FINDING OF NO SIGNIFICANT IMPACT
(FONSI)

Lower Cache River Restoration
Monroe County, Arkansas
Aquatic Ecosystem Restoration
Section 1135, Water Development Resources Act of 1986

Description of the Proposed Action

The U.S. Army Corps of Engineers, Mississippi Valley Division, Memphis District (CEMVM), proposes to restore riverine conditions to three meanders in the lower seven miles of the Cache River, located immediately north of Clarendon, Arkansas. The upstream ends of these meanders were blocked during construction of an authorized flood control project that channelized the river in the early 1970s. The restoration of flow to these meanders would restore the hydrologic regime to a near historic condition and create habitat suitable for riverine species of fish, freshwater mussels, and other aquatic organisms.

The Locally Preferred Plan is the only implementable plan based on the sponsor's cost-sharing capability. It would place weirs at three locations within this seven mile reach. All weirs would be constructed of large riprap with crushed limestone and smaller rock as a two part filter. Trees would be planted at the bank tie in locations for the weirs to help stabilize the disturbed areas and help minimize the risk for structure flanking. The weirs would be between 5 and 8 feet high with a 20 foot crown. The entire length of the weir with aprons would be approximately 150 feet. The expected benefit from this restoration plan is to provide 56 HUs for fish and 7961 HUs for mussels.

Additional right of way consisting of 6.7 acres at each of three meanders (1, 2, & 3) would need to be acquired from owners of the properties adjacent to the downstream openings of these meanders in order to account for the natural bank migration that would again occur as the river regains a more natural state.

Factors Considered in This Determination

An Environmental Assessment (EA) has been prepared specifically to assess the potential impacts of this work on cultural and natural resources, including endangered species.

Cultural resources investigations have been conducted in the area. No known significant cultural resources occur in the area. The Corps of Engineers is coordinating with the State Historic Preservation Officer. No significant impacts to cultural resources are expected to occur.

Surveys conducted by MVM personnel with the participation of the U.S. Fish and Wildlife Service (USFWS) in 2007 found no federally threatened or endangered freshwater mussel species present within the proposed project area. No other threatened or endangered species were observed during this or other site visits to the area. Coordination with the USFWS regarding final clearances for this project would occur prior to the initiation of project

construction. This seven-mile stretch of river is within twelve miles of the location of the reported sightings of the ivory-billed woodpecker, and is in the contiguous forest block that is likely the last remaining habitat in Arkansas and possibly the nation for this species of critically endangered bird. The proposed restoration of the lower seven miles of the Cache River would have no significant impact to the species or its preferred habitat.

No Hazardous, Toxic, or Radioactive Wastes were encountered during any site assessment or during a record search of the EPA EnviroMapper service.

This project meets the requirements of Nationwide Permit #27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Water quality certification has already been issued for this Nationwide Permit. No project-specific water quality certification is necessary.

Mitigation

The proposed project would restore the riverine hydrology to three meanders in the lower seven miles of the Cache River. Because this project is authorized under section 1135 of the Water Development Resources Act of 1996, the environmental benefits must outweigh any negative impacts. The lower Cache River project fulfills this condition, thus no mitigation is required.

Public Involvement: The proposed action has been coordinated with appropriate federal, state, and local agencies, federally recognized tribes, and businesses, organizations, and individuals through distribution of the draft EA, *Draft Environmental Assessment, Lower Cache River Restoration, Monroe County, Arkansas Aquatic Ecosystem Restoration Section 1135*, for their review and comment. The draft EA and draft FONSI were circulated for public review on December 10, 2010. The Memphis District received four letters in response to the Public Notice. The Arkansas Natural Heritage Commission, U. S. Fish and Wildlife Service and U.S. Environmental Protection Agency are in support of the project. The Cache River/Bayou DeView Improvement District has no concerns.

Conclusion

This office has assessed the environmental benefits of the proposed action and has determined that the proposed work would have no significant adverse impacts upon the natural or man-made environment and therefore an EIS is not required. The proposed project action is expected to benefit both riverine fishes and freshwater mussels.

_____ _____

Date

Vernie L. Reichling
Colonel, Corps of Engineers
District Engineer

ENVIRONMENTAL ASSESSMENT

LOWER CACHE RIVER RESTORATION
MONROE COUNTY, ARKANSAS
AQUATIC ECOSYSTEM RESTORATION
SECTION 1135, WATER DEVELOPMENT RESOURCES ACT OF 1986

INTRODUCTION

Construction of the Cache River Basin, Arkansas, Project was initiated in 1972; and approximately seven miles of channel enlargement were completed on the lower Cache River before the project was halted because of environmental opposition. The U.S. Army Corps of Engineers, Memphis District, is studying the feasibility of restoring water flow to the meanders in the lower seven miles of the river, located immediately north of Clarendon, Arkansas (Figure 1). The upstream ends of these meanders were blocked during construction of the authorized flood control project. This project changed a meandering river ecosystem into a straightened main channel and a series of pools (isolated meanders) with standing water. The restoration of flow to these meanders would restore the hydrologic regime in some areas to the historic condition and create habitat suitable for riverine species of fish, freshwater mussels, and other aquatic organisms.

This environmental assessment (EA) is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as interpreted by the Council on Environmental Quality regulations 40 CFR 1500-1508 and U.S. Army Corps of Engineers Regulation ER-200-2-2, and employs a systematic, interdisciplinary approach. The following sections include a discussion of the need, authority, and impacts of alternative plans on natural and cultural resources associated with the proposed action.

PROJECT DESCRIPTION

The proposed project, which is the locally preferred plan, would reestablish flow and restore aquatic habitat in three meanders (meanders 1, 2, and 3 on Figure 2) previously cut off as part of a flood protection project. Earthen plugs would have to be removed at the upstream end of each meander. The earthen material would be removed with equipment transported up the river on waterborne platforms. The equipment would be moved on shore for the plug removal activity and the earthen material removed would be placed on the bank of the channelized section of the river. Some clearing of existing vegetation would be required for the construction activity and placement of the resultant spoil material. No bank protection would be required at the newly reopened locations, as the natural riverine processes would ensure proper adjustments to the openings.

Because construction of this restoration project is only feasible using waterborne equipment, river stage analysis was conducted to determine the most likely period for adequate water levels to move barges up the river. The greatest probability for adequate river stages was determined to be the six month period between December and May.

Weirs would be placed at three locations within this seven mile reach; below meanders 1 & 2 and immediately below a cross-over ditch from the channelized river into meander 3 (Figure 2). This weir is required on meander 3 because the restoration of current within the meander would likely cause the flow to run through the cross-over ditch, thereby isolating a significant portion of meander 3 from flow. Additionally, the cross-over ditch would be plugged. Hydraulically, this serves to back water up the main channel from the larger weir at the cross-over ditch to the upstream end of meander 3 and diverts flow into the upper portion of meander 3.

All weirs would be constructed of large riprap with crushed limestone and smaller rock as a two part filter. Trees would be planted at the bank tie-in locations for the weirs to help stabilize the disturbed areas and help minimize the risk for structure flanking. The weirs would be between 5 and 8 feet high with a 20-foot crown. The average weir length (with apron) would be approximately 150 feet. The weirs would span the entire width (200 to 300 feet) of the channelized portion of the river.

Additional right-of-way consisting of 6.7 acres at each of the three meanders (1, 2, & 3) would need to be acquired from owners of the properties adjacent to the downstream openings of these meanders in order to account for the natural bank migration that would again occur as the river regains a more natural state.

The project would likely require some intermittent maintenance to replenish rock on the weirs that is lost over time, especially in high water events.

Water would still pass over the weirs into the channelized sections at high stages, maintaining the level of flood control provided by the completed portion of the authorized Cache River Basin Project.

The specific objective of the project is to restore the selected historic river meanders and enhance the lower Cache River Basin ecosystem. It would return portions of seven miles of the lower Cache River to more natural conditions, allowing a return to natural hydrology within the river and its adjacent wetlands.

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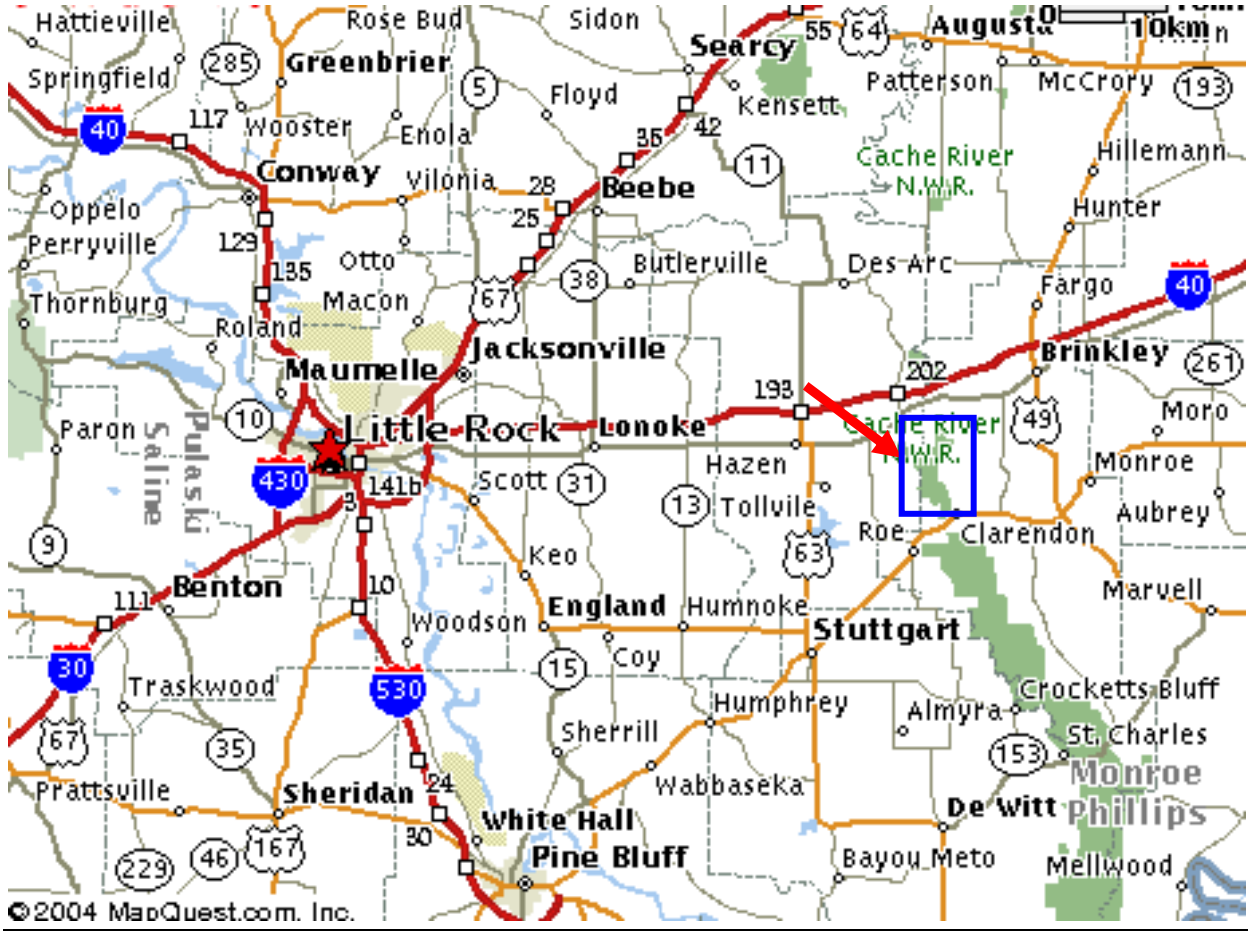

FIGURE 1. Project location of the proposed lower Cache River 1135 restoration project.

NEED/PURPOSE

The degradation of riverine habitat caused by the channelization of the Cache River has been identified as a major factor leading to the decline in fish and wildlife habitat in the lower Cache River. A study conducted on the effects of channelization on fish populations and productivity (Mauney and Harp 1979) reported that species richness, total fish biomass, and mean weight of game fishes were significantly higher in non-channelized reaches when compared to the channelized portion of the Cache River. Christian (1995) conducted surveys of mussel beds in the Cache River and reported that mussel populations and species richness were significantly lower in the channelized portion of the Cache than in the non-channelized upstream reaches. For example, up to 20 different freshwater mussel species were collected upstream of the channelized reach, with densities of up to 37.6 individuals per square meter. Contrasting that, the largest bed encountered in the channelized reach had a mean density of 11.2 individuals per square meter, and contained only seven species.

PROJECT AUTHORITY

The study was conducted under the authority of Section 1135 of the Water Resources Development Act of 1986, in response to a request from the Arkansas Game and Fish Commission (AGFC) and Ducks Unlimited (DU). In letters dated February 11, 2004, AGFC and DU requested the Corps of Engineers conduct a study for an environmental restoration project on Cache River meanders upstream of Clarendon, Arkansas. The Nature Conservancy (TNC) requested to become a cost sharing partner by letter dated September 29, 2009.

ALTERNATIVES

The main planning object was to restore the riverine habitat quality and quantity that was historically predominant prior to the channelization project. The method to accomplish this would be to restore flow into the meanders that the flood control project isolated. Whether through removal of the upstream meander plugs or the installation of culverts through the plugs, the restoration of the flow is a fundamental requirement for project success. Additionally, the current flow path down the channelized section must be redirected into the meanders during normal and base flow conditions. The main constraint of any alternative considered is there can be no reduction in the flood control benefits provided by the original authorized project.

Measures such as culverts through the upstream meander plugs and complete filling of the channelized portion of the river were considered, but were eliminated from further consideration. The removal of the upstream plug of each meander without any action in the channelized portion provided little certainty of meeting project planning objectives since the upstream ends of the meanders would likely fill back in due to a lack of flow change. The installation of culverts through the plugs was eliminated due to a high likelihood of unreasonable maintenance requirements as debris would constantly plug the culverts from the upstream side. The removal of the meander plugs with the complete filling of the channelized reaches between the upstream and downstream ends of the meanders was cost prohibitive and could impact the flood control capacity of the channel.

Riverine fish and mussel habitat models were used to quantify benefits of each plan. Habitat quality indices (HQIs) for fish and mussels were developed for existing conditions and projected for future conditions. Habitat units were calculated as a product of habitat quantity and HQI.

The following project alternatives were analyzed.

No Action Alternative: No project would be constructed as a result of this project proposal. It would not preclude other entities from pursuing restoration in this or adjacent reaches. Without restoration, the meanders would continue to degrade over time. There has been no specific sediment monitoring in the area, but the observed sedimentation trends would predict complete loss of fish and mussel habitat except in meander 3 which retains a partial connection to the channel. The meanders currently provide 22 Habitat Units (HUs) for fish, but this would decline

to none over 50 years. Currently the area provides approximately 3272 HUs for mussels, but over time the situation would continue to deteriorate and all mussel habitat is likely to decline, approximately 581 HUs would remain after 50 years (assuming 50% loss). The potential for a successful restoration would decline as time goes on and the system degrades further. Mussels especially would have a hard time re-colonizing the area and reestablishing a healthy species assemblage.

Alternative 2 – Weir Placements in Conjunction with Upstream Plug Removal: The remaining feasible alternative was to remove the plugs at the upstream end of the meanders and install cross channel flow diversions (weirs) on the channelized reach immediately downstream from the upstream end of each meander. Refinement and further analyses was performed to determine which of the six meanders would be optimal to restore through this approach. All meanders require one plug removal on the upstream side. Five of the six meanders require a single weir. One meander (meander 3), would require a second weir immediately downstream of a cross-over ditch that connects an outside bend and the channelized portion of the river. This second weir at the cross-over ditch would maintain diverted flow in meander 3 to ensure benefits in the downstream portion of the meander. Due to the longer length of meander 3 and the high level of benefits provided by its restoration, meander 3 was included in all the Alternative 2 variants. Through the formulation process, three particular scenarios of Alternative 2 were considered and evaluated. These were:

> *Alternative 2a* – Restore all six meanders. This alternative would provide the most ecosystem benefits (111 HUs for fish and 16143 HUs for mussels), but the cost would be approximately $13,000,000.
>
> *Alternative 2b* – Restore four meanders (meanders 1, 3, 5, & 6). This plan would also restore habitat for riverine fishes (91 HUs) and mussels (12470 HUs). The cost of the project would be approximately $11,000,000
>
> *Alternative 2c* – Restore three meanders (meanders 1, 2, & 3). This restoration alternative still provides substantial restoration benefits (56 HUs) for fish and (7961 HUs) for mussels. The cost would be approximately $8,000,000.

While all of these plans provide substantial environmental benefits and are economically justified, they remain too costly for the local sponsor. Therefore, these plans are not implementable.

Locally Preferred Plan (LPP): This plan would restore three meanders (meanders 1, 2, & 3) and is similar to Alternative 2c. However, in the LPP, the upstream most weir at meander 3 would be eliminated and the cross-over ditch would be plugged. Hydraulically, this serves to back water up the main channel from the larger weir at the cross-over ditch to the upstream end of meander 3 and diverts flow into the upper portion of meander 3. The LPP affords the same environmental benefits (habitat gains) as Alternative 2c since it restores flow to meanders 1, 2, and 3, but at a lower cost (approximately $6,600,000).

The no-action alternative would not meet the purpose and need for the project; therefore, it was not considered an acceptable alternative. The local sponsor can afford none of the Alternative 2 plans. However, the LPP provides substantial benefits at a cost acceptable to the sponsor. Therefore, the LPP was selected as the only feasible and implementable alternative. The effects of the LPP are evaluated in this EA.

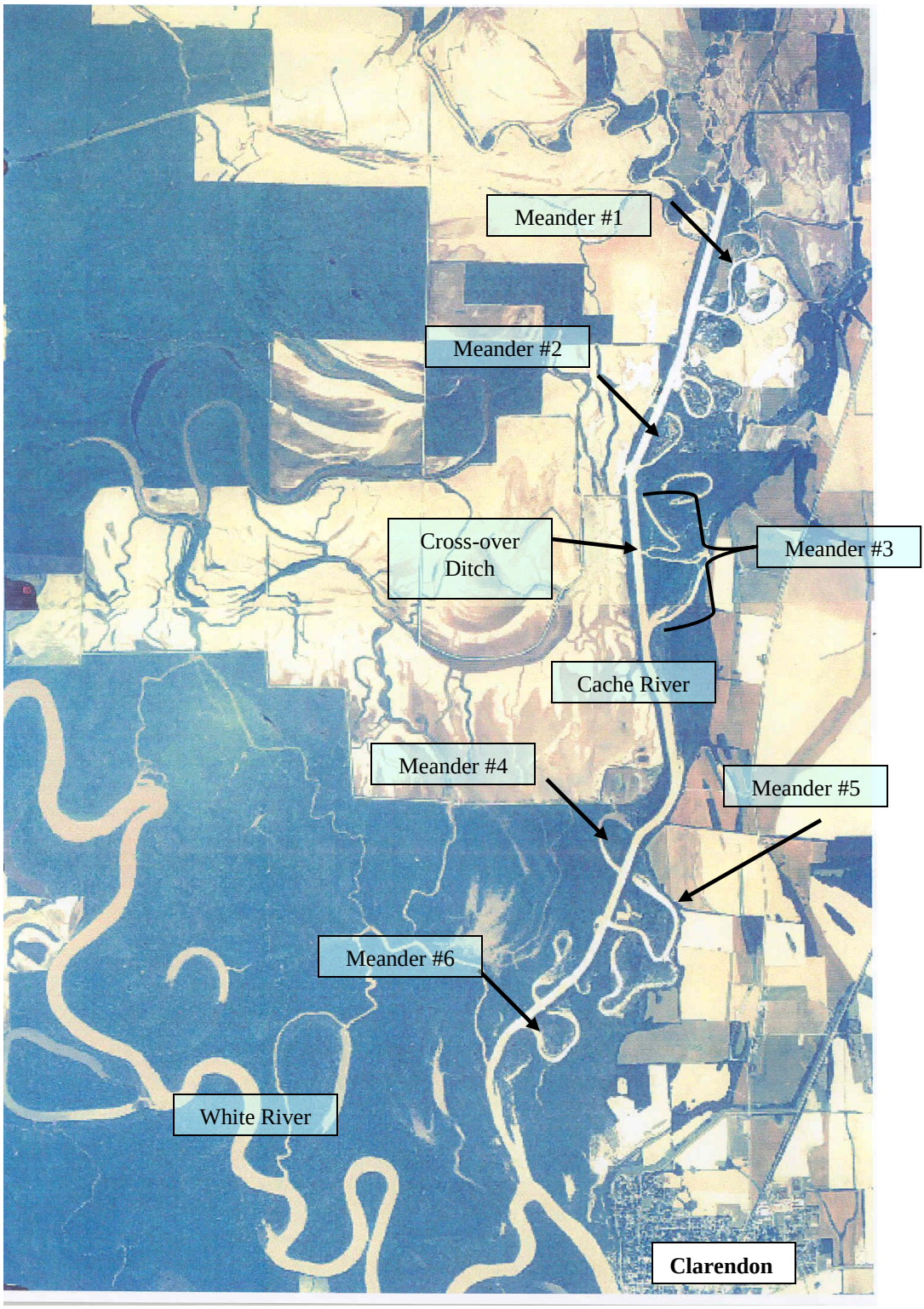

Figure 2. Location of the meanders in the lower Cache River, AR .

RISK AND UNCERTAINTY

There is a higher level of uncertainty and risk associated with the LPP. The uncertainty lies predominantly with the inlet conditions at the upstream end of meander 3. With the removal of a weir that positively redirects flow into the meander at that point, the forcing function to redirect water down the meander is the hydraulic head created by the downstream weir (about a quarter of a mile downstream). This would mean that there is a higher risk of sedimentation across the mouth of the meander and within the associated channelized portion of the river. There is also a higher risk that the weirs would require maintenance through the project life. This risk exists with any project alternatives (2a, 2b, or 2c), but is increased due to the smaller scale of the LPP structures. There is a potential for increased operations and maintenance costs over the lifetime of the project. Additionally, meanders are dynamic and would move over time. This may cause some bank scouring as the river adjusts itself. Flowage easements would be purchased in areas deemed most likely for this, but other areas may also experience movement and scouring.

FLOODPLAIN MANAGEMENT

Executive Order 11988, Floodplain Management (signed 24 May 1977), requires Federal agencies to recognize the significant values of floodplains and to consider the public benefits that would be realized from restoring and preserving floodplains. The Executive Order has an objective of the avoidance, to the extent possible, of long and short-term adverse impacts associated with the occupancy and modification of the base floodplain and the avoidance of direct and indirect support of development in the base floodplain wherever there is a practical alternative. Under this Order the Corps of Engineers is required to provide leadership and take action to:

a. Avoid development in the base floodplain unless it is the only practical alternative;
b. Reduce the hazard and risk associated with floods;
c. Minimize the impact of floods on human safety, health, and welfare; and
d. Restore and preserve the natural and beneficial values of the base floodplain.

Three weirs would be constructed within the channelized portion of the river to move water back into the historic meanders. This project would restore riverine conditions in part of the lower seven miles of the Cache River and its associated floodplain.

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

No evidence of HTRW was observed during project area site visits in June 2004 or July 2007. A record search was conducted by Corps personnel through the EPA EnviroMapper (http://maps.epa.gov). The EPA search engine did not indicate any superfund sites, toxic releases, or hazardous waste sites within the project area. Based upon information gathered during the preliminary assessment for the project area, it is reasonable to assume that no

hazardous, toxic, or radioactive waste would be encountered within the project area.

ENVIRONMENTAL SETTING

LOCATION: The project area is located in Monroe County, Arkansas, almost entirely within the boundaries of the Cache River National Wildlife Refuge (Figure 1). The reach of the Cache River under study begins approximately 1.5 miles north of Clarendon, Arkansas, and ends approximately 8.5 miles north of Clarendon. The project area includes several river meanders that were plugged by the Cache River Basin Project in the early 1970's. This flood control project diverted the flow of the river into a straight channel dissecting the historic river configuration. Meanders range from approximately 7 acres in meander 2 to approximately 32 acres in meander 3 (Figure 2).

CLIMATE: The climate of the area is generally mild and humid. It is temperate with long, hot summers and short, moderately cold winters. Monthly average temperatures range from approximately 31 degrees Fahrenheit in January to approximately 92 degrees Fahrenheit in July. The average annual rainfall for the project area is approximately 51 inches.

STATE AND FEDERAL HOLDINGS: Some of the land adjacent to the proposed project is in Cache River National Wildlife Refuge and the Cache River/Bayou DeView Improvement District also controls some land. The Improvement District was one of the sponsors of the original flood control project, and has no concerns regarding the proposed restoration of some of the meanders. Coordination with the District would be ongoing during design and construction of this project.

SOILS: The soil base along the Cache River north of the junction with the White River is dominated by three soil associations: Sharkey soils, Commerce soils, and Mahoon soils. Sharkey and Mahoon soils are found within an approximately 3.5-mile area north of the junction of the White and Cache Rivers. The soil association changes to Sharkey and Commerce soils beginning at the southern extent of Dobbs Landing, and for 3.5 miles north to the end of the channelization of Cache River near the junction of Fish Lake Slough and Ingram Lake.

All three soil types within the proposed project area share several similar characteristics in that they are located within poorly drained frequently flooded areas that are generally level, but also contain gently undulating swales and low ridges. Soil composition is similar for the Commerce and Mahoon soils, in that they are composed of silty clay loam to fine sandy loam. Sharkey soils have a slightly more clay composition, and are composed of silty clay loam to clay.

The riverbank and adjacent lands within the proposed project area are poorly suited to farming due to the hazard of frequent flooding and the timing of the floods. In most years, flooding occurs between December and June, which includes the normal planting seasons for many agricultural crops. The riverbank and adjacent lands are well suited to flood tolerant natural vegetation, including bottomland hardwood species which thrive in the wet soils and provide valuable habitat needs for a wide variety of wildlife species.

SIGNIFICANT RESOURCES AND IMPACTS

Wetlands

The project area lies within a Wetland of International Importance. The Cache-Lower White River site is number three in the United States on the RAMSAR list. It is so designated because it is the longest continuous expanse of bottomland hardwoods (forested, periodically flooded wetlands) in the Lower Mississippi Valley. The area is internationally important for numerous species of wintering waterfowl, especially Canada geese. Up to 100 bald eagles also winter in the area. Channelization of the Cache River was intended to facilitate drainage of upstream agricultural lands and prevent flooding in communities far upstream of the RAMSAR site. The project did not affect flooding of the bottomland hardwoods and very little clearing occurred. The values for which the area was listed are not likely to be directly affected either positively or negatively. Indirectly, returning a portion of the river to a more natural condition would be perceived as positive for the significance of the wetland complex if only as an aesthetic improvement.

Land Use and Vegetation

Although the Cache River watershed has undergone significant conversion from forest to agriculture, it continues to have one of the largest remaining contiguous forested wetlands in the lower Mississippi River Valley (Kress et al. 1996). This conversion resulted in significant reductions in both total forested area (167,897 ha in 1935 to 60,749 ha in 1975) and forest core area (111,000 ha in 1935 vs. 21,508 ha in 1975). As Kress et al. note, forest core is crucial habitat for species that require large blocks of forest such as migratory song birds.

In a study of vegetation in the Cache River floodplain, Smith (1996) noted that the species and distribution of vegetation was consistent with alluvial river floodplains found throughout the Coastal Plain. Trees in the river swamp forest, which is subject to nearly continuous flooding or saturation was co-dominated by water tupelo and bald cypress. The next higher zone of vegetation (where flooding or saturation occurs up to 50% of the year) had greater species richness, and was dominated by an overcup/water hickory assemblage (Smith 1996).

Some vegetation would be removed to facilitate construction, however approximately 4,800 trees would be planted around the weirs (1,600 per weir). There would be no significant change in vegetative quantity or quality as a result of the project.

FISH AND WILDLIFE

Waterfowl

The Cache River system is part of the Mississippi Flyway. As recently as the 1980's, the Cache-Lower White River corridor contained 30-40% of all wintering mallards in Arkansas and over

10% of all wintering mallard habitat in the United States (Yaich 1990). However, from 2000 to 2009 the region has supported <20% and <5% of wintering mallards in Arkansas and the U.S., respectively. Habitat loss and altered hydrology that changes timing, depth and duration of winter floods is likely responsible for this decline (U.S. Department of the Interior 1984, Heitmeyer 2006, USFWS 2009). Concentrations of ducks and geese generally are associated with refuge/sanctuary areas on wildlife refuges and management areas. The project area is one such area and as such has become very important for waterfowl.

The proposed project would restore natural flow to the meanders and restore more natural hydrology in a small area. This would be beneficial for waterfowl, but because the area is very small in relation to the total ecosystem, it would be a negligible benefit.

Mussels

Qualitative surveys conducted by Corps of Engineers personnel in 2007 indicated that the freshwater mussel populations within the isolated meanders were significantly reduced when compared to those found in both the channelized portion of the river and to the unchannelized reaches upstream of the project area. Payne and Farr (2009) suggest that factors related to the lack of flow, primarily silt accumulation, have significant negative impacts on the communities. Degradation of the habitat is likely to continue without the project.

Coordination with the Arkansas Game and Fish Commission and the U.S. Fish and Wildlife Service would determine if any relocation of existing mussel communities would be advisable prior to weir placement. Removal of the earthen plugs may cause some temporary siltation, but it would have no significant impact on mussel habitat. After project completion, the re-established flow in the meanders would begin to remove some of the accumulated sediment and the habitat would improve. It is likely to take several years for the habitat to reach a new state of equilibrium. It would take several years and multiple mussel generations to realize the full benefits of the project. Restoring meanders 1, 2 & 3 is expected to eventually produce 7961 habitat units in the restored meanders. Existing mussel habitat associated with the rest of the channelized portion of the river would remain.

Fish

Killgore and George (2009) found that the meanders currently provide only marginal habitat for riverine species of fish, which is the guild that has been most impacted by the channelization of the lower 7 miles of the river.

In March 2009, fishes were sampled in each of the six meanders noted in Figure 2, the intersecting channelized reach, and a natural bendway immediately upstream of the channelized reach. Fishes were collected at three sites at each of the eight locations, while water quality was measured once at the middle of each location. For the meanders and natural bendway, sample sites corresponded to the lower (most downstream), middle, and upper portions of the waterbody; the straight, channelized reach was sampled at three representative locations.

The data collected and analyzed from the samples are further detailed in the draft project report, *Lower Cache River, Monroe County, Arkansas, Section 1135 Detailed Project Report*, in an appendix, Lower Cache River Basin Restoration: Benefits to Fish and Aquatic Habitat. This report is available upon request. Some fisheries habitat does exist in the channelized portion of the river and in the meanders but is not functioning as a natural ecosystem.

Removal of the earthen plugs may cause some temporary siltation, but it would have no significant impact on fisheries habitat. There is some inherent uncertainty about how the channel would readjust and how sediment would be transported. It would take several years for a new sediment balance to stabilize. Riverine fish which are currently using the channelized reaches would begin to use the restored meanders as soon as flow is re-established. Some species which are currently using the altered habitat within the meanders may leave the area. Over time a more natural fish community should take over the restored meanders. Restoring meanders 1, 2 & 3 is expected to produce 56 habitat units for riverine fishes. The existing altered habitat in meanders 4, 5 & 6 and in the remaining channelized reaches would remain.

ENDANGERED SPECIES. Surveys conducted by MVM personnel with the participation of the U.S. Fish and Wildlife Service (USFWS) in 2007 found no federally threatened or endangered freshwater mussel species present within the proposed project area (see attached report). No other threatened or endangered species were observed during this or other site visits to the area. Coordination with the USFWS regarding final clearances for this project would occur prior to the initiation of project construction. This seven-mile stretch of river is within twelve miles of the location of the reported sightings of the ivory-billed woodpecker, and is in the contiguous forest block that is likely the last remaining habitat in Arkansas and possibly the nation for this species of critically endangered bird. The proposed restoration of the lower seven miles of the Cache River would have no significant impact to the species or its preferred habitat.

CULTURAL RESOURCES. The project is being coordinated with the Arkansas State Historic Preservation Officer. There are no known cultural resources in the area that would potentially be affected. Concurrence from the AR SHPO is anticipated.

PRIME & UNIQUE FARMLANDS: The project was coordinated with USDA. No farmlands occur within the project area.

AIR QUALITY: The area is in attainment for all air quality standards. Since the equipment to be used is a mobile source, the project is exempt from air quality permitting requirements. Although air emissions would not require a permit, best management practices shall be used throughout the construction to minimize air pollution.

WATER QUALITY: This project meets the requirements of Nationwide Permit #27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Water quality certification has already been issued for this Nationwide Permit. No project-specific water quality certification is necessary. A 404(b)(1) evaluation was done and is included as an appendix to this EA. No long-term negative water quality impacts are anticipated and the project should improve dissolved oxygen levels and decrease sedimentation.

CUMULATIVE EFFECTS

The Council on Environmental Quality (40 CFR § 1508.7) defines cumulative impacts as 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."

The proposed project would result in the restoration of riverine hydrology to three meanders in the lower seven miles of the Cache River, which is expected to increase the habitat available to riverine species of fish and improve habitat quality and quantity for freshwater mussels.

Other meander restorations are possible within the Cache River system. Cost prevents the restoration of meanders 4, 5 & 6 at this time, but local entities may pursue opportunities for these at a later date. Meander restoration has also been discussed as a potential solution for flooding around Grubbs, Arkansas, over 100 miles upstream. Success in restoring meanders 1, 2 & 3 would likely encourage other such projects. Although the current restoration is small in scale in comparison to the amount of alteration in the system, it could lead to more widespread restoration efforts which would have a cumulative positive effect on the system for fish, mussels, waterfowl and other species.

Waterfowl

Habitat changes throughout the system have decreased the quality and quantity of available waterfowl habitat. This project lies in an area of intact waterfowl habitat so it would have no impact. Large scale meander restoration in the basin could have significant positive effects on waterfowl, but restoration at that level is not likely in the foreseeable future.

Fish

Although a more native species assemblage is expected to take over the restored meanders, the benefits of this project would be localized. More meander restorations over time could bring about a greater shift in fish community composition extending beyond the meanders and into the channelized reaches and even into the White River.

Mussels

Changes in fish species composition would also affect mussel species composition. It would take more than just the current project to have more than localized effects.

Other Resources

The project is not likely to have direct or indirect effects on wetlands, terrestrial wildlife or vegetative composition. Therefore, no cumulative effects on these resources are expected.

RELATIONSHIP OF PLAN TO ENVIRONMENTAL LAWS AND REGULATIONS

The relationships of the recommended plan to the requirements of environmental laws, executive orders, and other policies are presented below:

Federal Policies and Acts	Compliance Status
Archeological Resources Protection Act of 1979	1
Bald Eagle Act	1
Clean Air Act Amendments of 1977	1
Clean Water Act of 1977, as amended	1
Endangered Species Act of 1973, as amended	2
Farmland Protection Policy Act of 1984	1
Fish and Wildlife Coordination Act of 1958	1
Flood Control Act of 1946, as amended	1
Food Security Act of 1985	1
National Environmental Policy Act of 1969	1
National Historic Preservation Act of 1966, as amended	2
River and Harbor and Flood Control Act of 1970	1
Water Resources Development Act of 1986	1
Water Resources Planning Act of 1965	1
Executive Orders	
Floodplain Management (E.O. 11988)	1
Protection, Enhancement of the Cultural Environment (E.O. 11593)	1
Protection of Wetlands (E.O. 11990)	1
Other Federal Policies	
Prime and Unique Farmlands	1
Water Resources Council, Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies	1

1/ Full compliance with the policy and related regulations has been accomplished.
2/ Partial compliance with the policy and related regulations has been accomplished. Coordination is ongoing.

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COORDINATION

U.S. Fish and Wildlife Service, Conway, AR
Arkansas Department of Environmental Quality
Arkansas Game and Fish Commission
Arkansas Natural Heritage Commission
Arkansas Soil and Water Conservation Commission
Natural Resources Conservation Service, Little Rock, Arkansas
Arkansas State Historic Preservation Office, Little Rock, Arkansas
U.S. Environmental Protection Agency, Region IV, Dallas, Texas
Ducks Unlimited
The Nature Conservancy

Arkansas Game Fish Commission, Ducks Unlimited and The Nature Conservancy are in support of the project and one or all of these entities are expected to sponsor construction of the project.

A Public Notice of the Availability of this EA was sent out December 10, 2010. The Memphis District received four letters in response to the Public Notice. The Arkansas Natural Heritage Commission, U. S. Fish and Wildlife Service & U.S. Environmental Protection Agency are in support of the project. The Cache River/Bayou DeView Improvement District has no concerns.

CONCLUSION

This office has assessed the environmental impacts of the proposed action and has determined that the proposed work would have no significant negative impacts upon vegetation, fish, wildlife, cultural resources, or the human environment. The proposed project action is expected to benefit both riverine fishes and freshwater mussels. Further, restoration of the meanders, while maintaining the authorized flood control project, would benefit not only the natural environment, but also area residents, who have indicated that the fishery in the lower seven miles of the Cache River has degraded since the channelization project occurred.

PREPARER

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APPENDICES

404(b)1 Evaluation

Correspondence Received

Cache River/Bayou DeView Improvement District
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
Arkansas Natural Heritage Commission
Natural Resources Conservation Service