CEMVS-PM-E

MEMORANDUM FOR FILE

SUBJECT: Mark Twain Lake, Missouri, Supplement No. 4, Design Memorandum No. 9, The Master Plan.

1. Reference:

- a. ER 1130-2-550, Chapter 3: Project Master Plans and Operational Master Plans, approved 15 August 2002
- EM 1110-1-400, Engineering and Design: Recreation Facility and Customer Services Standards,
 November 2004
 - c. Mark Twain Lake Master Plan, Design Memorandum No 9, Salt River, Missouri, 2004
- 2. Purpose: This supplement requests approval for the proposed rehabilitation of the Eagle Nature Trail in the M.W. Boudreaux Visitor Center Recreation Area.

3. Project Description:

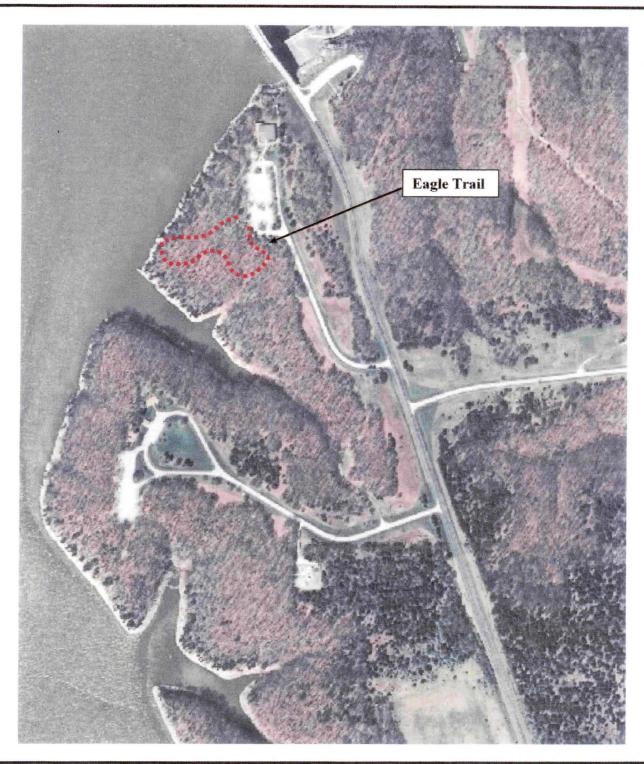
The development of a new Visitor Center and associated facilities in the M. W. Boudreaux Recreation Area is anticipated to increase visitor opportunity and visitation of this area. Certain aspects of the recreational facilities within the area have been identified as insufficient to providing a quality outdoor experience. The existing trail located in the M.W. Boudreaux Visitor Center Recreation Area is an unimproved earthen- surfaced trail traversing uneven topography which limits utilization of the facility.

The proposed project will rehabilitate the existing trail facility by creating a barrier-free, ADA compliant, 0.25 mile trail accessing an Oak/Hickory Forest Ecosystem and scenic lake vistas. The trail surface will be of concrete construction established on appropriate grade. Landings, handrails, and benches are also incorporated into the design of the facility to comply with ADA requirements.

The facility improvements will result in a barrier-free trail that will provide a quality outdoor opportunity for all recreational visitors. It will also serve as a valuable interpretive asset utilized by the Corps of Engineers to convey our mission of responsible land stewardship.

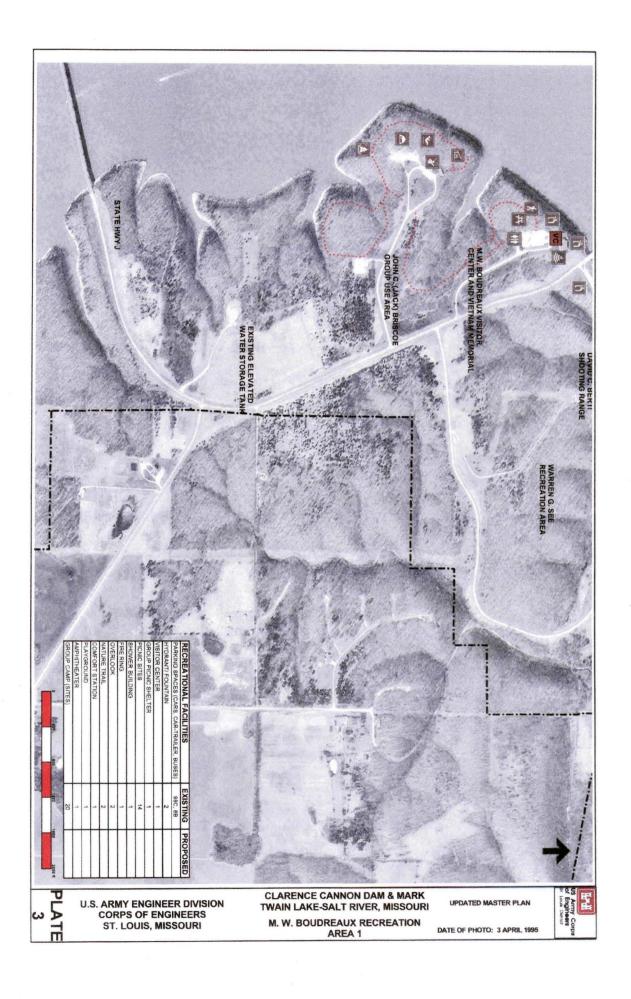
- 4. Cost Estimate: The estimated cost of the proposed project is \$69,512.00.
- 5. Environmental Compliance: All environmental compliance requirements have been accomplished. Reference the approved Environmental Checklist dated August 3, 2010, and the approved Biological Assessment dated August 2010 provided with this submission.

6. Conclusions: The proposed and previously approved projects address identified needs at Mark Twain Lake, and is an appropriate proposal to meet the demand for recreational facilities and operational needs. The proposed and previously approved actions are in accordance with the Mark Twain Lake Master Plan and Corps regulations and policies. Approval of this supplement is recommended.





Clarence Cannon Dam and Mark Twain Lake M.W. Boudreaux Visitor Center Location of ADA Accessible Eagle Trail



MEMORANDUM FOR CEMVS-PD-E

SUBJECT: Supplement No. 4 (Eagle Trail), Design Memorandum No. 9, Mark Twain Lake Master Plan, Salt River, Missouri

Approve Supplement No. 4 to the Mark Twain Lake Master Plan.

Approve _____ Disapprove _____

THOMAS E. O'HARA, JR.

COL, EN Commanding

ENVIRONMENTAL CHECKLIST For ST. LOUIS DISTRICT CORPS PROJECTS

GENERAL INSTRUCTIONS: This checklist will be used to document environmental compliance under NEPA and Section 404/401 of the CWA on all new construction projects or real estate actions conducted at St. Louis District COE Projects. The checklist also contains questions relating CERCLA and RCRA issues that will be used to evaluate the need for various local, state and federal permits. Please fill out pages 1-3 and forward to OD-T

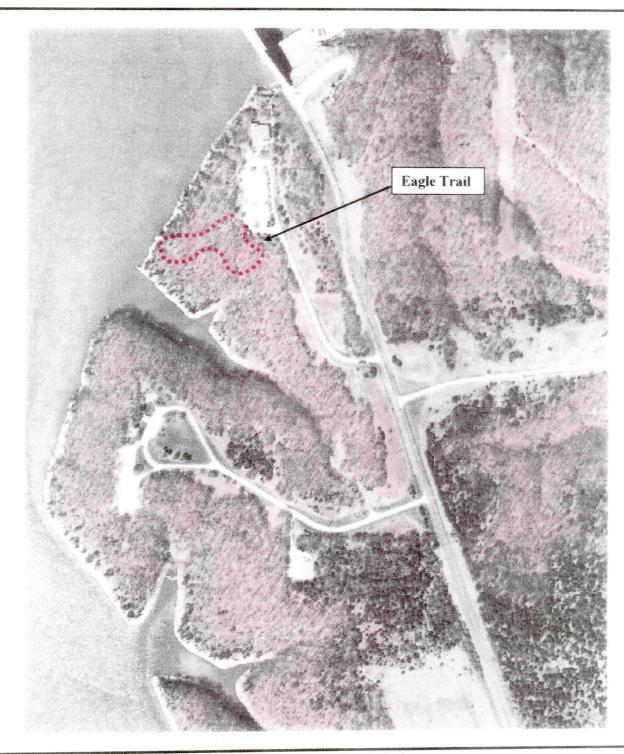
DATF: August 3, 2010			
NAME OF PROJECT: M.W. Boudreaux Visitor Center. ADA	Accessible E	agle Trail	
LOCATION: M.W. Boudreaux Visitor Center, Mark Twain Lal	ke		
LEGAL DESCRIPTION: T 55N R 7W S 26 COU	NTY Ralls		
BRIEF DESCRIPTION OF PROJECT (include photographs, means and the ARRA funded construction of the M.W. Boudreaux Visimproved to an ADA accessible trail, providing barrier-free recreation individuals with mobility limitations. The trail will be approximately or asphalt surfaced. The trail will traverse an upland hardwood forest Clearing of vegetation and moderate excavation will be required to extend of trail surface, and to develop a scenic lake overlook.	sitor Center, a nal and educat 1000' in leng t ecosystem si	n existing national opportional opportion the 12° in with tuated atop 2	unities for dth, and be concrete limestone bluft.
ANTICIPATED EFFECTS ON THE ENVIRONMENT AS A PROJECT: Project will require the removal of trees, and moder			
IS THIS ACTIVITY INCLUDED IN THE MASTER PLAN?	YES 🛛	NO 🗌	Initial
IS THIS ACTIVITY INCLUDED IN THE OMP?	YES [NO 🛛	Initial
IS THIS ACTIVITY INCLUDED IN A WORKPLAN?	YES [NO 🖂	Initial
IS THIS ACTIVITY INCLUDED IN THE PMP?	YES	NO 🗵	Initial
Project Manager initiating Environmental review Operation Manager's review Technical Operations review (CO-T)	dward	DATE: 8	3-10 -5-10
Recommended Action			
PM-I. Biological review required HD-/ Cultural review required CO-F review required ED-HQ further action required YES (CX£ 9.4.EA.EIS)	Initials Initials Initials Initials	DATE DATE	8/4/2010 8/4/2010

CERCLA/RCRA REVIEW

Will the activity involve the storage of hazardous substances or materi compressed gases, pesticides or acids)? If yes, list substances/materials:	als (flammable/ YES -	NO 🖂
If so will the site be covered in the spill plan?	YES	NO [
Will the activity result in a change of the hazardous waste generator status?	YES	NO 🖂
Will the site store, accumulate or transfer hazardous waste?	YES	NO 🛛
Will the activity result in a real property transaction? If yes, has a Environmental Baseline Survey been conducted?	YES _	NO ⊠ NO □
Is there a change in land use or the site Development Plan requiring a state permit or license?	YES	NO 🗵
Will fuels be dispensed (temporarily or permanently) at the site?	YES	NO 🗵
Does the activity involve the installation, removal or upgrade of storage containing petroleum products, hazardous substances or wastes?	ge tanks YES	NO 🖂
Are there any pipelines located on the site?	YES	NO 🗵
Will solid waste be generated at the site?	YES	NO 🛛
Will construction, demolition or remodeling of facilities result in disturbance of asbestos, PCB's or Lead-Based Paint?	YES	NO 🖾
Are there wastewater discharges associated with the activity regulated the following: Stormwater runoff Dredge fill Wastewater treatment Septic systems Vehicle washing		
Industrial waste systems Lines which bypass treatment structures requiring a National I	Pollution Disch	arge Elimination
System (NPDES) permit?	YES	NO 🛛
Does the activity result in the operation of a public drinking water system beach regulated by state EPA or Public Health agencies or federal agencies?	YES	NO 🛛
Will the activity involve construction, painting, venting or open burn Emissions Permit?	YES _	quire an Air NO 🗵

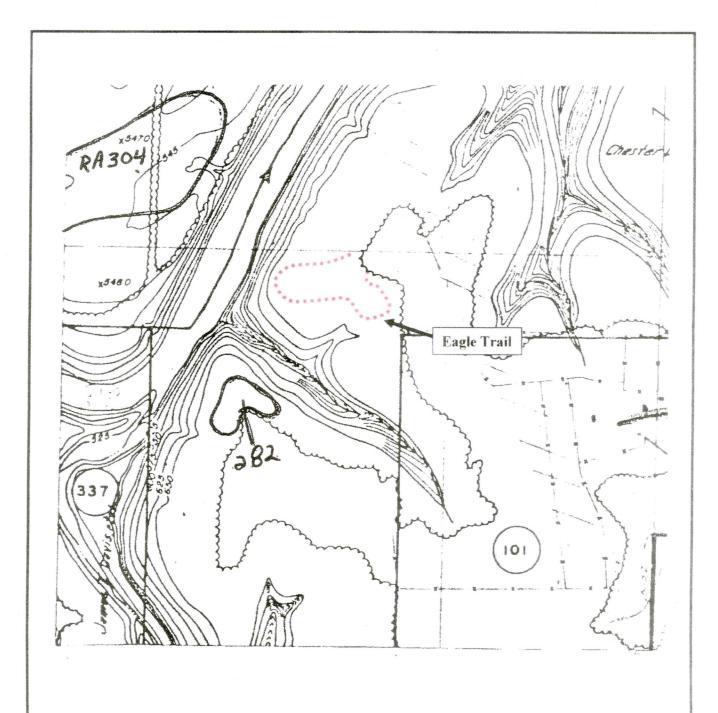
NATURAL/CULTURAL RESOURCES REVIEW

Does the activity result in the removal of trees?	YES 🛛	NO 🗌
If YES, list the species name and number to be removed. It will be no	ecessary to rer	nove the following
identified trees from specific locations of the proposed trail:		
Scenic Overlook		
3 White Oak, 12"- 20" dbh		
1 Mockernut Hickory, 14" dbh		
2 Eastern Red Cedar, 14"-18" dbh		
Trail System		
Approximately 35 mixed upland hardwood trees (oak, elm, hickory) le	ss than 6" dbf	1.
	1: 41	
Are state and/or federal threatened/endangered/candidate species locate	ed in the proje	ect area?
	YES 🖂	NO [
If YES, list the species. Indiana Bat, Gray Bat		
Will the project result in the modification or destruction of wetlands or	the discharge	of dredge material
Will the project result in the modification of destruction of wettands of	YES \	NO 🛛
into the waters of the United States?	September 1	
If YES, estimate the acreage to be altered.		and the second s
to the modification or destruction of Farmland?	YES [NO 🛛
Will the project result in the modification or destruction of Farmland?		a to know
If YES, estimate the acreage to be altered.		Saverage American Agents of the Saveran years and Add Saverage (Saverage Agents Saverage (Saverage Agents Age
Does the proposed project area contain known cultural properties?	YES 🖂	NO 🗌
If YES, describe and list site numbers. Site 23 RA 282 occurs in prox	imity to propo	sed work area
No ilandes I x to explain		
Has all or a portion of the proposed project area previously been profe	ssionally surv	eyed for cultural
recourage?	YES 🖂	NO L
If YES, list dates. Reference the St. Louis District Historic Properties	Management	Report No. 47,
Historic Properties Data Synthesis Mark Twain Lake, Missouri, Volum	ne 1& 2	
HISWITC I TOPOLICS Data STATES		





US Army Corps of Engineers Clarence Cannon Dam and Mark Twain Lake M.W. Boudreaux Visitor Center Location of ADA Accessible Eagle Trail





Clarence Cannon Dam and Mark Twain Lake M.W Boudreaux Visitor Center ADA Accessible Eagle Trail

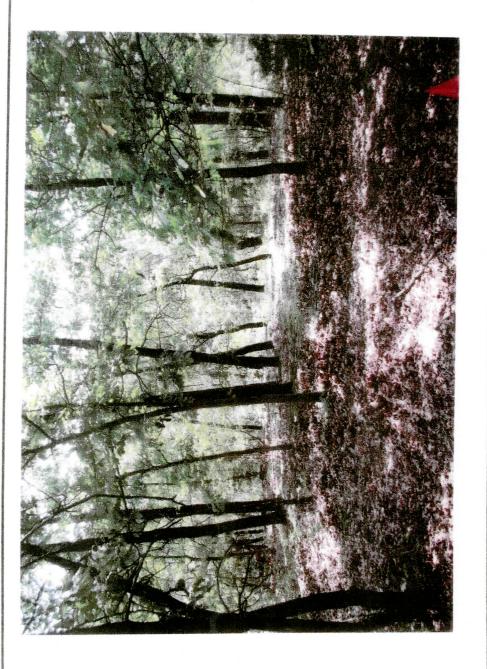
Cultural Resource Map



Clarence Cannon Dam and Mark Twain Lake M.W. Boudreaux Visitor Center ADA Accessible Trail

Scenic Overlook Location





Clarence Cannon Dam and Mark Twain Lake M.W. Boudreaux Visitor Center ADA Accessible Trail

Typical Vegetative Conditions Within Site





DEPARTMENT OF THE ARMY

ST. LOUIS DISTRICT, CORPS OF ENGINEERS ROBERT A. YOUNG BUILDING - 1222 SPRUCE ST. ST. LOUIS, MISSOURI 63103-2833

Planning and Environmental Branch

5 August 2010

Mr. Charlie Scott, Field Supervisor U.S. Fish and Wildlife Service Columbia Missouri Suboffice (ES) 101 Park Deville Drive, Suite A Columbia, Missouri 65203

Dear Mr. Scott:

Enclosed you will find a hard copy of the biological assessment for the ADA Accessible Eagle Trail project, which is located at Clarence Cannon Dam & Mark Twain Lake in Ralls County, Missouri. Project features include upgrade of existing nature trail adjacent to M.W. Boudreaux Visitor Center.

The biological assessment was prepared to evaluate the effects of the project on gray bat, Indiana bat, fat pocketbook pearly mussel and western prairie fringed orchid. Should you have any questions concerning this Biological Assessment, please contact Brandon Schneider (314-331-8496).

Sincerely,

Thomas M. Keevin

Chief, Environmental Branch

Enclosures

BIOLOGICAL ASSESSMENT ADA ACCESSIBLE EAGLE TRAIL M.W. BOUDREAUX VISITOR CENTER, MARK TWAIN LAKE RALLS COUNTY, MISSOURI

U.S. Army Corps of Engineers
St. Louis District
Environmental Branch (CEMVS-PD-E)
Attn: Brandon Schneider
1222 Spruce Street
St. Louis, Missouri 63103-2833
Commercial Telephone Number: (314) 331-8496

August 2010

BIOLOGICAL ASSESSMENT ADA ACCESSIBLE EAGLE TRAIL M.W. BOUDREAUX VISITOR CENTER, MARK TWAIN LAKE RALLS COUNTY, MISSOURI

1. Endangered Species and Environmental Compliance

To comply with Section 7 of the Endangered Act and address listed species as projected 50 years into the future, site specific project effects including new construction are handled through individual consultation with the United States Fish and Wildlife Service (USFWS). As such, the American Disability Act (ADA) Accessible Eagle Trail project requires consultation. Engineer Regulation (ER) 200-2-2 provides guidance for the United State Army Corps of Engineers for implementation of the procedural provisions of the National Environmental Policy Act (NEPA) for the Civil Works Program of the U.S. Army Corps of Engineers. Environmental compliance for the Eagle Trail project was fulfilled by Categorical Exclusion 9.a of ER 200-2-2: Activities at completed Corps projects which carry out the authorized project purposes. Examples include routine operation and maintenance actions, general administration, equipment purchases, custodial actions, erosion control, painting, repair, rehabilitation, replacement of existing structures and facilities such as buildings, roads, levees, groins and utilities, and installation of new buildings utilities, or roadways in developed areas. (USACE 1988).

2. Project Authority

The ongoing work at Clarence Cannon Dam and Mark Twain Lake was authorized by the American Recovery and Reinvestment Act (ARRA). ARRA was signed into law by President Obama on February 17, 2009. The act, Public Law 111-5, is also referred to as the "stimulus package" and is intended to help in the recovery of the U.S. economy. The U.S. Army Corps of Engineers was directly appropriated \$4.6 billion in the act for its civil works program. At Clarence Cannon Dam and Mark Twain Lake, a planned amount of \$6,450,000 to be utilized for recreation was designed for. Recreation funding included repair and rehab project roads in 14 recreation areas, replacing dam security buoys in mouth of spillway with small watercraft barrier, reducing risk from water-borne attack to dam structure and spillway, replacing existing visitor center structure along with exhibits, providing an energy efficient building, meeting the needs of the community, public safety, American Disability Act requirements and reducing future maintenance and operations costs.

3. Project Need

The purpose of the Eagle Trail project is improve an existing nature trail to meet ADA guidelines and specifications, providing barrier-free recreation and education opportunities for individuals with mobility limitations.

The Eagle Trail project consists of approximately 1000' in length, 12' in width of concrete or asphalt surface trail. The trail will traverse an upland hardwood forest ecosystem situated atop a limestone bluff. A site specific aerial photo is shown in Figure 1.

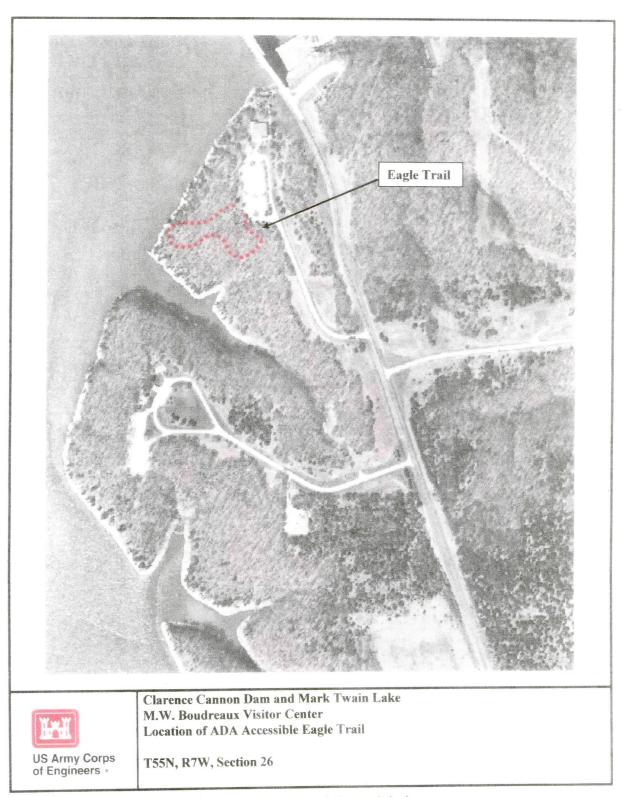


Figure 1. ADA Accessible Eagle Trail general vicinity aerial photo map.

4. Impact Assessment

Introduction: The proposed project includes upgrading an existing nature trail to meet ADA guidelines and specifications. The current nature trail is not ADA accessible and allows only limited use. Upgrade of the existing nature trail to allow ADA accessibility would enhance existing landscape and allow continued use by existing visitors and potentially increase use by new visitors. The upgrade would also potentially increase recreation from visitors with updates including the scenic overlook as part of the nature trail.

Overall Impacts to Eagle Trail Project Area

The purpose of upgrade of the existing nature trail is to allow further recreational use of nature trails and provide further accessibility to visitors. All lands within the existing nature trail have been historically maintained with annual mowing / clearing. Existing vegetation is shown in Figures 2 and 3. All woody vegetation less than six inches diameter breast height (dbh) would be chipped. These trees consist of approximately 35 mixed hardwoods (oak, elm and hickory). Trees greater than 6 inches dbh consist of 3 white oaks, 1 mockernut hickory and 2 eastern red cedars. Overall, the ADA accessible Eagle trail including scenic overlook will have localized impact limited to the area in which the trail would be upgraded.

5. Species Covered in this Consultation:

A list of species that could occur within the Eagle Trail project area was obtained from the U.S. Fish and Wildlife Service Region 3 website (3 August 2010). Those species are included in Table 1:

Table 1 - Listed Species in Project Area				
Species	Federal Status	Habitat		
Gray Bat (Myotis grisescens)	Endangered	Caves and mines; rivers & reservoirs adjacent to forests		
Indiana Bat (Myotis sodalis)	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)		
Fat Pocketbook Pearly Mussel (Potamilus capax)	Endangered	Rivers		
Western Prairie Fringed Orchid (<i>Plantantera praeclara</i>)	Threatened	Disturbed alluvial soils		

Gray Bat – The gray bat (*Myotis grisescens*) is listed as endangered and occurs in several Illinois and Missouri counties where it inhabits caves both summer and winter. This species forages over rivers and reservoirs adjacent to forests. No caves would be impacted by the proposed action; therefore, this project would have "no effect" on the gray bat.

Indiana Bat – The range of the Indiana bat (*Myotis sodalis*) includes much of the eastern half of the United States, including Missouri and Illinois. Indiana bats migrate seasonally between winter hibernacula and summer roosting habitats. Winter hibernacula include caves and abandoned mines. Females emerge from hibernation in late March or early April to migrate to summer roosts. During summer, the Indiana bat frequents the corridors of small streams with well-developed riparian woods, as well as mature upland forests. It forages for insects along stream corridors, within the canopy of floodplain and upland forests, over clearings with early successional vegetation (old fields), along the borders of croplands, along wooded fencerows, and over farm ponds in pastures. Females form nursery colonies under the loose bark of trees (dead or alive) and/or cavities, where each female gives birth to a single young in June or early July. A maternity colony may include from one to 100 individuals. A single colony may utilize a number of roost trees during the summer, typically a primary roost tree and several alternates. Some males remain in the area near the winter hibernacula during summer months, but others disperse throughout the range of the species and roost individually or in small numbers in the same types of trees as females.

Disturbance and vandalism, improper cave gates and structures, natural hazards such as flooding or freezing, microclimate changes, land use changes in maternity range, and chemical contamination are the leading causes of population decline in the Indiana bat (USFWS 2006). To avoid impacting this species, tree clearing activities should not occur during the period of 1 April to 30 September.

This project would not result in the destruction of any riparian habitat and tree removal would be limited to the immediate vicinity of the trail. Tree removal would consist of 3 white oaks (12"-20" dbh), 1 mockernut hickory (14" dbh), 2 eastern red cedars (14"-18" dbh) and approximately 35 mixed upland hard wood trees (oak, elm and hickory) less than 6" dbh. If trees greater than 6 inches dbh are determined necessary for removal, other than the aforementioned, approval by the Planning and Environmental Branch, St. Louis District through consultation with FWS would be required. Thus, the upgrade of the existing nature trail to provide ADA accessibility is unlikely to adversely affect the Indiana bat.

Fat Pocketbook Pearly Mussel – The fat pocketbook pearly mussel (*Potamilus capax*) is listed as endangered and occurs in the Ohio River; a tributary of the Mississippi River and in the Lower Mississippi River. This species uses sand substrates and may be found individually or in beds with other species. Activities that impact the fish host species for these mussels may ultimately adversely affect the species. The 1989 USFWS recovery plan states that "While the fish host of P. capax is unknown, it is probably a large river species. Fish hosts given for other members of this genus include: Aplodinotes grunniens (freshwater drum) for P. alata, P. purpurata and P. ohiensis and Pomoxis annularis (white crappie) and Fundulus notatus (blackstripe topminnow) for P. ohiensis, based on the work of Coker and Surber (1911), Surber (1913), Howard (1913, 1914), Wilson (1916) and Neves (1989 pers. comm.)."

As A.C. Miller (2005) writes in *The Curious Case for the Fat Pocketbook Mussel*, *Potamilus capax*, "Historically, P. capax was probably most common in large river sloughs and oxbows with silt substratum, which were more common at the mouths of rivers before developments such as locks, dams, levees, and bank protection measures. Such modifications virtually eliminated all adjacent depositional habitats. The few specimens collected by Ellis in the early part of the 20th century (as reported by van der Schalie and van der Schalie (1950)), and Sickel (1987) must represent remnants of much earlier populations. It is possible that before the development of the inland waterway system, P. capax was locally abundant in depositional habitats adjacent to the Mississippi and Ohio Rivers."

No aquatic resources would be impacted by the proposed action; therefore, this project would have "no effect" on the fat pocketbook pearly mussel.

Western Prairie Fringed Orchid – The western prairie fringed orchid (*Plantantera praeclara*) is presently known to occur in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges and even bogs. It requires full sun for optimum growth and flowering and a grassy habitat with little or no woody encroachment (USFWS 2004). Historic and current declines are primarily due to habitat loss. Historic declines were mainly due to conversion of natural habitats to cropland and pasture and current declines are mainly due to drainage and development of wetlands. Other reasons include succession to woody vegetation, competition from non-native species and over-collection (USFWS 2004).

The western prairie fringed orchid requires full sun and a grassy habitat with little or no woody encroachment. Historically, declines in the species resulted from natural habitat conversions to croplands and pastures. Currently, the land use within the project area is predominantly upland forest with no wetlands present. Therefore, the proposed upgrades to the existing nature trail to allow ADA accessibility are not likely to affect the western prairie fringed orchid.

Other Important Species

Candidate species within the project areas consist of Sheepnose (*Plethobasus cyphyus*) and Spectaclecase (*Cumberlandia monodonta*) No impacts are anticipated for any of these species as suitable habitat does not exist within the project area and aquatic resources will not be impacts by the proposed project.

On August 9, 2007, the bald eagle was removed from the federal list of threatened and endangered species. It remains protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act prohibits unregulated take of bald eagles. The Fish and Wildlife Service recently finalized a rule defining "take" that includes "disturb." "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." (USFWS 2007).

To prevent disturbance, the National Bald Eagle Management Guidelines issued by the USFWS in May of 2007 was used to determine appropriate distances from any known eagle nests. The Guidelines state that no construction activities should occur within 660 feet of an active eagle nest tree during breeding season. No known eagle nest trees exist within the proposed project area. Because the distance of any known bald eagle nest trees exceeds 660 feet and includes a landscape buffer, it is unlikely that the proposed construction activities would disturb the bald eagle.

6. Literature Cited

- Miller, Andrew C "Curious Case of the Fat Pocketbook Mussel, Potamilus capax, The". Endangered Species Update. FindArticles.com. 20 Sep. 2008. http://findarticles.com/p/articles/mi_qa4444/is_200504/ai_n16057597
- USFWS (U.S. Fish and Wildlife Service). 2007. Protection of Eagles; Definition of "Disturb". Federal Register 72(107): 31132-3113
- USFWS (U.S. Fish and Wildlife Service). 2007. National Bald Eagle Management Guidelines.
- USFWS (U.S. Fish and Wildlife Service). 2006. Indiana Bat (Myotis sodalist) Fact Sheet. Available at http://www.fws.gov/midwest/endangered/mammals/inba/inbafctsht.html (Accessed August 4, 2010).
- USFWS (U.S. Fish and Wildlife Service). 2004. Western Prairie Fringed Orchid (*Platanthera praeclara*) Fact Sheet. Available at http://www.fws.gov/Midwest/Endangered/plants/prairief.html (Accessed August 4, 2010).
- USACE (United States Army Corps of Engineers). 1988. ER 200-2-2: Procedures for Implementing NEPA.

List of Preparers:

Biological Assessment Brandon Schneider

Biologist

Planning and Environmental Branch (CEMVS-PD-E)

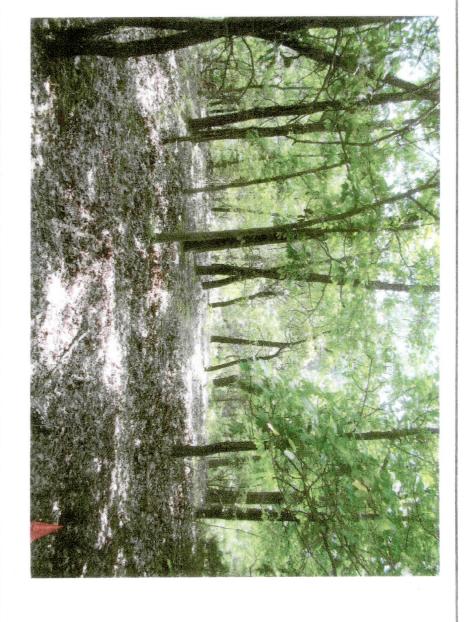
Regional Planning Division North, St. Louis District Corps of Engineers

1222 Spruce Street

St. Louis, MO 63103

PH: 314-331-8496

Brandon.Schneider@usace.army.mil





of Engineers

Clarence Cannon Dam and Mark Twain Lake M.W. Boudreaux Visitor Center ADA Accessible Trail

Typical Vegetative Conditions Within Site

Figure 2. Typical vegetation along existing nature trail adjacent to M.W. Boudreaux Visitor Center.

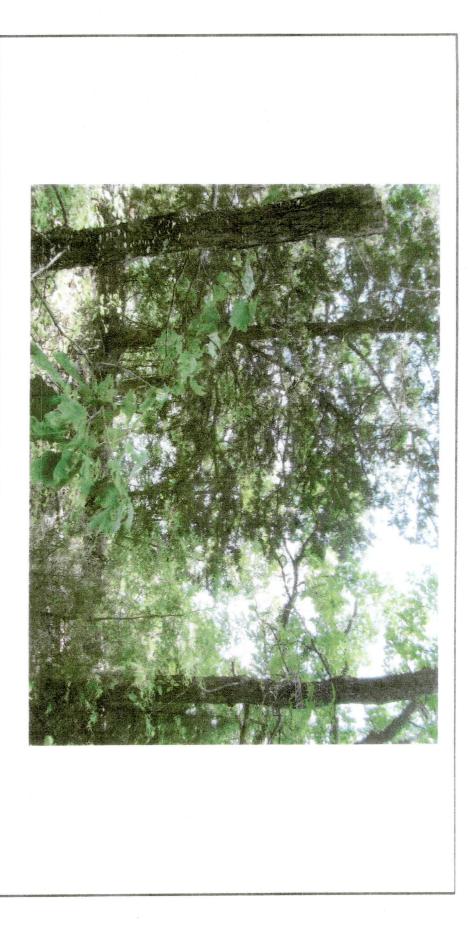


Figure 3. Trees to be removed at location of scenic overlook along nature trail adjacent to M.W. Boudreaux Visitor Center.

US Army Corps of Engineers

Scenic Overlook Location

T55N, R7W, Section 26

Clarence Cannon Dam and Mark Twain Lake M.W. Boudreaux Visitor Center ADA Accessible Trail