



US Army Corps
of Engineers

Missouri River Bank Stabilization and Navigation Project, Fish and Wildlife Mitigation Project



View of the new shallow water habitat under construction at the Overton South mitigation site, Moniteau and Cooper Counties, Missouri

**Annual Implementation Report
January 2004**

TABLE OF CONTENTS

page

TABLE OF CONTENTS iii

LIST OF TABLES v

INTRODUCTION 1

Authority 1

Background 1

Report Purpose and Format..... 3

PAST MITIGATION EFFORTS FOR FY03 AND PRIOR 5

Funding..... 5

Real Estate..... 6

Habitat Development..... 16

Operation and Maintenance..... 30

Monitoring and Evaluation..... 34

PLANNED MITIGATION EFFORTS FOR FY04..... 35

Funding..... 35

Real Estate..... 36

Habitat Development..... 37

Operation and Maintenance..... 39

Monitoring and Evaluation..... 40

FUTURE MITIGATION EFFORTS, FY05 TO COMPLETION..... 41

Funding..... 41

Real Estate..... 42

Habitat Development..... 43

Operation and Maintenance..... 43

Monitoring and Evaluation..... 44

APPENDIX 1, SITE LOCATION MAPS..... 45

LIST OF TABLES

TABLE 1. TOTAL COSTS TO DATE (AS OF 30 SEP 03).....	5
TABLE 2. NON-PUBLIC LANDS AUTHORIZED BY WRDA86, DISTRIBUTION BY STATE	6
TABLE 3. EXISTING PUBLIC LANDS AUTHORIZED BY WRDA 86, DISTRIBUTION BY STATE	7
TABLE 4. ALL LANDS AUTHORIZED BY WRDA99, DISTRIBUTION BY STATE	8
TABLE 5. TOTAL LANDS AUTHORIZED FOR PROJECT, DISTRIBUTION BY STATE	9
TABLE 6. LANDS ACQUIRED WITHIN STATE OF IOWA, DISTRIBUTION BY SITE (AS OF 30 SEP 03).....	10
TABLE 7. LANDS ACQUIRED WITHIN STATE OF NEBRASKA, DISTRIBUTION BY SITE (AS OF 30 SEP 03).....	11
TABLE 8. LANDS ACQUIRED WITHIN STATE OF KANSAS, DISTRIBUTION BY SITE (AS OF 30 SEP 03).....	12
TABLE 9. LANDS ACQUIRED WITHIN STATE OF MISSOURI, DISTRIBUTION BY SITE (AS OF 30 SEP 03).....	13
TABLE 10. SUMMARY OF ALL LANDS ACQUIRED (AS OF 30 SEP 03)	15
TABLE 11. HABITAT TYPES DEVELOPED BY SITE (AS OF 30 SEP 03)	17
TABLE 12. STATUS OF OPERATION AND MAINTENANCE (FY03 and Prior)	31
TABLE 13. ESTIMATED FUNDING FOR FY04.....	35
TABLE 14. ESTIMATED COSTS FROM REPORT TO CONGRESS	41
TABLE 15. CURRENT BUDGET FOR FY05 TO COMPLETION.....	42

INTRODUCTION

AUTHORITY

This report presents the current status and future plans for implementation of the Missouri River Fish and Wildlife Mitigation Project, Iowa, Nebraska, Kansas, and Missouri, hereinafter referred to as the “Project”. Congress first authorized construction of the Project in Section 601(a) of the Water Resources Development Act of 1986 (Public Law 99-662). The authorization included acquisition and development of 29,900 acres of land, and habitat development on an additional 18,200 acres of existing public land in the States of Iowa, Nebraska, Kansas and Missouri. The total amount of land authorized for mitigation was 48,100 acres.

In 1999, Congress passed another WRDA bill. Section 334(a) of the Water Resources Development Act of 1999 included modifying the Project by increasing the amount of acreage to be acquired and/or mitigated by 118,650 acres. Thus the new total amount of land authorized for mitigation is currently 166,750 acres.

BACKGROUND

The original authorization for the Project was based upon a report of the US Army Corps of Engineers, Chief of Engineers, dated April 24, 1984, entitled Missouri River Bank Stabilization and Navigation Project Final Feasibility Report and Final EIS for the Fish and Wildlife Mitigation Plan. The authority to prepare the Feasibility Report was the 1958 Fish and Wildlife Coordination Act (P.L. 85-624). The Final Feasibility Report described the fish and wildlife and habitat losses that have occurred due to the Missouri River Bank Stabilization and Navigation Project. Also described in the Report are various measures to mitigate for these losses and a recommended plan to mitigate, preserve, or develop 48,100 acres of habitat. During the public involvement process for the EIS and Feasibility Report for the Project, a policy of obtaining lands only from willing sellers was established.

This project is 100 percent Federally funded for real estate, design, construction, and operation and maintenance. However, even though there is not a cost share sponsor, Federal and State fish and wildlife agencies participate in the implementation of the Project. The agency participation is primarily through an Agency Coordination Team that was developed to formulate and decide upon the various acquisition sites and appropriate development plans for the sites. The members of the Agency Coordination Team are the Iowa Department of Natural Resources, the Nebraska Game and Parks Commission, the Kansas Department of Wildlife and Parks, the Missouri

Department of Conservation, the Environmental Protection Agency, and the U.S. Fish and Wildlife Service. Other agencies have also been invited to participate in team meetings.

Approximately 60 percent of the original project is within the Kansas City District (CENWK) and 40 percent within the Omaha District (CENWO). For ease of dealing with the affected states, CENWK is working on sites in Missouri and Kansas, while CENWO is responsible for all Nebraska and Iowa sites.

Preconstruction Engineering and Design (PED) for the Project was initiated in December 1989. As a part of PED work, a "Reaffirmation Report" for implementation of the Project was completed. The Reaffirmation Report was approved by the Corps of Engineers' Missouri River Division in August, 1990. The purpose of the Reaffirmation Report was to confirm that the plan recommended in the 1984 Feasibility Report and Final EIS was still viable. PED was completed in September 1991 and this Project has been in a "Construction" status since that time. The Reaffirmation Report explains the various aspects of the Project such as the approval process, funding levels, costs, schedules, documentation and involvement of other State and Federal agencies. In accordance with the Reaffirmation Report, Annual Implementation Plans are required to be created.

A "Real Estate Design Memorandum No. 1" for land acquisition activities for the Project was completed by the Kansas City District in March 1990. This report was endorsed by the Corps of Engineers' Missouri River Division in July 1990, and approved by Corps of Engineers' Headquarters in May 1991. This report established the real estate requirements for the acquisition in fee or easement of 29,900 acres of privately owned lands and for any real estate requirements for development of 18,200 acres of existing public lands within the four affected States.

WRDA 99 expanded the amount of acres authorized for the project from 48,100 acres to a new total of 166,750 acres. As directed in the authorization, the Corps of Engineers worked with the Agency Coordination Team to develop a cost estimate to implement the additional acres authorized by WRDA99. In December 2001, the Corps completed a document titled "Missouri River Mitigation Project, Missouri, Kansas, Iowa, and Nebraska, Report to Congress, in Compliance with the Water Resources Development Act of 1999". This document presented a cost range for the modified Project from \$740 million (includes development of 7,000 acres of shallow water habitat) to \$1.33 billion (includes development of 20,000 acres of shallow water habitat). Also included was a ceiling of 5% of the total mitigation efforts to be expended on monitoring efforts.

In November 2000, the US Fish and Wildlife Service issued a Biological Opinion (Bi-Op) to the Corps of Engineers for impacts to the pallid sturgeon by construction and operation of the Bank Stabilization and Navigation Project. The Bi-Op stated that the Corps had severely altered, and continue to alter, the natural hydrology and shallow water habitat on the Missouri River within the Project area. The Bi-Op stated that the Corps has to perform "Reasonable and Prudent

Alternative” actions to mitigate, enhance and conserve shallow water habitat in the amount of 20-30 acres per mile for the 735 mile Project area.

In September 2002, the Corps drafted “Supplement No. 1 to Real Estate Design Memorandum No. 1”. This update included the new acres of the expanded mitigation program. This document stated that the acquisition of additional lands for the project will not reflect a defined amount to be acquired between public or private acres. Also, this document assumed that the additional acres will be equally proportioned by state based on the amount of riverbank miles.

Since the expanded authorization of WRDA99 resulted in a significant change to the project, from August, 2001 to June, 2003 the Corps of Engineers prepared a Supplemental Environmental Impact Statement (SEIS) for the project. The draft SEIS was published in September 2002. The Final SEIS was published March 1, 2003. The Corps of Engineers issued their Record of Decision on June 12, 2003. This decision along with the Final SEIS reflects the programmatic plan for implementation of the expanded mitigation program.

REPORT PURPOSE AND FORMAT

Programmatic updates of the Reaffirmation Report are accomplished through Annual Implementation Reports. This document is the tenth such report. The purpose of the Annual Implementation Reports is to create an administrative record of mitigation efforts that have already occurred, complete a status of the mitigation efforts that are underway, and outline a plan for continued mitigation in the future.

This report is divided into three main parts: Past Mitigation Efforts for FY03 and Prior, Planned Mitigation Efforts for FY04, and Future Mitigation Efforts FY05 to Completion. Within these three main parts, the four main elements of the Project (Real Estate, Habitat Development, Operation and Maintenance, and Monitoring) are detailed. Thus, this report is a programmatic effort to explain the past activities, current status, and future activities for the entire mitigation effort for both the Omaha and Kansas City Districts.

**PAST MITIGATION EFFORTS
FOR FY03 AND PRIOR**

FUNDING (FY03 and Prior)

From Fiscal Year (FY) 90 to FY91, the project was in a PED phase. Corps of Engineers PED funding was used to fund the mitigation activities during this period. An amount of \$700,000 in GI funds were expended on the project during this period.

Beginning in FY92, the project began to receive Corps of Engineers Construction, General (CG) funds. At this point, the project was considered to have moved into a construction phase. The CG funding for the project is divided into broad categories: Land Acquisition; Planning, Engineering and Design; Habitat Development; Construction Management; O&M During Construction; and Monitoring costs. From FY92 through FY03, the Corps expended a total amount of \$85,329,000 in CG funds on the mitigation efforts. Table 1 gives a breakdown of costs expended by category.

**TABLE 1
TOTAL COSTS TO DATE
(AS OF 30 SEP 03)**

Cost	CENWK (1,000)	CENWO (1,000)	TOTAL (1,000)	% of Total Cost
Land Acquisition	\$21,678	\$13,184	\$34,862	41
Planning, Engineering, and Design	9,238	4,752	13,990	16
Habitat Development	13,066	18,005	31,071	36
Construction Management	1,329	1,902	3,231	4
O&M During Construction	1,078	937	2,015	2
Monitoring (1)	160	0	160	1
TOTAL	\$46,549	\$38,780	\$85,329	100

(1) Prior to FY03, monitoring was considered a very limited part of the therefore any funds expended on monitoring were provided using Design and Construction Management categories. In the future, monitoring funds will not exceed 5% of annual appropriations.

REAL ESTATE (FY03 and Prior)

Non-Public Lands Authorized by WRDA86.

Section 334(a) of the Water Resources Development Act of 1986 (WRDA86) authorized acquisition of 29,900 acres of privately held land. During the Feasibility effort, it was clear that each State had been affected by the Bank Stabilization and Navigation Project (BSNP). Through coordination with the four affected States and the U.S. Fish and Wildlife Service, the 29,900 acres was divided up between the States proportional to the amount of fish and wildlife losses attributed to each State.

An additional effort was completed in order to distribute the lands between habitat types. However, once the project got underway, shifting of some of the lands between the States to accommodate timing of willing sellers, availability of public lands, etc. was necessary. The current approved plan for the 29,900 acres is indicated in Table 2.

TABLE 2
NON-PUBLIC LANDS AUTHORIZED BY WRDA86,
DISTRIBUTION BY STATE

State	Preserve Existing Aquatic Habitat (ac)	Acquire & Develop New Aquatic Habitat (ac)	Acquire & Develop New Terrestrial Habitat (ac)	Total (ac)	Percentage
Iowa	200	200	6,800	7,200	24
Nebraska	--	250	6,900	7,150	24
Kansas	--	100	2,250	2,350	8
Missouri	--	1,150	12,050	13,200	44
TOTAL	200	1,700	28,000	29,900	100

Existing Public Lands Authorized by WRDA86

In addition to the acquisition of mitigation sites on non-public lands, the WRDA86 authorization allowed for development of mitigation sites on 18,200 acres of existing public land. For habitat development on existing public lands, "no cost" easements are being obtained to allow the Corps of Engineers to construct Project features on land not owned by the Corps. Through coordination with the four affected States and the U.S. Fish and Wildlife Service, the amount of public land was distributed by State and between habitat types. However, shifting of some of the public lands between the States was necessary to accommodate availability of public lands, etc. The current approved plan for the 18,200 acres of existing public land authorized under WRDA86 is indicated in Table 3.

**TABLE 3
EXISTING PUBLIC LANDS AUTHORIZED BY WRDA 86,
DISTRIBUTION BY STATE**

State	Preserve Existing Aquatic Habitat (ac)	Acquire & Develop New Aquatic Habitat (ac)	Acquire & Develop New Terrestrial Habitat (ac)	Total (ac)	Percentage
Iowa	500	200	1,700	2,400	13
Nebraska	0	50	0	50	0
Kansas	0	0	0	0	0
Missouri	0	550	15,200	15,750	87
TOTAL	500	800	16,900	18,200	100

All Lands Authorized in WRDA99.

The project authorization was expanded in Section 661(a) of the Water Resources Development Act of 1999 (WRDA99). The amount of acres authorized for the Project was expanded from 48,100 acres to a new total of 166,750 acres. This is an increase of 118,650 acres. Because this was an extensive change to the authorization, a Supplement to the Environmental Impact Statement (SEIS) was completed. During the completion of the SEIS, decisions on how to distribute the new authorized total of acres were made.

First, the Preferred Alternative in the SEIS did not reflect a defined amount to be acquired between public or private acres. This allows the project to move forward without this limitation and be able to take advantage of any lands that are available from willing sellers, either private or public. Also, the preferred alternative assumed that the additional acres will be acquired proportionally by state based on the amount of riverbank miles. If acquisitions are completed in this manner, the breakdown of the additional acreage authorized under WRDA99 is displayed in Table 4, below.

TABLE 4
ALL LANDS AUTHORIZED BY WRDA99,
DISTRIBUTION BY STATE

State	Riverbank miles	Number of Affected Counties	All Lands Authorized WRDA99 (ac)	Percentage of WRDA99
Iowa	175	6	14,125	12
Nebraska	241	10	19,452	16
Kansas	115	4	9,282	8
Missouri	939	25	75,791	64
TOTAL	1,470	45	118,650	100

The current distribution of lands authorized in both WRDA86 and WRDA99 is reflected in Table 5. Throughout the remainder of the project, the Corps will be working with the Agency Coordination Team to track acquisitions. As the acquisitions progress over the life of the project, changes to this distribution of the authorized acres may be necessary. Any changes will be approved by the Agency Coordination Team and presented annually in future annual reports prior to implementation.

TABLE 5
TOTAL LANDS AUTHORIZED FOR PROJECT,
DISTRIBUTION BY STATE

State	Non-Public Lands Authorized WRDA86 (ac)	Existing Public Lands Authorized WRDA86 (ac)	All Lands Authorized WRDA99 (ac)	Total Authorized (ac)
Iowa	7,200	2,400	14,125	23,725
Nebraska	7,150	50	19,452	26,652
Kansas	2,350	0	9,282	11,632
Missouri	13,200	15,750	75,791	104,741
TOTAL	29,900	18,200	118,650	166,750

Current Status of Acquisition.

The current process for acquiring lands begins with working with the Agency Coordination Team to identify sites that have potential for wildlife mitigation. The Corps completes a survey of willing sellers (both public and private) near the priority areas. These planning efforts have led to the acquisition of lands at 32 sites for the project.

As of 30 Sep 03, 40,080 acres have been acquired for the project. This consists of fee title on 26,935 acres of non-public land and no cost easements and/or licenses on 13,145 acres of public land. A total of 24% of the authorized 166,750 acres has been acquired. Tables 6, 7, 8, 9 reflect the acreage distribution by site for the States of Iowa, Nebraska, Kansas and Missouri, respectively. Table 10 is a summary of the entire acquisition program to date.

Locations of the 32 sites established to date are shown on the Location Maps included in this report as a part of Appendix 1.

TABLE 6
LANDS ACQUIRED WITHIN STATE OF IOWA,
DISTRIBUTION BY SITE
(AS OF 30 SEP 03)

Site	Location	Non-Public Lands Acquired (ac)	Public Lands Acquired (ac)	Total Acquired (ac)
Winnebago Bend	Woodbury County, RM 711 – 708, Left Bank	0	1,300 ⁽¹⁾	1,300
Blackbird Bend	Monona County, RM 697 – 694, Left Bank	223	799 ⁽²⁾	1,022
Tieville-Decatur Bends ⁽³⁾	Monona County, RM 698 – 686, Left Bank	91	964 ⁽²⁾	1,055
Louisville Bend	Monona County, RM 685 – 682, Left Bank	84	1,012 ⁽²⁾	1,096
Soldier Bend	Harrison County, RM 664 – 660, Left Bank	0	248 ⁽²⁾	248
California Bend	Harrison County, RM 652 – 649, Left Bank	0	420 ⁽²⁾	420
Noddleman Island	Mills County, RM 587 – 583, Left Bank	1,232	0	1,232
Auldon Bar	Harrison County, RM 580 – 577, Left Bank	588	0	588
Copeland Bend	Fremont County, RM 571 – 565, Left Bank	1,481	625 ⁽²⁾	2,106

TABLE 6, Continued

Site	Location	Private Lands Acquired (ac)	Public Lands Acquired (ac)	Total Acquired (ac)
Lower Hamburg Bend (4)	Fremont County, RM 554 – 546, Left Bank	321	0	321
TOTAL		4,020	5,368	9,388

- (1) Reflects amount of lands mitigated on previously held Corps land.
(2) No cost easement obtained from State of Iowa.
(3) Only Iowa acres shown here (this site extends into Nebraska, see Table 8)
(4) Only Iowa acres shown here (this site extends into Missouri, see Table 10)

TABLE 7

**LANDS ACQUIRED WITHIN STATE OF NEBRASKA,
DISTRIBUTION BY SITE
(AS OF 30 SEP 03)**

Site	Location	Private Lands Acquired (ac)	Public Lands Acquired (ac)	Total Acquired (ac)
Tieville-Decatur Bends (1)	Burt County, RM 698 – 686, Left Bank	1,890	133 (2)	2,023
Tobacco Island	Cass County, RM 589 – 586 Right Bank	1,604	0	1,604
Hamburg Bend	Otoe County, RM 556 – 552, Right Bank	1,544	0	1,544

Table 7, Continued

Site	Location	Private Lands Acquired (ac)	Public Lands Acquired (ac)	Total Acquired (ac)
Kansas Bend	Nemaha County, RM 547 – 544 Right Bank	1,056	0	1,056
Nishnabotna (3)	Nemaha County, RM 545 – 537, Left Bank	2	0	2
Langdon Bend	Nemaha County, RM 532 – 528, Right Bank	1,312	0	1,312
TOTAL		7,408	133	7,541

- (1) Only Nebraska acres shown here (this site extends into Iowa, see Table 6)
- (2) No cost easement obtained from State of Nebraska.
- (3) Only Nebraska acres shown here (this site extends into Missouri, see Table 9)

TABLE 8

**LANDS ACQUIRED WITHIN STATE OF KANSAS,
DISTRIBUTION BY SITE
(AS OF 30 SEP 03)**

Site	Location	Private Lands Acquired (ac)	Public Lands Acquired (ac)	Total Acquired (ac)
Benedictine Bottoms	Atchison County, RM 429 – 424 Right Bank	2,111	0	2,111
TOTAL		2,111	0	2,111

TABLE 9
LANDS ACQUIRED WITHIN STATE OF MISSOURI,
DISTRIBUTION BY SITE
(AS OF 30 SEP 03)

Site	Location	Private Lands Acquired (ac)	Public Lands Acquired (ac)	Total Acquired (ac)
Lower Hamburg Bend (1)	Atchison County, RM 554 – 546 Left Bank	2,265	0	2,265
Nishnabotna (2)	Atchison County, RM 545 – 537, Left Bank	1,282	0	1,282
Deroin Bend	Atchison, Holt Counties, RM 520 – 517, Left Bank	0	1,082 (3)	1,082
Corning	Holt County, RM 518 - 512 Left Bank	1,193	695 (4)	1,888
Thurnau	Holt County, RM 512 – 508, Left Bank	1,372	0	1,372
Rush Bottoms	Holt County, RM 502 – 499, Left Bank	774	37 (5)	811
Monkey Mountain	Holt, Andrew Counties, RM 466 – 464, Left Bank	657	0	657
Worthwine Island	Andrew County, RM 460 – 456, Left Bank	0	585 (3)	585
Grand Pass	Saline County, RM 273 – 266, Right Bank	0	5 (3)	5
Overton Bottoms - North	Cooper County, RM 188 – 185 Right Bank	1,355	332 (6)	1,687

TABLE 9 Continued

Name	Location	Private Lands Acquired (ac)	Public Lands Acquired (ac)	Total Acquired (ac)
Overton Bottoms - South	Cooper, Moniteau Counties, RM 185 – 178, Right Bank	3,662	0	3,662
Rocheport Cave	Boone County, RM 183, Left Bank	0	51 ⁽³⁾	51
Eagle Bluffs	Boone County, RM 174 – 170, Left Bank	0	571 ⁽³⁾	571
Plowboy Bend	Moniteau County, RM 172 – 169, Right Bank	0	0 ⁽⁵⁾	0
Marion Bottoms	Cole County, RM 164 – 158, Right Bank	0	0 ⁽⁵⁾	0
Tate Island	Callaway County, RM 113 – 110	422	0	422
Berger Bend	Franklin County, RM 93 - 90, Right Bank	414	60 ⁽⁴⁾	474
Columbia Bottom	St. Louis County, RM 4 – 0, Right Bank	0	4,226 ⁽³⁾	4,226
TOTAL		13,396	7,644	21,040

- (1) Only Missouri acres shown here (this site extends into Iowa, see Table 6).
- (2) Only Missouri acres shown here (this site extends into Nebraska, see Table 7).
- (3) No cost easement obtained from State of Missouri.
- (4) Acquisition reflects residual fee purchased from private landowner on lands that already have existing public NRCS-WRP easement.
- (5) Acreage includes lands considered 'Navigational Servitude'.
- (6) No cost license obtained from USFWS.

TABLE 10
SUMMARY OF ALL LANDS ACQUIRED
(AS OF 30 SEP 03)

State	Non-Public Lands Acquired (ac)	Public Lands Acquired (ac)	Total Lands Acquired (ac)	Authorized Amount (ac)	Percentage of Authorized Amount (%)
Iowa	4,020	5,368	9,388	23,725	40
Nebraska	7,408	133	7,541	26,652	28
Kansas	2,111	0	2,111	11,632	18
Missouri	13,396	7,644	21,040	104,741	20
TOTAL	26,935	13,145	40,080	166,750	24

HABITAT DEVELOPMENT (FY03 and Prior)

The intent of this Project is to mitigate and/or preserve fish and wildlife habitats that were native to the Missouri River floodplain. This, of course, covers an entire array of different habitat types. The Project has completed mitigation of many different habitat types. The variety and implementation of habitats into different areas of the floodplain is part of the development process of the Project. To date, no one species nor one habitat type has been focused upon for mitigation. The habitat development has been of an “ecosystem” approach where all habitat types are considered into development decisions.

Development of shallow water aquatic habitat has been accomplished at numerous mitigation sites. This effort has emphasized development of side channels and chutes and completing within-river improvements. This was accomplished primarily by dike notching, river structure modifications, excavation and dredging. Through 30 Sep 03, shallow water habitats have been created, or work has been started, at 14 mitigation sites.

Reconnecting the floodplain habitats to the river during springtime flood pulses is also a mitigation effort that has been emphasized. Several mitigation sites had levees that were close to the river channel. In some cases, the levee was moved landward from the Missouri River. At some locations, such as Overton North, an existing levee was breached in several places to allow high flows to inundate terrestrial habitats and provide valuable organic matter to the river’s water. As of 30 Sep 03, reconnecting floodplain habitats to the river have been completed, or work started, at 5 mitigation sites.

Increasing the amount of wetlands within the Missouri River floodplain is a Project goal. Development of migratory waterfowl habitat has been accomplished by construction of low dikes, berms, wells, pumps, water delivery systems, and drainage control structures. Through 30 Sep 03, wetland habitats have been created, or work has been started, at 9 mitigation sites.

Development of terrestrial habitat such as bottomland hardwood and prairie grassland habitats has been a key to the restoration of the ecosystem of the Missouri River. Terrestrial habitats support food plot establishment, nesting cover, insect production, and a whole array of necessary biological functions to keep the ecosystem alive and functioning. Development of terrestrial habitat has been dependent upon the type of existing land use and management objectives. The pre-existing land use at many of the new mitigation sites was agricultural production. The terrestrial habitat development to date has included vegetative plantings and land grading. Through 30 Sep 03, bottomland hardwood and prairie grassland habitats have been developed at 16 and 14 mitigation sites, respectively.

Table 11 displays the different habitat types created at each of the mitigation sites established to date. Following Table 11 is a summary of the habitat development efforts at specific mitigation sites. If a particular site is listed in Table 11 as “Undeveloped”, then a detailed description is not included. Location maps for all of the mitigation sites can be found in Appendix 1.

TABLE 11

**HABITAT TYPES DEVELOPED BY SITE
(AS OF 30 SEP 03)**

Site Name	SW	FR	W	P	BH	O	U
Winnebago Bend, IA	X			X	X		
Blackbird Bend, IA							X
Tieville-Decatur Bends, IA/NE	X			X	X		
Louisville Bend, IA	X			X	X		
Soldier Bend, IA							X
California Bend, IA	X		X		X		
Tobacco Island, NE	X			X	X		
Noodleman Island, IA							X
Auldon Bar, IA							X
Copeland Bend, IA							X
Hamburg Bend, NE	X		X	X			
Lower Hamburg Bend, IA/MO				X (1)	X (1)		
Kansas Bend, NE							X
Nishnabotna, NE/MO			X (1)	X (1)	X (1)		
Langdon Bend, NE	X			X	X		
Deroin Bend, MO	X			X	X		
Corning, MO			X (1)	X (1)	X (1)		
Thurnau, MO			X (1)	X (1)	X (1)		
Rush Bottoms, MO				X (1)	X (1)		

TABLE 11, Continued

Site Name	SW	FR	W	P	BH	O	U
Monkey Mountain, MO							X
Worthwine Island, MO							X
Benedictine Bottoms, KS	X		X	X	X		
Grand Pass, MO	X						
Overton Bottoms – North, MO	X	X	X	X	X		
Overton Bottoms – South, MO	X	X	X		X		
Rocheport Cave, MO						X (2)	
Eagle Bluffs, MO		X	X				
Plowboy Bend, MO	X						
Marion Bottoms, MO	X						
Tate Island, MO	X	X			X		
Berger Bend, MO							X
Columbia Bottom, MO		X					
Number of Sites	14	5	9	14	16	1	9

SW=Shallow Water, FR=Floodplain Reconnected, W=Wetland, P=Prairie, BH=Bottomland Hardwood, O=Other, U=Undeveloped

- (1) Habitat developed by MDC through the annual management plan process.
- (2) Bat hibernaculum



Winnebago Bend, IA
View of the developed side channel

Winnebago Bend, Iowa

The Winnebago Bend mitigation site is located just south of Sioux City, Iowa at river miles 713 to 708 on the left descending bank. The site was established on 1,300 acres of land owned by the Corps of Engineers.

Using Project funds, habitat development at the Winnebago Bend site was completed in 2001. The mitigation features a reopened side channel with control structures at the inlet, outlet and middle of the site. At the upstream end of the site, river pumps are used to assure the area is inundated seasonally for waterfowl migration. The area is also allowed to have backwater move up from the

downstream end during periods of high river stages.

This area has been turned over to Iowa Department of Natural Resources (IDNR) for their management as a fish and wildlife area.

Tieville-Decatur Bends, Iowa and Nebraska

The Tieville-Decatur Bends mitigation site is located west of Onawa, Iowa at river miles 694 to 686 on the left descending bank. The area is on lands that lie in both Iowa and Nebraska.

Habitats at the site are currently being developed under a single construction contract. Construction, started in the summer of 2002, includes development of backwater and wetland areas within an old oxbow of the Missouri River. At the upstream end of the site, river pumps will be used to assure the area is seasonally inundated for waterfowl. The area will also be allowed to have backwater from the downstream end during periods of high river stages.



Tieville-Decatur Bends, IA, NE
Existing oxbow lake area will have permanent water source from either pumps or backwater

This area will eventually establish floodplain connectivity to the river and create additional wetland habitat. Construction is expected to be completed in FY04. At that time, the improvements will be turned over to NGPC and IDNR for their joint management.



Louisville Bend, IA

View of backwater in the developed side channel

Louisville Bend, Iowa

The Louisville Bend mitigation site is 1,096 acres in size. It is located near Onawa, IA at river miles 685 to 682 on the left descending bank. This site was developed on lands owned by IDNR. This site was developed primarily as a wetland and backwater area. There are over 270 acres of permanent, open water at the site.

Habitat development at Louisville Bend included installing controlled openings at the upstream and downstream end of a large side channel area. A pump was installed at the upstream end to pump water into the area as needed for waterfowl migration. The outflow at the downstream end can be regulated so as to hold water

pumped into the area, or allow backwater to flow up into the area during high river stages.

In FY03, the Corps completed modification of the inlet area and construction of an embankment in the middle of the site. These were made to improve the water management of the side channel. This area has been turned over to IDNR for their management as a fish and wildlife area.

California Bend, Iowa

The California Bend mitigation site is located across the river from Blair, Nebraska at river miles 652 to 649 on the left descending bank. The site was established on 420 acres of land owned by IDNR.

The mitigation at California Bend included opening a side channel and backwater area. This effort has developed connectivity to the river and shallow water aquatic habitat.

The area is directly connected to the Missouri River and is a fine backwater wetland area for lots of different waterfowl.



California Bend, IA

Aerial view of the meandering floodplain and backwater areas

In FY03, the O&M Manual for the site was completed. The improvements have been turned over to be managed by IDNR.



Tobacco Island, NE
Aerial view of the entire site and the developed side channel

Tobacco Island, Nebraska

Tobacco Island is located south of Plattsmouth, Nebraska at river miles 590 to 586 on the right descending bank of the river. The site consists of 1,604 acres of former agricultural land that was purchased from willing sellers by the Corps for the mitigation project.

The mitigation at Tobacco Island included construction of a new side channel for additional shallow water aquatic habitat and Missouri River aquatic diversity. The side channel is three miles long with a 10-foot bottom width and is designed to open up to a wider cross section as the area scours out during high flows.

Native grasses and trees were planted at the site to improve the floodplain terrestrial habitats. During FY03, efforts to complete a survey of the boundary and the O&M Manual for the site were undertaken. This area has been turned over to NGPC for their management.

Hamburg Bend, Nebraska

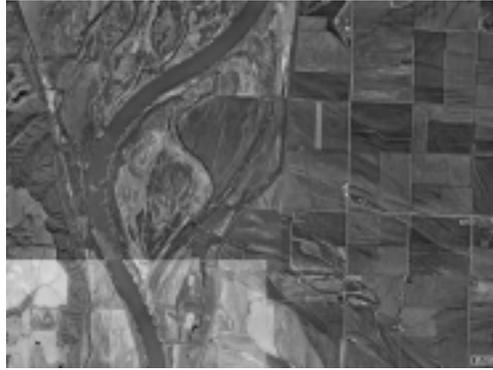
The Hamburg Bend mitigation site is located at river miles 556 to 552 on the right descending bank, just south of Nebraska City, Nebraska. The site consists of 1,544 acres of side channels and backwater areas that mimics the historic meander belt of the floodplain. The increase in numbers and variety of fish at this location shows that excellent habitat has been created at this site.

During FY03, several changes were undertaken in the Missouri River adjacent to the site. The Corps started notching existing river structures and installed a new chevron at this site to improve the riverine diversity at this location. New shallow water areas were created to compliment the deeper water in the navigation channel.

This site has been turned over to the NGPC to be managed as a wildlife area. NGPC plans to undertake converting some existing open areas to wetland areas in the near future.



Hamburg Bend, NE
New chevron installed to create shallow water riverine habitat downstream of the river structure



Lower Hamburg Bend, IA, MO
Aerial view of the Lower Hamburg Bend of the Missouri River

Lower Hamburg Bend, Iowa and Missouri

The Lower Hamburg Bend mitigation site is located at river miles 553 to 547n the left descending bank near the town of Hamburg, Iowa. The site consists of 2,265 acres of formerly farmed lands purchased from willing sellers.

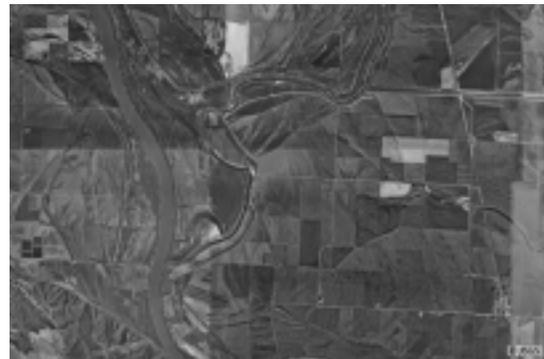
Short term management of the site was turned over to the Missouri Department of Conservation (MDC). MDC took the agricultural lands out of production and planted native grasses and trees. There is some minor agricultural crop production to keep several areas open.

In FY03, the Corps awarded a construction contract to install a side channel at this site. The channel will have a 70 foot bottom width and will be allowed to scour itself out to a 200 foot width. Construction of the side channel will be completed by Fall 2004.

Nishnabotna, Nebraska and Missouri

This mitigation site is located at river mile 545 to 537, on the left descending bank of the river. The site currently contains 1,283 acres of land purchased by the Corps from willing sellers.

The Nishnabotna site was turned over to MDC for short term management while additional lands are acquired in the area. Through the annual management plan process, MDC has planted native grasses and trees. In the future, the Corps plans to modify the existing structures along the bank of the river to improve aquatic diversity in the river.



Nishnabotna, NE, MO
1999 aerial photo of the mouth of the Nishnabotna River



Langdon Bend, NE

Wintertime view of the outlet of the backwater area to the Missouri River

Langdon Bend, Nebraska

The Langdon Bend mitigation site is located at river miles 532 to 529 on the right descending bank near the town of Nemaha, Nebraska. The site consists of 1,312 acres of formerly farmed lands purchased from willing sellers.

At this site, a 10-foot bottom width pilot channel and backwater area was constructed. The channel is connected to the river at the outlet, but stops before meeting the river at the upstream end. Flow into this area occurs by water from the Missouri River backing up the channel and will allow overland flow at the times when the Missouri River is at high water.

In FY03, an additional 391 acres was purchased at this site. The Corps also corrected sedimentation problems at the inlet pumps and completed an O&M Manual for the site. This site has been turned over to the Nebraska Game and Parks Commission (NGPC) for their management as a wildlife area.

Deroin Bend, Missouri

This mitigation site is located at river mile 520 to 516, on the left descending bank of the river. The site contains 1,082 acres of land belonging to MDC.

It is located across the Missouri River from Indian Cave Nebraska State Park.

At Deroin Bend, the Corps completed development of a side channel, planting of several hundred native hardwood trees and cover crop, and connected two existing scour holes to the river. The side channel is approx. three miles long with a 70 foot bottom width. The site has been turned over to MDC for their management as a fish and wildlife area.



Deroin Bend, MO

View of the new side channel and native plantings



Thurnau, MO

1999 aerial photo of the Thurnau, Missouri area

Thurnau, Missouri

This mitigation site is located at river mile 512 to 508, on the left descending bank of the river. The site currently contains 1,372 acres of land purchased by the Corps from willing sellers.

The Thurnau site was turned over to MDC for short term management while additional lands are acquired in the area. Through the annual management plan process, MDC has planted native grasses and trees. In the future, the Corps plans to modify the existing structures along the bank of the river to improve aquatic diversity in the river.

Rush Bottoms, Missouri

This mitigation site is located at river mile 502 to 499, on the left descending bank, across the Missouri River from Rulo, Nebraska. The site currently contains 811 acres of land purchased by the Corps from willing sellers.

The Rush Bottoms site was turned over to MDC for short term management while the Corps attempts to acquire additional lands in the area. Through the annual management plan process, MDC has planted native grasses and trees. In the future, the Corps plans to modify the existing structures along the bank of the river to improve aquatic diversity in the river.



Rush Bottoms, MO

1999 aerial photo of the Rush Bottoms mitigation site



Benedictine Bottoms, KS
Wet prairie habitat during spring high water

Benedictine Bottoms, Kansas

This mitigation site is 2,111 acres in size and is located just north of Atchison, Kansas. The site is at river miles 429 to 424 on the right descending bank at the Rushville Bend of the river.

In 1998, the Corps completed installation of seasonal wetlands, planting of native hardwood trees and prairie grasses, and within river structural changes for shallow water habitat. There is a total of 550 acres of upland hardwood trees, 750 acres of grasslands, and 450 acres of wetlands at the site.

In FY03, an amendment was disked and compacted into the soils to improve retention in the wetland areas. The areas are now filling completely and the amount of pumping to keep the wetland areas filled for the fall waterfowl migration is expected to be reduced.

Benedictine Bottoms has been turned over to the Kansas Department of Wildlife and Parks for their management as a wildlife refuge and conservation area.

Grand Pass, Missouri

This mitigation site is located at the Grand Pass Conservation Area (GPCA) on land owned by MDC. The area is adjacent to the right descending bank of the Missouri River, at river miles 266 to 263.

At this site, the Corps of Engineers constructed shallow water habitat by re-opening a river chute. Development of the chute was completed in 1991. The work included modification of existing river structures, excavation and dredging of the chute, installation of submerged brush piles, and construction of rock hard points. The developed chute is now approximately 50 feet wide and has developed 10 acres of high quality shallow water habitat.



Grand Pass, MO
Upstream view of the developed chute

Overton Bottoms North, Missouri

Overton Bottoms North (OBN) is approximately 1,687 acres in size. It is located at river miles 189 to 185, approximately 15 miles west of Columbia, Missouri. OBN is made up of formerly farmed lands purchased from private willing sellers by both the Corps of Engineers and US Fish and Wildlife Service (USFWS).

The mitigation at this site included taking the agricultural lands out of production and planting native grasses and trees. An existing levee was breached to allow high flows in the spring to spread out over the floodplain and introduce valuable organic nutrients to the river.

In 2000, the Corps designed and constructed a river 3000-foot long chute at the OBN site. The chute was constructed at higher elevations so that it was only inundated on a seasonal basis. The Corps deepened the chute in FY03 so that the chute would flow year-round. The chute has created new shallow water aquatic habitat for a diversity of native fish.

OBN has been turned over to the USFWS to manage as part of their Big Muddy Wildlife Refuge system. The USFWS has implemented low maintenance operation plans for the area and plans to let the land recover to pre-agricultural conditions on its own.



Overton Bottoms - North

View looking across habitat area inundated during high spring flows.



Rocheport Cave, MO

Biologists at the gated cave entrance

Rocheport Cave, Missouri

This mitigation site is 51 acres in size and is located up a side drainage at river mile 183. The mitigation at this site consisted of completing a cave gating across the entrance to an existing cave. The cave is a summer home to maternal colonies of endangered Gray bats. In the wintertime, the cave also serves as an important hibernaculum.

The gating project prevents human disturbance. The work was completed in July 2002 and has been turned over to MDC for their management.

Overton Bottoms South, Missouri

The Overton Bottoms South (OBS) site is 3,662 acres in size and is located just to the south of I-70 from the OBN site. This is at river miles 185 to 178 on the right bank.

The main project element for the mitigation at the OBS site was setback of an existing agricultural levee. The levee setback reconnected approximately 1,200 acres of floodplain to the Missouri River. The borrow area for the construction of the new levee was constructed so as to allow opportunistic wetlands to form. Additionally, the OBS site contains about 500 acres of bottom land forest areas that will be maintained along the river corridor.



Overton Bottoms – South, MO
Opportunistic wetlands forming in borrow areas for new levee.

In FY03, the Corps notched multiple dikes along the banks of OBS. Additionally, several small chutes were also constructed. This effort will improve the riverine diversity at this location, providing a great mix of shallow and deep water. MDC has assumed operation and management of the area.

Eagle Bluffs, Missouri

This mitigation site is located at river mile 174 to 170 on the left descending bank of the river. The site is on 571 acres of existing public land owned and operated by MDC. The area is bounded by the Missouri River to the west and Perche Creek to the East.



Eagle Bluffs, MO
One of two new wetland cells and backwater areas.

The area had been historically used for row crop production. The mitigation at this site included converting the farmed lands to seasonally flooded wetlands, and reconnecting the floodplain area to the river. Two wetland pools and additional riparian areas were constructed using new levees, berms, and water control structures.

The work also included installation of two "fish friendly" structures specifically designed to allow high flows during the spring to back up into the area to allow fish to spawn within the wetland area and then safely return to the Missouri River. The work at Eagle Bluffs was completed in January, 2002. Additional improvements along the bank line may be undertaken in the future.



Plowboy Bend, MO

Diverse and shallow water habitat created within river by structure modification

Plowboy Bend, Missouri

The Plowboy Bend mitigation site is one of several efforts to complete within river structural changes for fish habitat improvements. This site is located adjacent to the Plowboy Bend Conservation Area at river mile 172 to 169 on land that is owned and operated by the MDC.

The work at Plowboy included notching and lowering an existing dike and reversing the direction of a second existing dike. The structural modifications were used to direct the natural force of the river against the adjacent riverbank. The eroded riverbank and area within the dike field have created an area of diverse shallow and deep water fish habitat.

Marion Bottoms, Missouri

This mitigation site is located at river mile 164 to 158, on the right descending bank of the river, northwest of Jefferson City. Mitigation at this location was undertaken within the river channel along the banks of the Marion Bottoms Conservation Area, land owned and operated by MDC.

Work at this location consisted of modification to existing river structures so that shallow water habitat could be formed in the river channel. The work was completed in spring 2001.

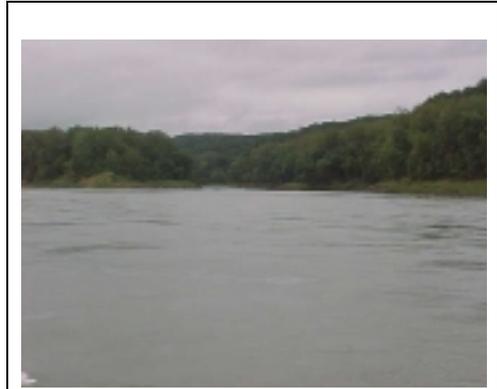


Marion Bottoms, MO

1999 aerial photo of Marion Bottoms

Tate Island, Missouri

This mitigation site is located at river miles 113 to 110 on the left descending bank of the river near the Morrison Bend. The site contains 422 acres, but is situated in the middle of the river. Access to the site is limited to boat during most times of the year. The site is located two miles east of Portland, MO. The island is being preserved in its' heavily timbered state. No construction is planned for the site at this time, however opportunities to complete shoreline and/or within river improvements to increase and diversify the shallow water habitat at this site may be undertaken in the future.



Tate Island, MO

Outlet of chute, downstream end of timbered island

Columbia Bottom, Missouri

After acquiring an additional 118 acres during FY02, this mitigation site is now 4,226 acres in size. It is located just North of St. Louis at the confluence of the Missouri and Mississippi Rivers, RM 4 - 0. The site is on existing public land owned and operated by the Missouri Department of Conservation (MDC). The land at the Columbia Bottom mitigation site was previously farmed. The area is being improved so that wetlands, native grasses, and bottomland hardwood forest habitats will be installed where agricultural lands once predominated. Due to the size of the site, the mitigation will occur in several phases.



Columbia Bottom, MO

View looking south at the land now on the riverside of newly constructed levee setback.

Phase I, setback of an 8000 linear foot existing levee, was completed in Summer of 2002. The setback moved the existing levee approx. 800 feet from the Mississippi River bank to create an additional 145 acres of land on the riverside of the levee. In the future, this riverward area will be planted with bottomland hardwood trees and shore area may be evaluated for shallow water habitat potential.

Construction of Phase II, development of approx. 800 acres of wetlands, is currently underway. Construction of 15 low dikes and a water delivery system has been installed. A river pump station is currently under design that will feed water through the delivery system to the wetland areas. Native plantings will take place in Spring 2004.

OPERATION AND MAINTENANCE (FY03 and Prior)

There are two types of Operation and Maintenance (O&M) activities for this Project. The first is “O&M During Construction”. O&M During Construction takes place at sites that have not yet had habitat developed on them, yet require O&M activities such as weed control to be performed. Typically, these sites are waiting for additional funds to be appropriated to purchase adjacent lands or develop habitats. There are currently nine sites under O&M During Construction, but this number goes up or down.

Funding for sites which require O&M During Construction is made with Construction, General (CG) type funds and are accounted for against Project funding. The work is usually performed by contract or by the agency that is interested in managing the site once habitat development has occurred. If funds are needed by an agency other than the Corps of Engineers for O&M During Construction, the funds are requested and approved from the Corps on an annual basis via an Annual Management Plan process. Requests are usually made in the summer for work planned for the following fiscal year (Oct through Sep).

The second type of O&M is straight Operation and Maintenance. Sites are considered to be in an O&M phase once constructed features have been completed and are accepted as complete by all parties. Sites can also be considered in an O&M phase when areas have been planted and are in a healthy growing condition. The constructed features and habitat lands must be operated and maintained to assure that maximum habitat value is achieved. Therefore, O&M funds are provided for this purpose. O&M type funds are not a part of CG funding and do not count against the Project costs.

On a typical site, O&M requirements are estimated initially during the design phase. An O&M manual is then developed during the construction phase with the party responsible for administering the O&M at the particular site. An O&M manual will define the entity that will do the maintenance, the degree of Corps responsibility, schedule and procedure requirements, monitoring, etc. After construction of features or habitats at a site, a cooperative agreement will be executed between the Corps and the party responsible for administering the O&M. The cooperative agreement will document the O&M responsibilities. If funds are needed by an agency other than the Corps of Engineers for O&M, the funds are requested and approved from the Corps on an annual basis via an Annual Management Plan process.

To date, the Corps has funded 100 percent of the O&M of the mitigation features and habitat lands developed under this project, whether the sites are in O&M During Construction or straight O&M status. The funding of O&M at 100% Federal cost will continue for the life of the Project. For mitigation that has occurred on properties not owned by the Corps, O&M will only be conducted on those portions of the property in which mitigation occurred and only for those features that were constructed by the Project. In most instances, the funds are forwarded to the land managing agency for the work to be accomplished by their existing work force.

As of 30 Sep 03, there were thirty-two mitigation sites that have been established. Seven of these sites have not had any O&M performed on them to date. There are nine sites that are undergoing land management using O&M During Construction funds. Also, there are sixteen sites which have had habitat developed or preserved and are now considered to be in an O&M phase. The status of the O&M of all mitigation sites is described in Table 12 on the following three pages.

TABLE 12
STATUS OF OPERATION AND MAINTENANCE
(FY03 and Prior)

Site	Current Funding	Description of O&M	Responsible Party
Winnebago Bend, IA	O&M	Maintain all structures, fences, signs and roadways. Land management and habitat preservation. Pump maintenance.	IDNR
Blackbird Bend, IA	--	None (to be started in FY06)	COE
Tieville-Decatur Bends, IA - NE	--	None (to be started in FY05)	COE
Louisville Bend, IA	O&M	Maintain all structures, fences, signs and roadways. Provide law enforcement. Land management and habitat preservation. Pump maintenance.	IDNR
Soldier Bend, IA	--	None (to be started in FY08)	COE
California Bend, IA	O&M	Maintain all structures, fences, signs and roadways. Land management and habitat preservation.	IDNR
Tobacco Island, NE	O&M	Basic land management, monitoring chute development.	NGPC
Noodleman Island, IA	CG	Land management and habitat preservation.	IDNR
Auldon Bar, IA	CG	Land management and habitat preservation	IDNR
Copeland Bend, IA	CG	Land management and habitat preservation.	IDNR

TABLE 12 Continued

Site	Current Funding	Description of O&M	Responsible Party
Hamburg Bend, NE	O&M	Maintain structures, fences, signs and roadways. Land management and habitat preservation.	NGPC
Lower Hamburg, IA/MO	CG	Land management, tree planting, existing habitat preservation	MDC
Kansas Bend, NE	--	None (to be started in FY06)	COE
Nishnabotna, NE/MO	CG	Land management, existing habitat preservation, vegetative plantings	MDC
Langdon Bend, NE	O&M	Maintain all structures, fences, signs and roadways. Land management and habitat preservation, pumping.	NGPC
Deroin Bend, MO	CG/O&M	Monitoring constructed chute and tree plantings, access road improvements, scour hole channel re-work	MDC
Corning, MO	CG	Basic land management, weed control, vegetative plantings	MDC
Thurnau, MO	CG	Land management, weed control, vegetative plantings.	MDC
Rush Bottom Bend, MO	CG	Land management, weed control, vegetative plantings.	MDC
Monkey Mountain, MO	--	None (to be started FY05)	COE
Worthwine Island, MO	--	None (to be started FY05)	MDC
Benedictine Bottoms, KS	CG/O&M	Wetland management, infiltration control, tree planting, weed control, pumping	KDWP

TABLE 12 Continued

Site	Current Funding	Description of O&M	Responsible Party
Grand Pass, MO	O&M	Management and surveillance of the constructed chute (no cost to date due to ag leasing program)	MDC
Overton Bottoms North, MO	CG/O&M	Native grass and tree plantings, weed control, surveillance of constructed chute, signage, monitoring	USFWS
Rocheport Cave, MO	O&M	Monitoring, debris removal	MDC
Overton Bottoms South, MO	CG/O&M	Basic land management, monitoring shallow water and wetland habitat development	MDC
Eagle Bluffs, MO	O&M	Management of wetland pool elevations, water control structures, weed control, mowing, food plots	MDC
Plowboy Bend, MO	O&M	Monitoring dike notching and shallow water habitat development	COE
Marion Bottoms, MO	O&M	Monitoring dike notching and shallow water habitat development	COE
Tate Island, MO	O&M	Habitat preservation, signage	MDC
Berger Bend, MO	CG	Habitat preservation, weed control, and food plots (through ag-lease)	COE
Columbia Bottom, MO	--	None (to be started in FY04)	COE

CG = Construction General Funding, O&M = O&M Funding, COE = Corps of Engineers, MDC = Missouri Department of Conservation, KDWP = Kansas Department of Wildlife and Parks, IDNR = Iowa Department of Natural Resources, NGPC = Nebraska Game and Parks Commission.

MONITORING AND EVALUATION (FY03 and Prior)

Because many of the mitigation features of this project will be constructed as opposed to created naturally over time, it is important to complete monitoring and evaluation (M&E). By monitoring the mitigation sites and collecting basic habitat data, the Agency Coordination Team can determine whether the mitigation sites are performing as expected.

However, this project is a construction effort intended to purchase lands and convert them into fish and wildlife habitats. The project is not intended to complete studies or research programs. Therefore, funding for M&E has been limited prior to FY03. In the future, the Cost Report to Congress allowed for a 5% total amount to be appropriated for monitoring efforts.

As of 30 Sep 03, only minimal M&E activities have been completed. This includes periodic inspections of completed habitats. Some site specific data has been collected. This includes a three-year fisheries study performed under contract with the State of Nebraska, limited funding of efforts at Benedictine Bottoms through the Benedictine University, pallid sturgeon micro model studies with the St. Louis District, USFWS studies on songbirds and turtles at the Overton North site, and benthic fish population assessments within the Missouri River.

Beginning in FY03, the Corps worked with the Agency Coordination Team to begin development of an M&E plan. This plan is still being drafted. The plan will outline that during the planning and design phase, specific goals and objectives will be determined for each site and monitoring criteria for meeting these objectives will be established. After construction, monitoring will be conducted on the various aspects of each site in order to assess the degree of success of the habitat development. M&E will be performed by utilizing teams with representatives from the Agency Coordination Team, the USGS, contractors, and academic institutions. Monitoring results will be collected at some sites on an annual basis and at others at a less frequent interval, depending on the objectives of the specific site. Project performance will be reported in future Annual Implementation Reports.

PLANNED MITIGATION EFFORTS FOR FY04

FUNDING (FY04)

As of the writing of this Annual Implementation Report, a final FY04 budget for the project has not been approved. The Federal government started FY04 operating under a continuing resolution authority. The Federal Budget was finally passed in late November 2003. Congress appropriated \$18,000,000 for the project. Since that time, the Headquarters of the Corps of Engineers (HQUSACE) has been determining the amount of “savings and slippage” that will be applied. Therefore, the FY04 budget is uncertain. The following information in Table 13 assumes that the savings and slippage amount will be the same as in FY03, equal to 20%.

TABLE 13

ESTIMATED FUNDING FOR FY04

Task	CENWK (1,000)	CENWO (1,000)	TOTAL (1,000)
Land Acquisition	\$2,350	\$2,300	\$4,650
Planning, Engineering, and Design	1,550	230	1,780
Habitat Development (Construction)	2,940	3,260	6,200
Construction Management	300	300	600
O&M During Construction	300	150	450
Monitoring and Evaluation ⁽¹⁾	400	320	720
TOTAL	\$7,840	\$6,650	\$14,400

(1) M&E is limited to 5% of the annual appropriation.

REAL ESTATE (FY04)

As of September 30, 2003, there remains a total of 126,670 acres of lands authorized for acquisition. These acres are authorized in all four states. Therefore, real estate efforts will be of primary interest during FY04. The goal for FY04 is to acquire 4,000 new acres for the project.

During FY04, the Corps will undertake several efforts to purchase additional land from non-public owners. Willing seller efforts will continue in Iowa, Nebraska and Kansas. A new effort will be started in Missouri. Current ownership information will be updated and many landowners will be contacted to see if they are willing to sell their property. An amount of \$4,650,000 is estimated to be available in FY04 for real estate activities (pending final savings and slippage amount by HQUSACE).

In Iowa, 250 letters were sent to owners during FY03 to gauge their interest in selling lands to the project. The list was coordinated with IDNR and USFWS. This willing seller effort will be continuously tracked during FY04. And, in addition to the willing seller effort, the Corps will be focused on acquiring lands in several specific areas. Additional non-public lands are being sought at Copeland Bend to compliment the lands that are already owned there. The Corps will be working with NRCS and IDNR at this location. Additional efforts will be undertaken to obtain additional lands at Auldon Bar, Noddleman Island, Soldier Bend and Blackbird Bend.

In Nebraska, 245 letters were sent to owners during FY03 to gauge their interest in selling lands to the project. The list was coordinated with NGPC and USFWS. This willing seller effort will be continuously tracked during FY04. And, in addition to the willing seller effort, the Corps will be attempting additional acquisitions at Langdon Bend, Kansas Bend, and Tobacco Island. The Corps will also pursue real estate agreements with the Omaha Tribe at Hole in the Rock and the Winnebago Tribe at Glovers Point to complete projects on their lands.

In Kansas, the willing seller effort will continue at several locations in Doniphan and Atchison Counties. The Corps will continue to work with the Kansas Department of Wildlife and Parks and the USFWS to prioritize lands. Additional opportunities to expand the area at Benedictine Bottoms will be included.

In Missouri, a willing seller effort will begin. The Corps anticipates use of a contractor to help in this effort. Focused efforts will be placed on acquiring lands at several new sites. This includes the Church Farms property near Jefferson City, an area near Wolf Creek Bend, lands adjacent to the Diana Bend Conservation Area, and lands at Providence Bend. Additional acquisitions adjacent to the existing sites at Berger Bend, Corning, Nishnabotna, and Thurnau sites will be pursued. Additionally, the Corps will continue working with US Bureau of Prisons to obtain the Federal prison farm land on the Missouri side of the river opposite Leavenworth, KS. The Corps will also be seeking to obtain more easements on existing public property at the Franklin Island, Diana Bend, and Thurnau Conservation Areas.

During FY04, the Corps will also focus on obtaining strips of land along the bank of the Missouri River. This would be for the specific purpose of completing structural modifications to the existing bank protection and navigation dikes. The changes will encourage the river to widen and create more shallow water habitat in the dike fields. In FY03, the Corps obtained approval to utilize “sloughing” easements. This real estate interest allows the Corps to erode portions of the bank while the current land owner maintains ownership to the land. The areas for riverine diversity will be sought in either fee or easement from private and public owners.

HABITAT DEVELOPMENT (FY04)

In FY04, an amount of \$8,580,000 is estimated to be available for habitat development (pending final savings and slippage amount by HQUSACE). This includes \$2,380,000 for engineering and management activities and \$6,200,000 for construction. The following is a summary of habitat development activities to be completed by site during FY04.

Hole in the Rock, NE - Plans and specifications for installation of several backwater areas at this mitigation site will be completed in FY04. The Corps will continue to work with the Omaha Indian Tribe to obtain a real estate easement to complete the construction. Pending available funds, a construction contract will be advertised and awarded in summer 2004. The construction will extend into FY05.

Glovers Point, NE - Plans and specifications for installation of a side channel and backwater area at this mitigation site will be completed in FY04. The Corps will continue to work with the Winnebago Indian Tribe to obtain a real estate easement to complete the construction. Pending available funds, a construction contract will be advertised and awarded in spring 2004. The construction will extend into FY05.

Tieville-Decatur Bends, IA and NE – The on-going construction contract to install backwater and side channel areas at this site will continue in FY04. This construction will finish in Spring 2004.

Tobacco Island, NE – The Corps will be fencing the boundary at this site during FY04 per agreement with Cass County.

Noodleman Island, NE – Acquisition at this site is not complete. However, during FY04, the Corps will be working with IDNR on a proposed project to install opportunistic wetlands on the available lands at this site. The soil will be removed off site, leaving a low area that will collect local drainage.

Copeland Bend, IA – Acquisition at this site is not complete. However, on the lands already owned, the Corps and IDNR will continue to work at creation of opportunistic wetlands at this

site. This effort was started in FY03 and will continue through FY04. A private contractor will remove soil off site, leaving a low area that will collect local drainage.

Hamburg Bend, NE – The Corps will be undertaking additional improvements along the river at this site during FY04. Existing river structures will continue to be modified and some new dikes may be installed to establish additional shallow water habitat and floodplain connectivity. The Corps will be working with NGPC on conversion of some open lands to opportunistic wetlands using funding obtained through an existing ag-lease.

Lower Hamburg, MO - The construction of the side channel will continue in FY04. The contract was awarded September, 2003 and will continue through to Fall, 2004. The Corps will also be modifying the existing river structures along the bank at this site using the Omaha District river contract that was awarded in FY03.

Kansas Bend, NE – Pending available funds, a construction contract will be advertised and awarded in FY04. The contract will be for construction of two side channels at this site. The construction will extend into FY05. The Corps will also be modifying the existing river structures along the bank at this site using the Omaha District river contract that was awarded in FY03.

Nishnabotna, NE, MO – Although acquisitions are not complete, the Corps will be completing an environmental assessment of this site in FY04. Additionally, MDC will continue to plant native grasses and trees. The Corps will also be modifying the existing river structures along the bank at this site using the Omaha District river contract that was awarded in FY03.

Langdon Bend, NE – The additional acquisition of land at this site will finally enable adequate access to the site. In FY04, the Corps will complete an improved access road and parking area.

Deroin Bend, MO – In FY04, the Corps will be working with MDC on modifying the channels connecting the new side channel to the existing scour holes on this site. The work will allow MDC to control flow into and out of the scour holes.

Corning, MO – Although acquisitions are not complete, the Corps will be working with MDC to continue to plant native grasses and trees in FY04. The Corps will also be working with NRCS on a project to complete land grading and vegetative plantings on the WRP lands.

Thurnau, MO – Although acquisitions are not complete, the Corps will be completing an environmental assessment of this site in FY04. Additionally, MDC will continue to plant native grasses and trees on the lands already owned at this area.

Rush Bottoms, MO – Although acquisitions are not complete, the Corps will be completing an environmental assessment of this site in FY04. Additionally, MDC will continue to plant native grasses and trees on the lands already owned at this area.

Worthwine Island, MO – The design to re-open a chute at this site will continue. Plans and specifications will be completed during FY04. Depending on available funds, a construction contract for this project may be awarded very late in FY04. The current working estimate for the project is \$3.5M and will continue into FY05.

Franklin Island, MO – The Corps anticipates obtaining a no cost easement from MDC at this site. The easement will be along the river frontage and allow the Corps to modify the river structures along the bank at this site to improve riverine diversity.

Overton Bottoms North, MO – In FY04, the Corps will modify the river structures along the bank at this site to improve riverine diversity. The surveying and marking the boundary of this mitigation site will continue in FY04.

Overton Bottoms South, MO – The levee set back will be made operational and turned over to the Overton-Woolridge levee district for O&M beginning in FY04. Also at this site, the Corps of Engineers will continue efforts to surveying and marking the boundary of this mitigation.

Berger Bend, MO – CG Funding in FY04 will be used to continue habitat improvements at this site. The existing barn on one of the sites will be torn down. Approximately 50 acres of hardwood trees will be planted in the Spring 04. Goal is to turn the property over to MDC by Dec 05.

Columbia Bottom, MO – The plans and specifications for installation of one or more river pumps will be completed in FY04. If funds are available at the end of the fiscal year, a construction contract for installation of the river pump(s) will be awarded in Summer 04 with the construction extending into FY05. Funds will be made available to MDC to pay for planting of approximately 1,300 acres of native trees and grasses during FY04.

OPERATION AND MAINTENANCE (FY04)

In FY04, an amount of \$450,000 of Construction, General (CG) funds is estimated to be available for O&M During Construction (pending final savings and slippage amount by HQUSACE). The following is a summary of how the CG funds will be spent in FY04.

At sites that have not been placed in an O&M status, O&M During Construction funds will be provided for basic land management, habitat preservation, tree plantings, weed control, and signage. This will occur at the following mitigation sites in FY04: Noddleman Island, IA; Auldon Bar, IA; Copeland Bend, IA; Lower Hamburg, MO; Nishnabotna, MO; Corning, MO; Thurnau, MO; Rush Bottom Bend, MO; Overton Bottoms North, MO; Overton Bottoms South, MO; and Berger Bend, MO.

For those sites that have been placed in an “Operations” status, CG funds will not be used. The Corps must provide O&M type funds for these mitigation sites and the funding for this does not get counted toward overall project costs. The types of work that this would include is maintaining constructed structures, pumps, fences, signs and roadways. Also covered are land management activities such as habitat preservation, wetland and infiltration control, habitat preservation, tree planting, and weed control. Pending available funds, O&M will continue during FY04 at the following mitigation sites: Winnebago Bend, IA; Louisville Bend, IA; California Bend, IA; Tobacco Island, NE; Hamburg Bend, NE; Langdon Bend, NE; Deroin Bend, MO; Benedictine Bottoms, KS; Grand Pass, MO; Overton Bottoms North, MO; Rocheport Cave, MO; Overton Bottoms South, MO; Eagle Bluffs, MO; Plowboy Bend, MO; Marion Bottoms, MO; and Tate Island, MO.

MONITORING AND EVALUATION (FY04)

In FY04, an amount of \$720,000 of Construction, General (CG) funds is estimated to be available for Monitoring and Evaluation (M&E) This amount is pending final savings and slippage amount by HQUSACE. In FY04, M&E funds will be spent on periodic and/or annual inspections at the mitigation sites that have been placed in an Operation phase. Some site specific data will be collected to support baseline conditions for shallow water habitat. USFWS studies on song birds, turtles, and native fish will again be funded at the Overton North site. Additionally, an M&E plan for the project will be drafted for review and acceptance by the Agency Coordination Team.

**FUTURE MITIGATION EFFORTS,
FY05 TO COMPLETION**

FUNDING (FY05 to completion)

In accordance with the requirements of WRDA99, the Corps of Engineers worked with the Agency Coordination Team to develop a Cost Report to Congress. The Cost Report estimated the amount of funds needed to complete mitigation of the additional 118,650 acres authorized by WRDA99. The cost to complete the project was estimated to be \$740 million (includes 7,000 acres of shallow water habitat) to \$1.33 billion dollars (includes 20,000 acres of shallow water habitat). These costs were at October 2001 price levels.

It is important to note that all future funding for the mitigation efforts is subject to annual appropriation. Due to increasing pressures to focus mitigation efforts on maximizing riverine diversity, the Corps has created budgets based upon the higher goal of 20,000 additional acres of shallow water habitat. When seeking annual appropriations in FY05 through completion, the Corps will request funding to meet the higher, \$1.33 billion, total project cost. The cost information from the Report to Congress is displayed in Table 14 below.

**TABLE 14
ESTIMATED COSTS FROM REPORT TO CONGRESS**

Task	CENWK (1,000,000)	CENWO (1,000,000)	TOTAL (1,000,000)
Land Acquisition	\$230	\$120	\$350
Planning, Engineering, and Design	110	70	180
Habitat Development (Construction)	350	270	620
Construction Management	30	20	50
O&M During Construction	30	20	50
Monitoring and Evaluation	50	30	80
TOTAL	\$800	\$530	\$1,330

The life of the project is currently projected to last until the year 2042. After inflation is applied, the cost to implement the mitigation program with 20,000 additional shallow water habitat acres is estimated to be \$3.1 billion. The Corps has input this funding stream into project budgetary data. The budget data for the next 5 years is displayed in Table 15.

TABLE 15
CURRENT BUDGET FY05 TO COMPLETION

District	FY05 (1,000)	FY06 (1,000)	FY07 (1,000)	FY08 (1,000)	FY09 (1,000)	FY10 – FY42 (1,000)
Omaha	10,000	10,000	15,000	15,000	15,000	1,052,423
Kansas City	13,500	15,000	17,500	22,000	22,000	1,749,141
TOTAL	23,500	25,000	32,500	37,000	37,000	2,801,564

The budget data in table 15 is subject to change. For instance, while the Corps will request \$23,500,000 in funding in FY05, Congress may appropriate only a portion of that. Therefore, this table will be updated annually and changes will be reflected in future Annual Implementation reports.

REAL ESTATE (FY05 to completion)

In June 2003, the SEIS process was completed. With the NEPA documentation complete, the Corps is now able to acquire the additional acres authorized by WRDA99. As displayed in Table 10, there are 126,670 acres remaining to be acquired for the project. If the acquisition program is successful in meeting the FY04 goal of 4,000 acres, then there will be in excess of 120,000 acres left to be acquired from FY05 to completion.

There are currently 32 mitigation sites established which amount to just over 40,000 acres in lands. This is an average of 1,250 acres per site. Using this average, the Corps will need to establish approx. 100 new sites from FY05 to completion.

Authority to purchase additional lands is available in all four states. It is hoped that the concerted effort to inform the public of the project and the update of the willing seller surveys may produce additional willing sellers. Also, during FY05 and beyond, the Corps will continue

to work with the Agency Coordination Team to identify existing public in which mitigation projects can be implemented.

As willing sellers, both private and public, come forward, acquisitions of their properties will be of top priority. Real estate acquisitions will take priority over awarding all construction contracts for habitat development. If funds are provided, it is estimated that the acquisition effort will last for at least 20 years before enough willing sellers are found. In order to meet the authorized amount of lands to mitigate, 6,000 acres of land will need to be acquired per year for the next 20 years.

HABITAT DEVELOPMENT (FY05 to completion)

For all future years, if funds are provided, continued modifications to the river structures will be a priority for riverine diversity and habitat development. Additional opportunities for reconnecting the floodplain with the river will be undertaken at all possible locations. Set back and breaching of existing levees will be undertaken. Vegetative plantings and other land management practices to develop native habitats to terrestrial areas will also continue. The Corps will focus efforts on self-sustaining habitat designs for all habitat types.

Based upon the estimates above, an additional 100 sites will be established for the project in order to complete the mitigation on the Missouri River from Souix City, IA to the mouth. Since the project is estimated to last until FY42, habitat must be developed on at least three mitigation sites per year to complete the mitigation efforts.

Provided funds are appropriated as budgeted above for FY05, the Corps has specific plans for habitat development at several sites. The habitat development that had been started in FY04 will continue to completion. This will be at the Glovers Point, NE; Hole in the Rock, NE; Kansas Bend, NE; Tieville-Decatur Bends, IA/NE; Lower Hamburg Bend, IA/MO; Worthwine Island, MO; and Columbia Bottom, MO mitigation sites.

OPERATION AND MAINTENANCE (FY05 to completion)

If funds are provided in FY05 to completion of the project, the Corps of Engineers will be establishing many new mitigation sites. As is current practice, the States will be asked to provide annual management plans in order to receive Federal funds for maintenance of constructed features of this project. O&M of the mitigation sites will remain 100% Federal funded.

It was estimated in the Cost Report to Congress that the O&M requirements would incrementally increase over time to reach an amount estimated to be \$5 million per year by the time the project

was fully constructed. This amount was estimated based on only passive, self sustaining habitat areas being constructed by this project.

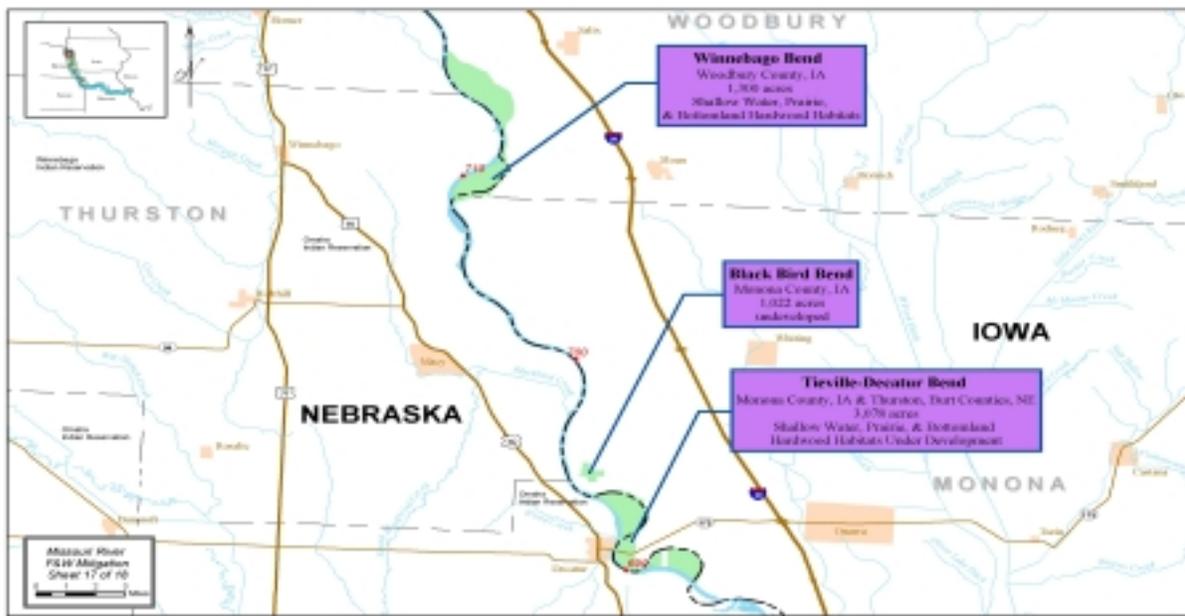
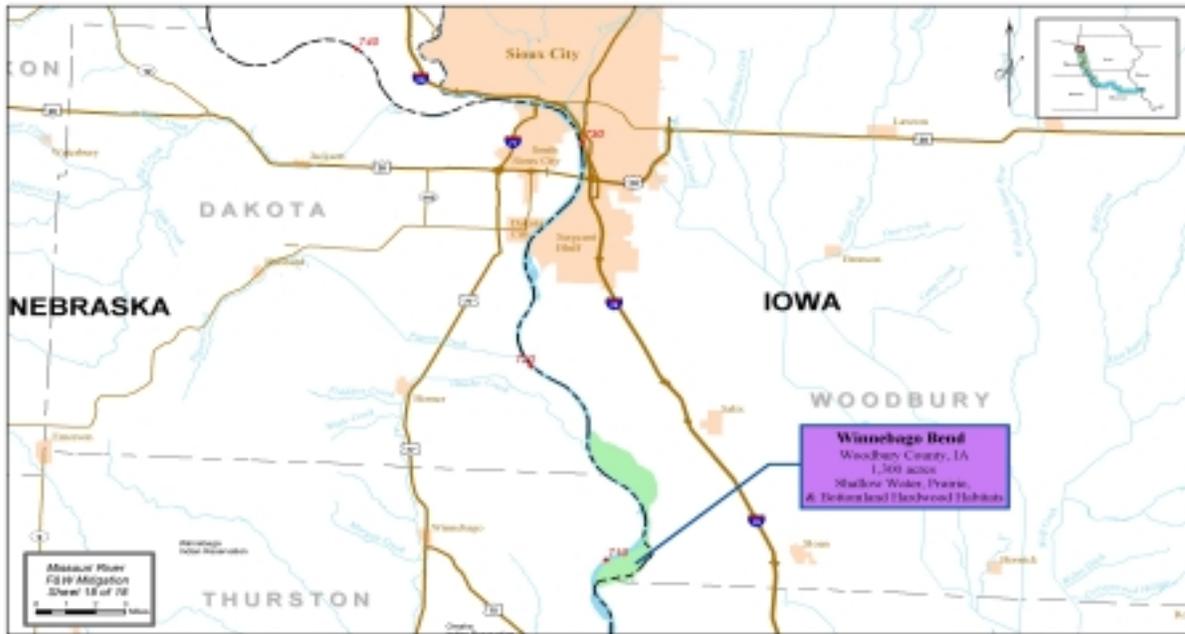
MONITORING AND EVALUATION (FY05 to completion)

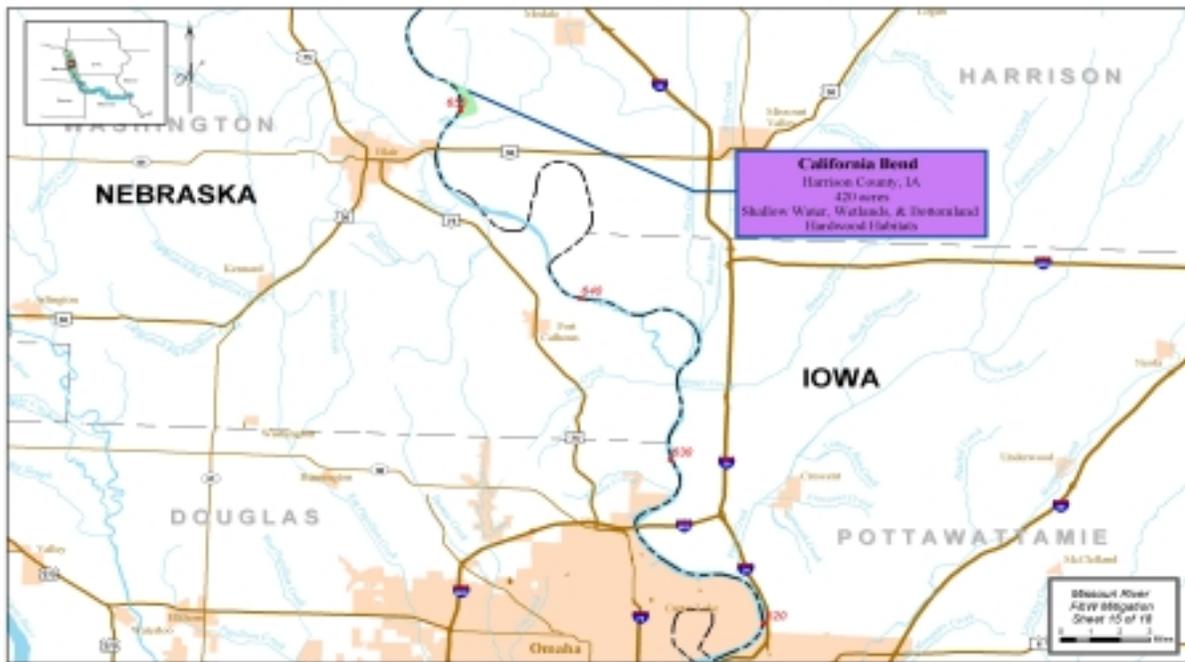
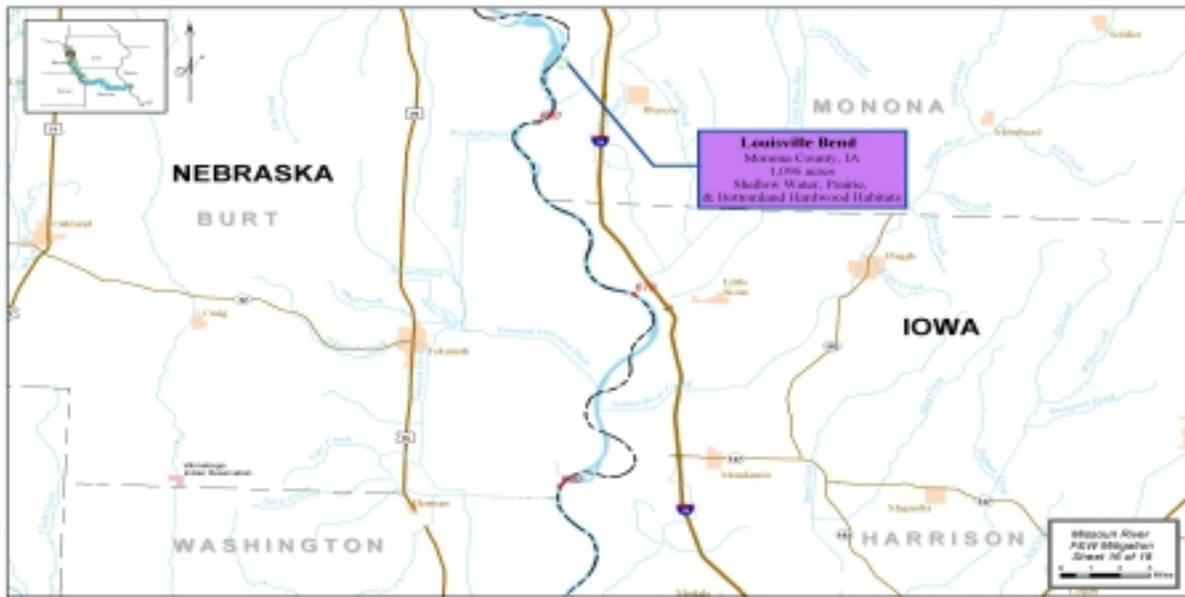
The SEIS calls for a detailed Monitoring and Evaluation (M&E) effort to be funded by the mitigation project. The M&E effort will be used to support adaptive management of established mitigation sites. Participation of the Agency Coordination Team is considered essential to understanding and agreeing upon adaptive management needed to keep established mitigation sites healthy and productive.

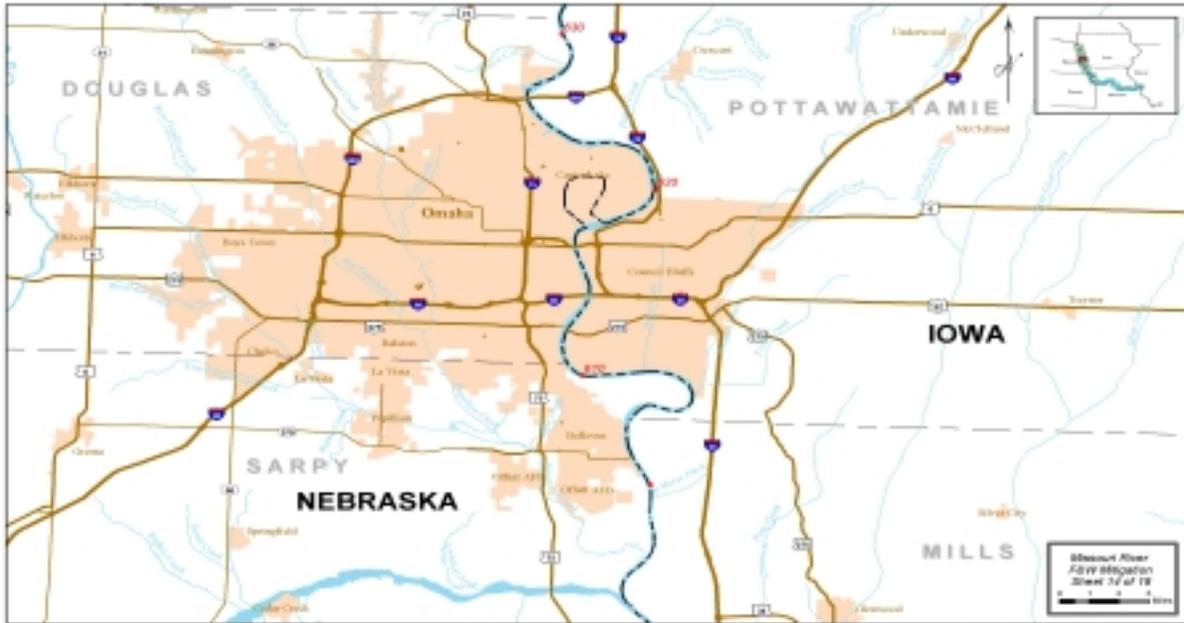
If funds are provided in FY05 to completion, M&E efforts will be based on the entire Missouri River floodplain ecosystem. No one species will be concentrated upon. Rather, a holistic approach must be taken to assure a portion of the form and function of the river is restored. It was estimated in the Cost Report to Congress that an amount of 5% of each annual appropriation will be budgeted for M&E activities.

During the planning and design phase of new mitigation sites, the Corps plans to outline specific monitoring goals and objectives. The Corps, working with the Agency Coordination Team, will determine the monitoring criteria for meeting these objectives. On typical sites, after construction, monitoring will be conducted on the various aspects of each site in order to assess the degree of success of the habitat development. The monitoring will be performed by utilizing teams with representatives from the Agency Coordination Team, the USGS, contractors, and academic institutions. Monitoring results will be collected at some sites on an annual basis and at others at a less frequent interval, depending on the objectives of the specific site. Project performance will be reported in future Annual Implementation Reports.

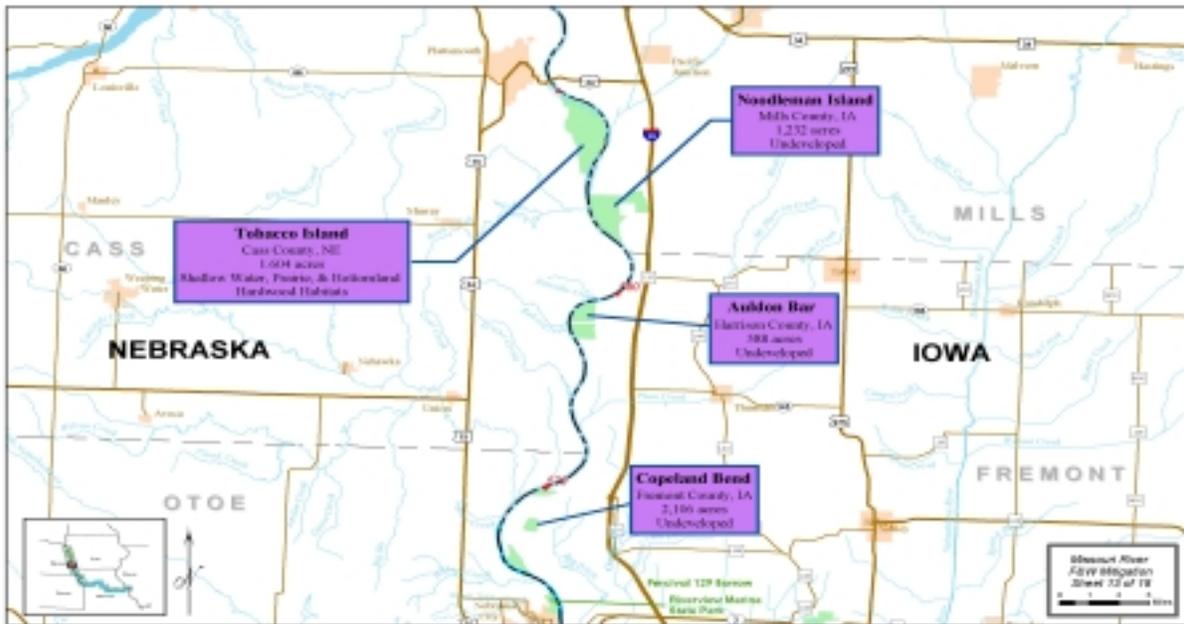
**APPENDIX 1
SITE LOCATION MAPS**



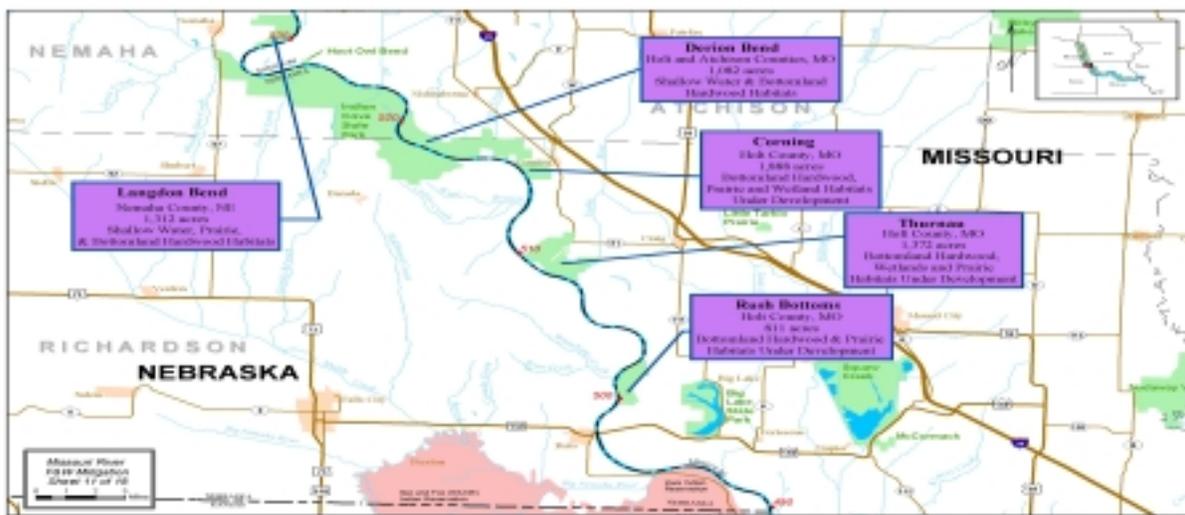
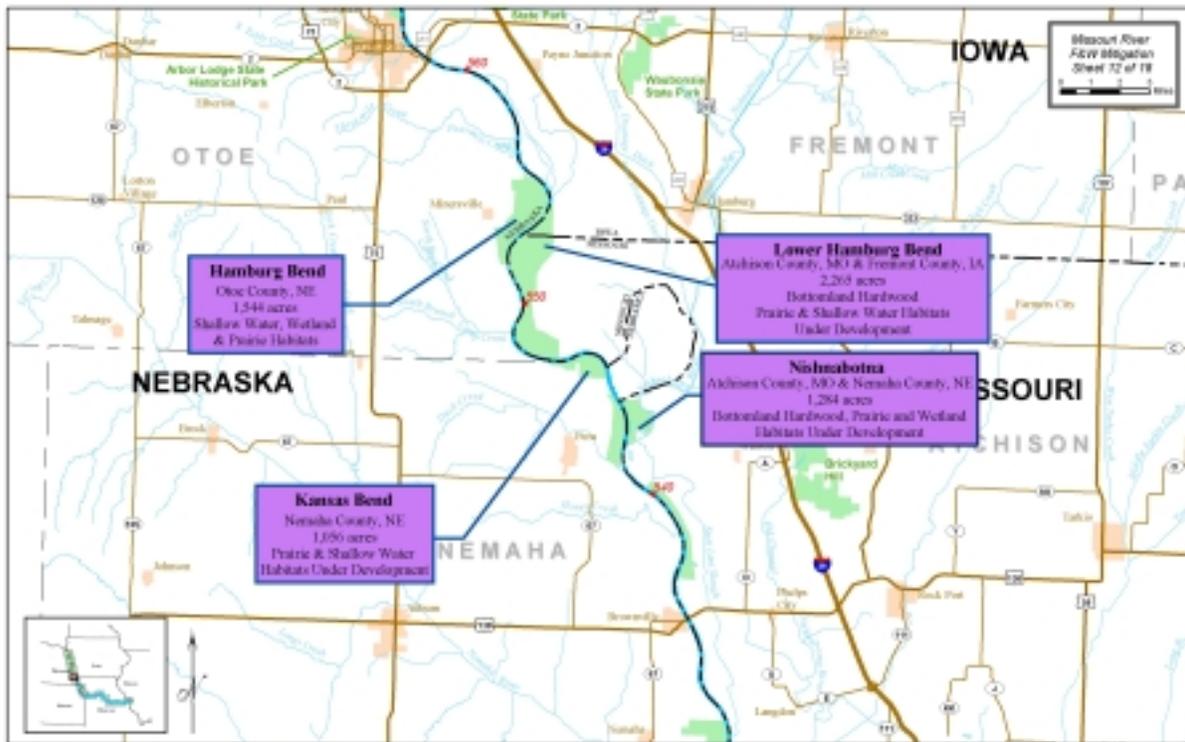




© MapInfo Corporation, 2008. All rights reserved. MapInfo, the MapInfo logo, and the MapInfo globe logo are registered trademarks of MapInfo Corporation.



© MapInfo Corporation, 2008. All rights reserved. MapInfo, the MapInfo logo, and the MapInfo globe logo are registered trademarks of MapInfo Corporation.















**US Army Corps
of Engineers** ®

**US Army Corps of Engineers
Omaha District
215 North 17th Street
Omaha, Nebraska 68102
402-221-4605**



**US Army Corps
of Engineers** ®

**US Army Corps of Engineers
Kansas City District
601 East 12th Street
Kansas City, Missouri 64106
816-983-3324, Fax: 816-426-6356**
