



DEPARTMENT OF THE ARMY
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39181-0080

REPLY TO
ATTENTION OF:

CEMVD-PDM

MEMORANDUM FOR Commander, St. Paul District

SUBJECT: Upper Mississippi River Restoration Program, Reno Bottoms Habitat Rehabilitation and Enhancement Project (HREP), Houston County, Minnesota and Allamakee County, Iowa, Fact Sheet

1. Reference memorandum, CEMVP-PM-B, 28 June 2018, subject as above (encl).
2. The subject fact sheet is approved for continued HREP planning.
3. The MVD point of contact for this action is Mr. Ben Robinson, CEMVD-PDM, (601)-634-5310.

Encl


GARY L. YOUNG
Chief, Planning Division

FACT SHEET

RENO BOTTOMS HABITAT REHABILITATION AND ENHANCEMENT PROJECT POOL 9, UPPER MISSISSIPPI RIVER, MN and IA UPPER MISSISSIPPI RIVER RESTORATION PROGRAM

LOCATION

The 14,000 acre Reno Bottoms area is located within the Upper Mississippi River National Wildlife and Fish Refuge (Refuge) in Houston Co, Minnesota and Allamakee Co, Iowa, and is in Pool 9 between river miles 671-682 (Figure 1). The area is bounded on the west by the Canadian Pacific railroad, on the east by the main Mississippi River navigation channel, on the north by the Lock and Dam 8 dike, and on the south by the Upper Iowa River. The closest communities to the project area are New Albin, Iowa and Reno, Minnesota.

EXISTING RESOURCES

Much of the floodplain forest in the Reno Bottoms project area has been declining in coverage over the past several decades. Current Pool 9 water management and flow through the Lock and Dam 8 embankment have shifted the floodplain forest distribution to elevations about two feet higher than pre-impoundment conditions (Heitmeyer et al. 2009). Flat topography, higher groundwater levels caused by impoundment, increased frequency and duration of inundation and reduced creation of new islands and shoreline have decreased the amount of terrestrial land cover suitable for sustaining forested communities in the UMR floodplain (Figure 2). Furthermore, increased competition from reed canary grass and other aggressive native herbaceous plants (e.g. stinging nettle) has adversely affected forest regeneration and altered the normal successional progression of abandoned agricultural areas. Reed canary grass is an aggressively invasive species whose occurrence is widespread throughout the Reno Bottoms area. Important mast species such as swamp white oak have declined in importance, and Dutch elm disease has also eliminated most American elm, once a prominent component of the river corridor. The relatively recent discovery of Emerald Ash Borer in the near vicinity of the project area could prove devastating for green ash populations in the floodplain, which are another important component of Upper Mississippi River System floodplain forests. Thus, the majority of the current forest is mostly composed of a few highly water tolerant species such as silver maple and black willow. Most of these trees are mature, and being relatively short-lived species are already either approaching the end of their life span or will be in the near future. Although a small amount of scattered young cottonwood and willow are present in Reno Bottoms, a younger tree replacement component is generally lacking throughout the area.

The Minnesota, Iowa, and Wisconsin Departments of Natural Resources document the presence of additional state threatened or endangered species within Pool 9. In addition, there are numerous eagle nests within the project area. Many of these species would benefit from restoration and enhancement of the area. Reno Bottoms, among the few remaining high quality large blocks of bottomland forest along the Upper Mississippi River, is the only one that contains a federally designated Research Natural Area.

Wildlife that currently use the area include Cerulean Warblers, Prothonotary Warblers, Red-shouldered Hawks, transient neotropical migrants, tree-roosting bats, dabbling ducks, beaver, eagles, deer, mussels, and fish.

There are on-going and past efforts to study, monitor, and restore habitat in the Reno Bottoms area including the Corps' forestry inventory and the Navigation and Ecosystem Sustainability Program (NESP) Lock and Dam 8 Embankment project. Because of these efforts, a significant amount of monitoring data and other information currently exists for this project including a hydrogeomorphic evaluation (Heitmeyer and COE, 2009), water quality (WI DNR and USGS), fisheries (MN DNR), and forestry (USACE, USFWS).

Refuge management of the Reno Bottoms area includes the Reno Bottoms Research Natural Area, Reno Bottoms Slow No Wake Area, Pool Slough No Entry Sanctuary, a canoe trail, and boat landings.

PROBLEM IDENTIFICATION

Without active management, floodplain forest in the Reno Bottoms project area is likely to continue to degrade. The diversity of overstory tree species has declined from historic levels and is likely to continue to do so. Forest health has also been negatively impacted due to the effects of forest pests and diseases, and likely the chronic physiological stress associated with alterations to hydrology. On higher elevation sites, the prevalence of reed canary grass and other non-woody competition throughout the management area will continue to preclude successful natural regeneration from the species that are still present on or near the site. Even if reed canary grass were not present, it is not certain whether standard tree planting techniques alone would lead to a successful outcome due to changes in the hydrologic regime at the site, primarily at lower elevations relative to mean pool. For example, higher impact restoration techniques such as alterations in topographic diversity may ultimately be required to ensure the long-term sustainability of healthy floodplain forest attributes.

A variety of physical, chemical and biological stressors have individually and cumulatively affected the quantity and quality of habitat for biota. Specifically, without the implementation of active site restoration measures, the following conditions are likely to occur at the Reno Bottoms project area:

- Increased coverage and dominance of reed canary grass.
- Increased loss of tree and other native plant species diversity.
- Increased loss of forest structural and age class diversity.
- Increased loss of forested land cover.

- Increase in floodplain forest habitat fragmentation.
- Decrease in floodplain forest habitat connectivity.
- Decrease in amount of floodplain forest interior habitat.
- Increase in cumulative adverse impacts on forest-dependent wildlife species.
- Increase in cumulative adverse impacts on local aesthetic and cultural resources.
- Increase in cumulative adverse impacts on ecosystem services (e.g., improvements to water quality).

PROJECT GOALS

Project goals are derived from the Refuge's Comprehensive Conservation Plan (2006), the Refuge's Habitat Management Plan (2017 draft), River Resources Forum Pools 1-10 Environmental Pool Plans (2004), the Corps of Engineers' Upper Mississippi River Systemic Forestry Stewardship Plan (2012), and other Upper Mississippi River System restoration documents. The project goal is as follows:

Protect/maintain/enhance the ecological health of floodplain hardwood forests to levels that are sustainable.

- Increase topographic diversity and elevation of floodplain areas.
- Increase the extent, patch size, and successional variety of forest communities.
- Restore and maintain large contiguous patches of forest communities.
- Increase habitat corridor sizes and connectivity (focus is on forest-dependent and migratory bird species).

PROPOSED PROJECT

Project features proposed to address the habitat goals for the project area could include the following:

- Forest inventory.
- Forest creation and enhancement activities such as understory plantings and timber stand improvement, and reed canary grass management.
- Elevation modification which may include aquatic dredging, dredged material placement, grading, etc.
- Connectivity management activities such as channel manipulations, and spillway modifications.

Collectively, these features will provide the environmental conditions necessary to reach and maintain the desired future habitat conditions. Other potential actions include controlling invasive species and other habitat management actions. Fine material from backwater dredging along with main channel sand will be used for elevation modification. This backwater dredging could provide additional deep water fish habitat. (Figure 3.)

PROJECT OUTPUTS

The project has the potential to improve conditions on over 14,000 acres of floodplain habitat by providing forest establishment and increasing forest species, size, age, and structural diversity, with secondary benefits to marsh and aquatic areas. Topographic modifications related to increasing site elevation will also provide additional microhabitat diversity. By reducing forest fragmentation and providing larger contiguous forest patch size forest-dependent species, including many Refuge priority resources of concern, will benefit. Additional habitat improvements will be provided by invasive species eradication and control. (Figure 3.)

This project provides the opportunity to protect, enhance, and restore quality forest and wetland habitat for all native and desirable plant, wildlife, and fish species. Targeted animals include many of the Refuge priority resources of concern (ROC) as identified by the Refuge's Habitat Management Plan (USFWS, 2017 draft), as well as one priority ROC native plant community, the Midwestern wooded swamps and floodplains. Priority wildlife ROCs potentially benefiting from the proposed actions include Cerulean Warbler, Prothonotary Warbler, Red-shouldered Hawk, transient neotropical migrant passerines, and tree-roosting bats. Reno Bottoms also provides several opportunities to implement adaptive management strategies. The two separate spillways, well-studied forests, and modeled sloughs will be valuable features for testing hypotheses and establishing experimental designs to test forestry management practices.

Secondarily, fish and mussel species will benefit from managed flows, additional bathymetric diversity, and reduced sedimentation.

IMPLEMENTATION CONSIDERATIONS

At the outset of planning, the team could consider planning and implementing the project in two stages. The first stage could be used to address elevated water levels within the Reno Bottoms complex with a primary objective being the protection and maintenance of forest habitats. The second stage could then be used to consider measures for additional habitat improvement within the complex. After the first stage is constructed, water levels within the complex could be evaluated to determine the effectiveness of those measures. Those measures could be modified in the second stage if needed, but most importantly, the uncertainty about their effectiveness would hopefully be eliminated, helping guide the planning and decision-making process for the second stage. Planning and implementing and implementing the project in this manner should lead to a higher likelihood of success because bottomland forest is critically dependent on hydrology.

Some of the proposed project features are located within the Refuge's Reno Bottoms Research Natural Area and the Pool Slough No Entry Sanctuary. Work within the sanctuary requires that construction and other activities halt upon the start of the State's waterfowl hunting season (around the end of September or early October).

There are several active eagle nests in the area that could affect construction timing. Some areas of the project may be difficult to access.

FINANCIAL DATA

The proposed project features are located on Federally owned lands in an area managed by the U.S. Fish and Wildlife Service (USFWS) as part of the Upper Mississippi River National Wildlife and Fish Refuge. Therefore, the project costs would be 100 percent Federal. In accordance with Section 107(b) of the WRDA 1992, all costs for operation, maintenance, and rehabilitation of project features would be the responsibility of the USFWS. During the study, if any additional project features are proposed that are located outside the Refuge boundaries, the Minnesota or Iowa Department of Natural Resources would likely be the non-federal sponsor and would be required to provide the cost-share for those features. The estimated cost of the proposed project, depending upon the project features selected for implementation, are \$2,000,000 to \$8,000,000.

STATUS OF PROJECT

This is a priority project for the Refuge, and is being considered for endorsement by the St. Paul District River Resources Form and Fish and Wildlife Workgroup.

POINTS OF CONTACT

Tom Novak, USACE, St. Paul District, UMRR Manager, 651-290-5524

Brandon Jones, USFWS, McGregor District Manager, 608-326-0515.

Dan Dieterman, MN DNR, Habitat Project Coordinator, 651-345-3365

Jeff Janvrin, WI DNR, Mississippi River Habitat Specialist, 608-785-9005

Mike Griffin, IA DNR, Mississippi River Habitat Biologist, 563-872-5700

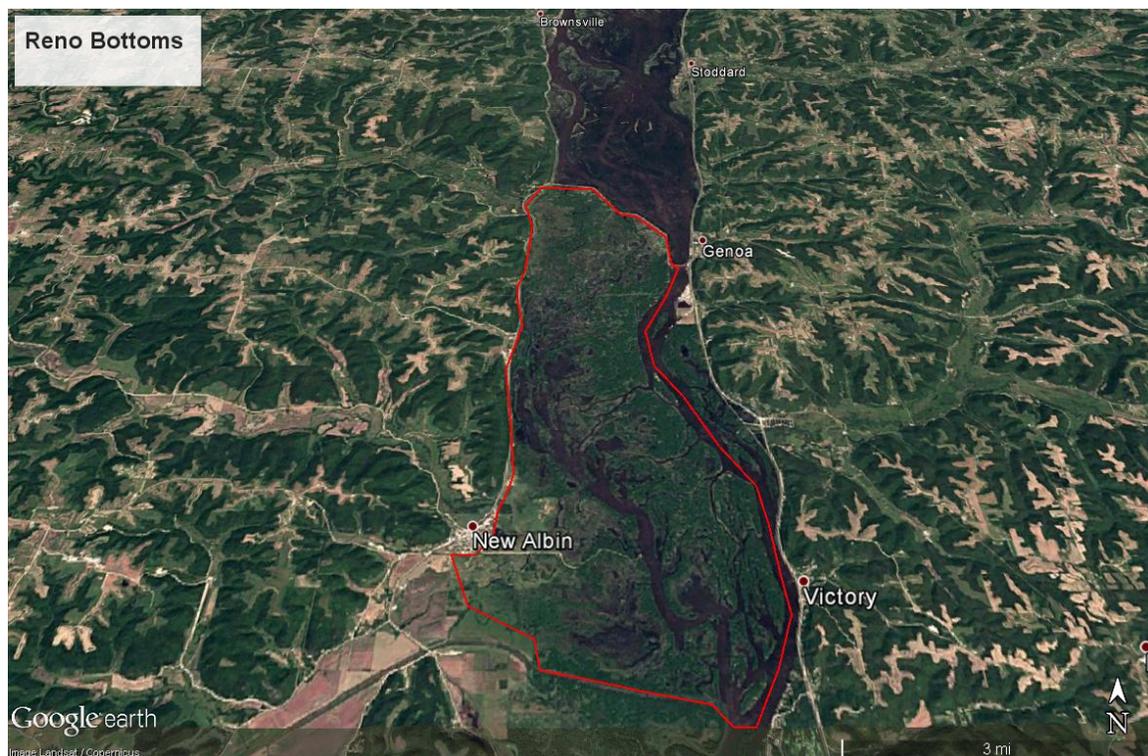


Figure 1. Reno Bottoms location. Approximate boundary shown.

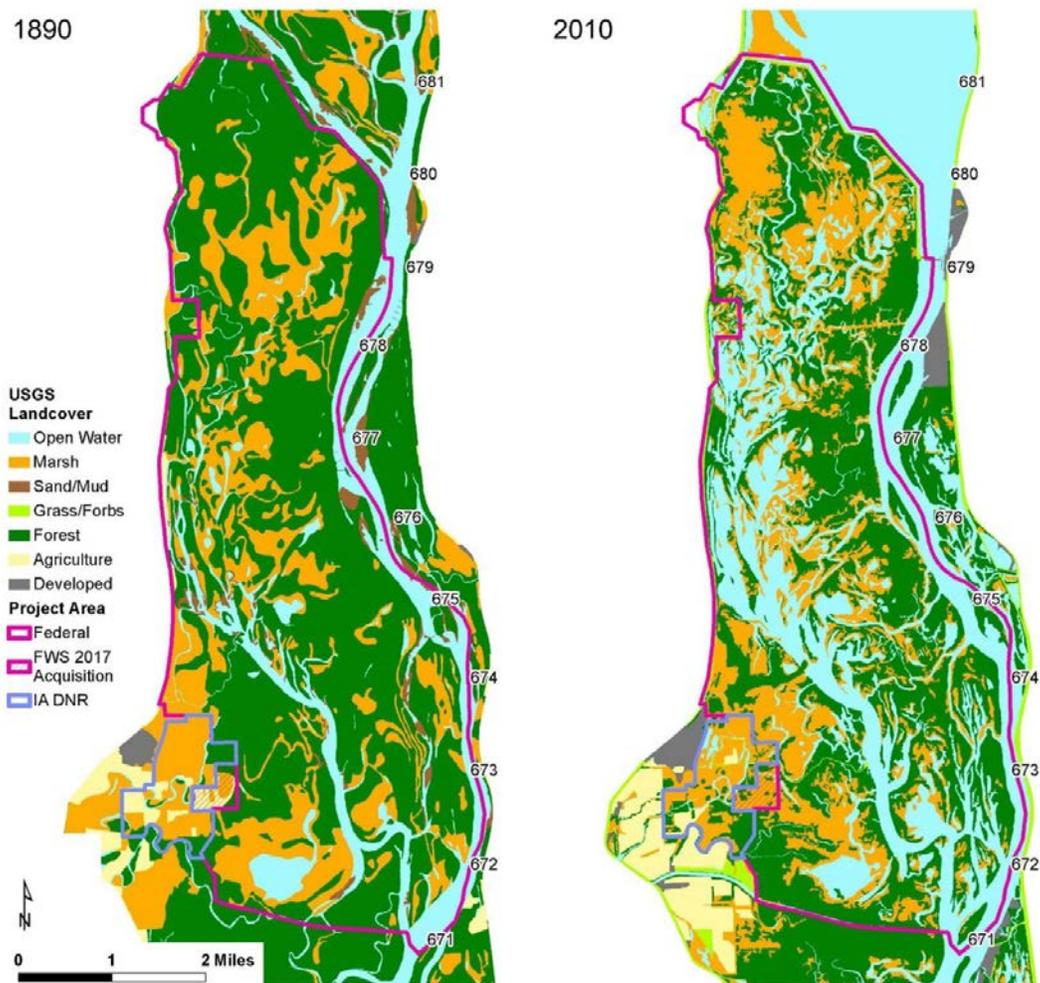


Figure 2. Maps showing land cover changes in Reno Bottoms from 1890 (left) to 2010 (right). Note the drastic increase of open water and marsh habitats and the decrease of forested habitat over that 120-year time period.

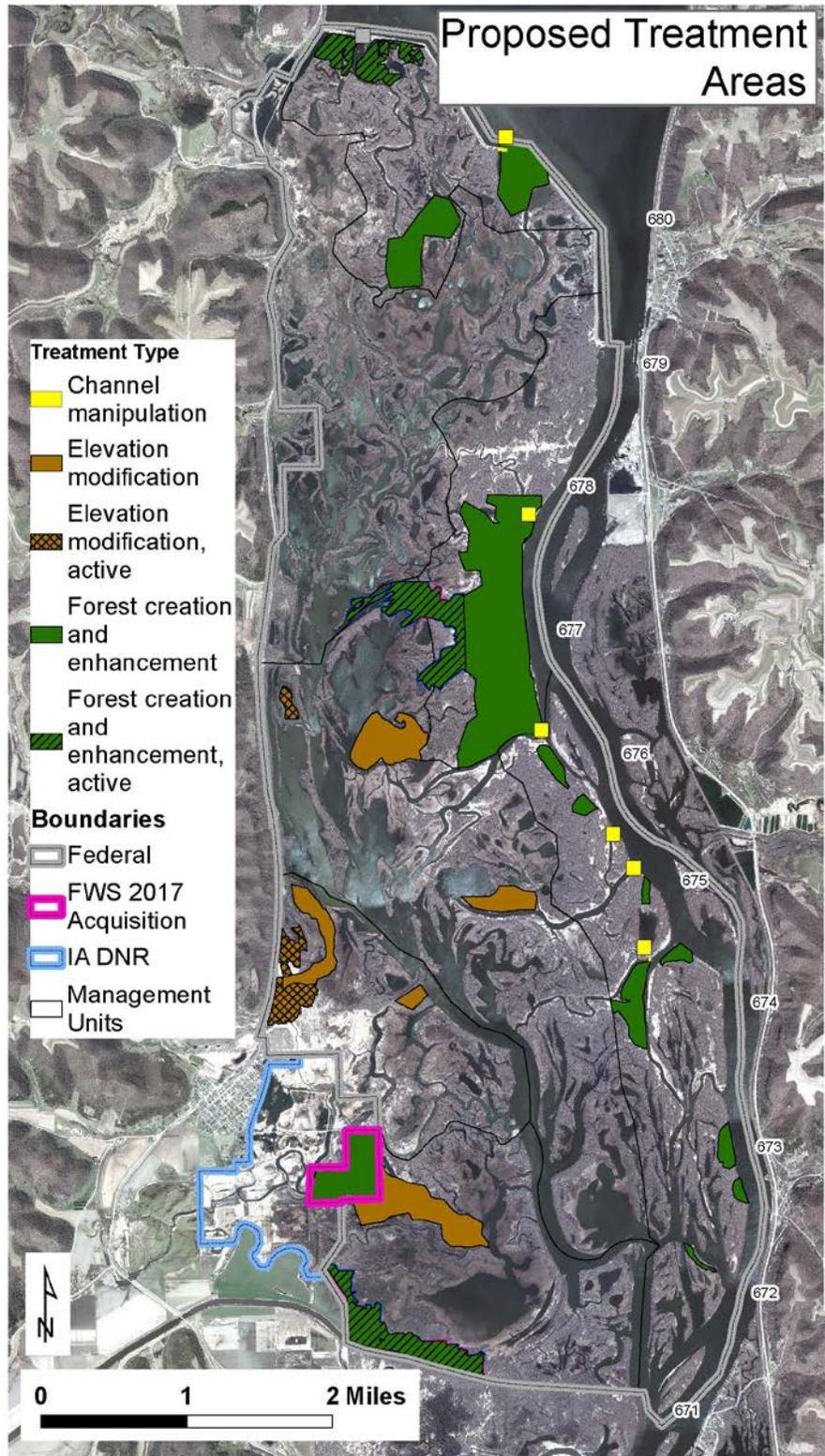


Figure 3. Map depicting potential project features. (Corps of Engineers, St. Paul District, Andy Meier.)