fledging about one month after hatching (Hoyt 1905; Jackson 1976). While Hoyt (1905) reported that nesting trees in the U.S. were selected within or along the edges of dense swamps, Dennis (1948) observed ivory-bills nesting and feeding in pines in a mountainous region of Cuba.

Nests are excavated in either dead trees or the dead portions of live trees (Tanner 1942 and Bendire 1895), generally under a broken branch or limb which accelerates the decay process, allowing easier excavation (Jackson 2002). Nest openings are generally oval, 4-6 inches in size, and 40 feet or higher above the ground. Tanner (1942)

reviewed reports that indicated at least 12 different species of trees were used for nesting, including sweetgum, baldcypress, Nuttall oak, overcup oak, and red maple.

Ivory-billed woodpeckers were reported to feed on beetle populations found in recently dead trees (Tanner 1942). Often these trees had died as the result of flooding or storms in the Mississippi delta or fire damage in pine forests of Florida (Jackson 1988). Allen (1939) indicated that the species was also observed feeding on ground dwelling insects. Tanner (1942) reported that ivory-bills fed primarily on sweetgum, Nuttall oak, and to a lesser extent on sugarberry in the Singer Tract in Louisiana, while Dennis (1948) observed that the Cuban population fed on insects infesting pine trees. Foraging by birds observed in the U.S. occurred on trees greater than 11.8 inches in diameter over 85% of the time (Tanner 1941) while those in Cuba were usually observed “barking” small pine trees (Dennis 1948).

The primary method of feeding on invertebrates is to strip the bark off of the dead portion of a tree with the bill to expose the beetles and other wood boring insects below, although it is also reported that they were occasionally observed boring into dead trees to search for larvae. Beetle larvae of the family Cerambycidae appear to be a significant component of the ivory-billed woodpecker diet. Other food sources include the fruits of cherry (Gosse 1859), southern magnolia, and pecan (Beal 1911). Cottam and Knappen (1939) found poison ivy seeds and hickory nuts in the stomach contents of ivory-billed woodpeckers.

### **Range and Population**

Records indicate that the ivory-billed woodpecker existed in at least four states (Tanner 1942), but Jackson (2002) suggested that they were historically present in at least 12 southern states. Breeding pairs of ivory-bills may require at least 6 square miles of uncut forest (Tanner 1942), although this appears to be based on limited observation. Although research to date has not yet been sufficient to determine the existing population size of ivory-billed woodpeckers, further investigations will determine whether breeding pairs exist in the area of the Cache River National Wildlife Refuge of eastern Arkansas, where the 2004 sightings occurred. Fitzpatrick et al. (2005) noted that all the sightings may be of one male bird, which may or may not be part of a breeding pair. No nesting holes have yet been observed, although the size and remoteness of the forest makes discovery problematic. The typical range reported by Tanner for a pair of nesting birds was between  $\frac{3}{4}$  and 1 mile from the roosting grounds. Although Tanner recorded a young single male traveling up to 2.5 miles from his roosting hole, he noted that this was the extreme record, and may have been the result of poor feeding grounds in the woods between the roost and the feeding location.

### **Reason for Concern**

Prior to 2004, the last confirmed sighting of the ivory-billed woodpecker was over 50 years ago, although unconfirmed sightings have been reported since then. Due to its size and habits, large areas of mature trees are thought to be required for sustained

survival and successful reproduction. Loss of bottomland hardwood habitat, resulting from large scale tree harvesting and draining of swamps over the past 150 years, likely resulted in the severe decline in population size. Jackson (2002) suggested that the ivory-billed woodpecker population was never large, and Allen and Kellogg (1937) suggested that the sedentary nature of the birds may have isolated populations from one another.

### **Evaluation of Potential Impacts**

The final EA (covering modifications to the GPADP) disclosed total project impacts to forested areas of up to 135 acres, including 96 acres of uplands, 31 acres of bottomland hardwoods, and 8 acres of forested swamp. Concerns regarding the potential for disturbance by construction activities on nesting and/or foraging behavior in nearby forested areas have been voiced. However, as noted by Tanner (1942) an adult pair with a juvenile offspring continued to nest and feed in a territory that was being actively logged in the Singer tract of Louisiana, suggesting that the IBW quickly becomes acclimated to such disturbance. The pump station location is within the potential home range of the IBW observed at Bayou DeView, however, based on Tanner's observations, the close proximity of the city of Brinkley, Arkansas (population 3,940) and Interstate 40 to the site of the IBW rediscovery along Bayou DeView (both within approximately three miles), the construction and operation of the pump station should not adversely affect the IBW.

### **Surveys**

**Initial surveys.** Surveys of all forested areas within the project boundaries that would potentially be impacted by project components (e.g. canals, pipelines, the pump station) began in May 2005. The site selected for the pump station had been used for crop production until shortly before the initiation of pump station construction, therefore this land was not considered potentially suitable habitat for IBW and did not require survey. Because these surveys were conducted prior to the development of the formal survey criteria, the surveys consisted of site visits to areas where construction would be near or pass through forested areas. Tree species were identified and the general age of the stand was determined. Suggestions for minimizing potential impacts were also made at this time. In addition to these general surveys, a more intensive effort to identify potential signs of IBW habitation or presence was conducted in a small block of woods along the White River located where the inlet channel to the pump station would be located. This block of woods was scheduled for immediate removal and was therefore surveyed on 9 May 2005 by USACE, USFWS, and the Arkansas Game and Fish Commission. No IBW or evidence of their presence was discovered during this effort. A copy of this report is included in Appendix A of this document.

**Development of IBW survey criteria.** The USFWS provided draft survey criteria in June of 2005, which included surveying all suitable habitat (consists of forested areas with an overstory comprised of trees greater than 12 inches diameter at breast

height or 12 inches dbh) within one mile of a construction site; excluding areas within 0.25 miles of human structures. Within this radius, searches would look for signs of IBW presence, including nesting or roosting cavities and foraging sign (bark stripping).

The survey criteria developed by the USFWS were modified after further consultation with experts and experience gained from actual field surveys. The final version of the recommended survey criteria were released by the USFWS in July 2006. Final survey criteria can be found in Appendix C of this document. The significant changes between the draft criteria and the final version were as follows. In the draft criteria, suitable habitat was considered to be forested areas dominated by trees 12 inches or greater in diameter dbh, while in the final version suitable habitat was dominated by trees 16 inches or greater. Evidence of fresh foraging no longer triggered a need for physical or electronic monitoring in the final version as was necessary in the draft criteria, while the distance from existing structures outside the direct project footprint was reduced to 200 feet in the final criteria from 1/8 of a mile in the draft version. The final version therefore was less restrictive in suitable habitat and monitoring requirements than the version under which the initial intensive surveys were conducted, with the exception of the distance from existing structures.

**Training.** Using the draft survey criteria as a basis for personnel training, a team lead by the Cornell University field supervisor instructed members of the GPADP inter-agency team on the proper identification of cavities and potential foraging sign in February 2006. This instruction included a field trip to visit an area that contained typical large woodpecker cavities, and some potential IBW cavities. Team members were instructed on the correct procedures for identification and recording the pertinent information.

**Intensive surveys.** The largest block of woods surveyed was an area extending one mile on either side of the right-of-way for the main pipeline within the southern portion of the Wattensaw Wildlife Management Area (WMA). The pipeline would distribute irrigation water from the main pumping station to a series of smaller pipelines and canals. This right-of-way was located by the GPADP inter-agency environmental team to minimize impacts to mature forest areas (including an old-growth bald cypress stand), and to remain on top of a ridge.

From 6 - 15 March 2006, representatives of USACE, USFWS, Arkansas Game and Fish Commission, Arkansas Natural Resources Commission, Arkansas Natural Heritage Commission, Natural Resources Conservation Service, The Nature Conservancy, and White River Irrigation District (local sponsor) conducted a survey of forest lands adjacent to the pipeline. Suitable habitat located within one mile of the right-of-way of the proposed pipeline was surveyed for evidence of nesting or roosting cavities and forage. Figure 2 shows some transect lines that were part of the survey. This survey was conducted using the recommendations of the draft survey criteria. Several cavities were discovered in a cypress swamp near the White River during this survey that were identified as potential IBW cavities. An expert from Cornell University examined these



cavities and determined that they were unlikely to be made by IBW. The complete survey report, including methods can be found in Appendix A.

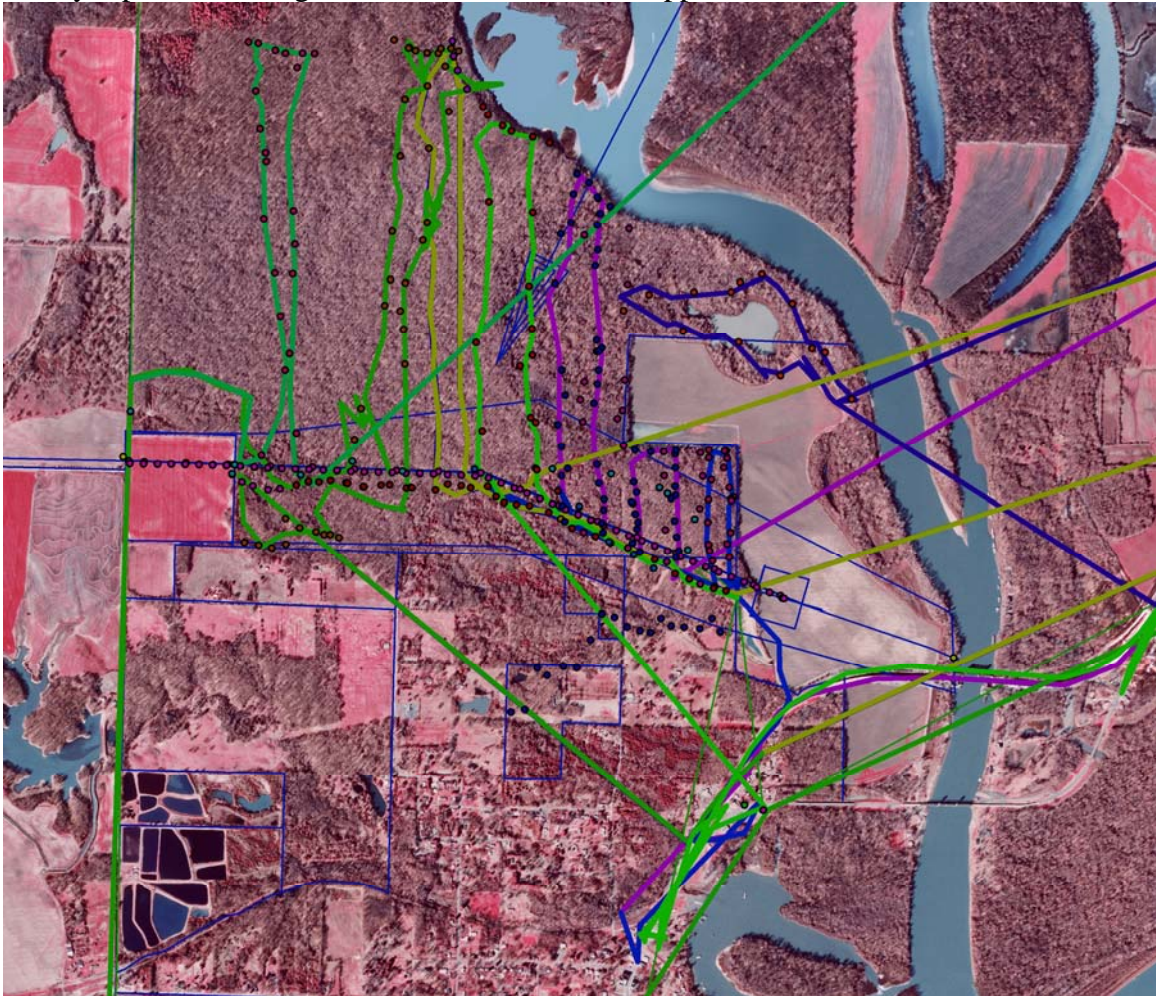


Figure 2. Example of transects taken by surveyors in the Wattensaw Wildlife Management Area surrounding the main pipeline Right-of-way west of the proposed GPADP pumping station.

Additional surveys began in March 2007 after the court ruling, in an effort to further ensure that this project would not have negative impacts on any IBW that might be present within 1 mile of the project area. The areas covered in these survey efforts were not originally considered due to the fact that they were separated from the project area footprint by open fields, roadways, the White River or other non-forested features.

These surveys included forested areas held as private property (figure 3 below) and a portion of the Cache River Wildlife Refuge (figure 4).



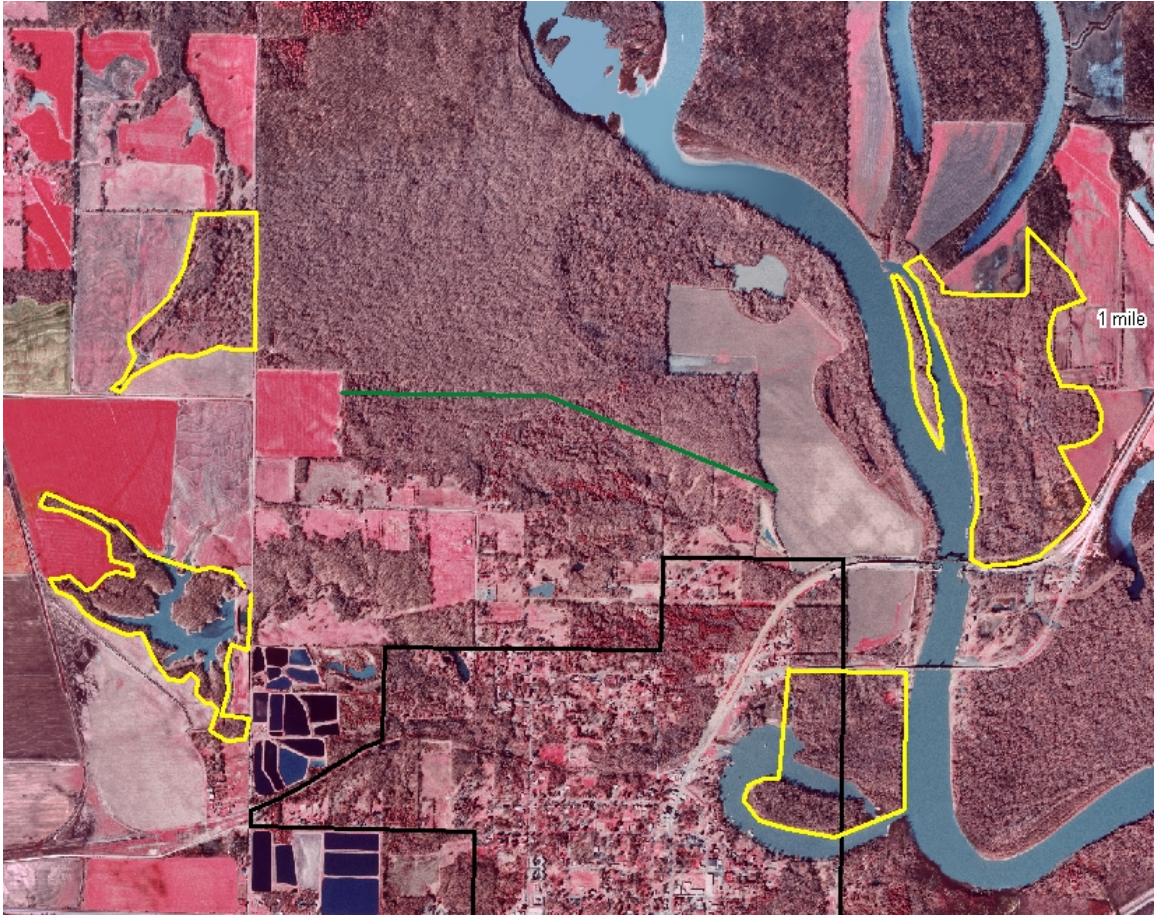


Figure 3. Areas primarily in private holding (yellow bordered locations) that were surveyed during 2007. The green line in the center of the photo indicates the right-of-way for the proposed main pipeline that will run from the pumping station to the first reservoir.

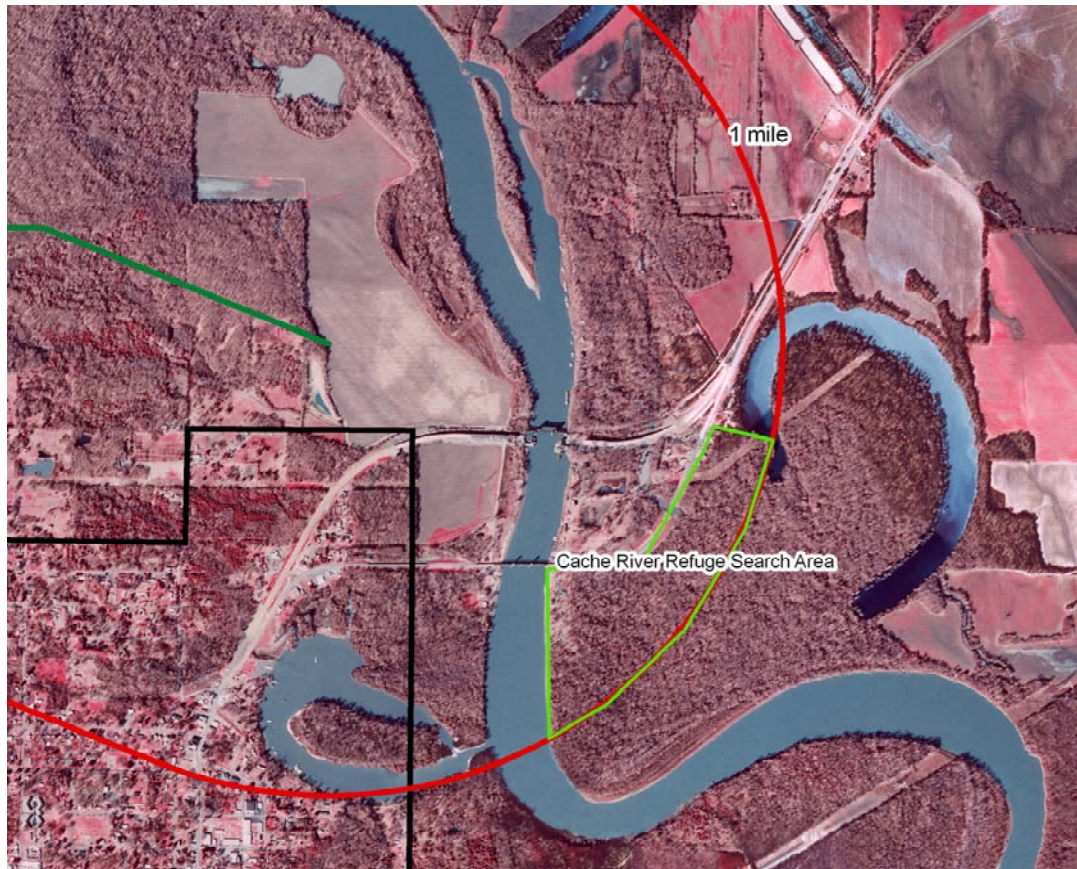


Figure 4. Portion of the Cache River Refuge south of Highway 70 that was surveyed during the 2007 effort. The green line in the left side of the photo shows the location of the right-of-way for the proposed main pipeline that will run from the pumping station to the first reservoir.

During these surveys, one cavity was discovered on private property on the south side of Highway 70 that was considered to be an “A” cavity. This cavity was part of a cluster of four cavities, which indicated a potential roosting cavity (Mueller, personal comm.); therefore representatives of the Memphis District conducted surveillance on two non-consecutive nights in April 2007, as recommended in the final survey criteria. No sign of habitation by any bird was detected during these monitoring events.

### **Adaptive Management Plan**

Adaptive management is a process that integrates results and analysis of long term monitoring with adjustments to project operation to inform environmental protection and operational efficiency decisions. The adaptive management plan (AMP) for the GPADP describes how the operation of the project will be adjusted if long-term monitoring finds adverse impacts to native vegetation and hydrology that lies near the area where the ivory-billed woodpecker IBW has been reported. The AMP was developed as the result of cooperative effort by both governmental, nongovernmental organizations, and



academia. The AMP describes the process for evaluating the results of the monitoring program, membership and responsibilities of the interagency team, “triggers” or action points that would necessitate a change in the operation of the project, and potential operational changes that would be implemented to mitigate adverse impacts. The complete AMP can be found in Appendix B of this document.

## **CONCLUSION**

No ivory-billed woodpeckers or confirmed sign of habitation or presence were observed during any of the surveys conducted. However, if credible reports of feeding, nesting, or utilization of any forest area that would be impacted by this project are received prior to initiation of any construction phase, then no construction activities would be permitted within 1 mile of the location during the breeding and fledging period (1 February through 15 May). Any ongoing construction within a forested area will be halted and consultation will be reinitiated if new evidence of IBW breeding, nesting, or foraging is found within one mile of the construction site. Further, the implementation of the hydrologic and vegetative monitoring programs that are the basis of the AMP will ensure that the operation of the GPADP will not cause long-term negative impacts to the BLH, which is thought to be the preferred habitat of the IBW.

The proposed project is unlikely to adversely affect the ivory-billed woodpecker. The AMP will ensure that no long-term damage to IBW habitat would result from the implementation of this project. Only 135 acres of forest will be cleared for construction within the 362,662-acre project area. Seventy-five acres will be permanently lost to project features, but 60 acres will be allowed to regenerate after construction. Over time, the reforestation of 380 acres of cleared land for mitigation would likely increase the available habitat in the project area for ivory-billed woodpeckers.

Preparer: This BA was prepared by Mark Smith, Memphis District Corps of Engineers, who can be reached at (901) 544-0670.

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