



**US Army Corps
of Engineers®**

PROJECT FACT SHEET

Middle Mississippi River National Wildlife Refuge: Meissner Island, Beaver Island, Horse Island, and Rockwood Divisions

Upper Mississippi River, Unimpounded, River Miles 154 to 102

Monroe and Randolph Counties, Illinois

Navigation Ecosystem Sustainability Program, St. Louis District

Location. The Middle Mississippi River (MMR) National Wildlife Refuge (NWR) is located on the Mississippi River downstream from St. Louis, Missouri. Meissner Island Division is near Valmeyer, Illinois (RM 154). Beaver and Horse Island Divisions are near Kaskaskia, Illinois (RM 117 and RM 111 respectively), and Rockwood Division is near Rockwood, Illinois (RM 102).

Land Ownership. The study area is owned and managed by the U.S. Fish and Wildlife Service as part of the Middle Mississippi River National Wildlife Refuge.

Resource Problem. The study area comprises a total of 3,150 acres and consists of point bar (floodplain forest, riverfront forest, shrub swamp, and old field habitats) and backswamp (willow, shrub swamp and open water habitats) geomorphic surfaces on the riverside of the levees. Current land use is approximately 20% non-forested abandoned agricultural fields, and 80% riverfront forest communities. The project footprint would be a sub-set of the overall 3,150-acre project area.

Existing floodplain forest communities have been degraded from past land use and flood events resulting in low species richness (2 co-dominant overstory tree species; 2 dominant shrub species). The flood-induced tree mortality and inundation stress has allowed for invasive species (i.e., Japanese hops) establishment and spread altering native tree recruitment and canopy gap closure dynamics. Canopy gaps are a necessary and desired component of forest ecosystem succession, but an altered flood regime and invasive species presence both prevent forest recruitment in these openings and effectively arrest the natural gap dynamics. Currently, large permanent canopy gaps at Beaver Island and Rockwood Island contain more than 75% cover of Japanese hops; ultimately, reducing the forest block size needed to benefit refuge resources of

concern, including but not limited to, tree roosting bats, forest obligate neotropical migrants, and migratory waterfowl.

Historically, the backwater lakes and low swales within the MMR region south of Kaskaskia contained cypress swamp and shrub swamps. Today, these habitats no longer exist due to land use changes and altered hydrology; however, within the MMR NWR there is an opportunity to promote cypress swamp and shrub swamp along the low elevation wetlands and restore a lost forest habitat type within the MMR.

Old field areas were under the plow for generations and currently have significantly reduced topographic diversity, a characteristic of natural large river floodplains. These old-field areas are frequently flooded on a near annual basis and are currently dominated by herbaceous annual species. The loss of floodplain topographic diversity has prevented the establishment of native floodplain forest communities. Restoring the floodplain ridges and swales would provide conditions suitable to establish a diverse forest community, including wooded swamp and shrub swamp, which would benefit native resident and migratory wildlife.



NESP Project Types. Topographic diversity, floodplain restoration, forestry

Project Objectives. The project seeks to restore topographic diversity and forest communities within the study area and align with the USFWS draft Habitat Management Plan (2021; Table 1). The preliminary project objectives include:



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- Restore topographic diversity within the Horse Island Division
 - Increase native forest species richness and structural complexity within Meissner Island, Horse Island, Beaver Island, and Rockwood Island Divisions
 - Promote native understory plant habitats
- 15,000 in annual operation and maintenance (O&M) costs. The project is located on Federal lands; therefore, the construction of this project would be 100% Federal. USFWS would be responsible for 100% OMRR&R responsibilities.

Table 1. USFWS Habitat Management Plan Targets

Habitat Type	Target
Overstory Dominant Trees	Species Richness = 3
Dominant Shrubs	Species Richness = 5
Forest Block Size	> 250 acres
Invasive Species % Cover	<15%

Potential Measures. The following are potential measures that could be combined into an implementable alternative that may be in the federal interest, address the identified problems, and achieve the project objectives.

- Afforestation
- Canopy Gap Restoration
- Timber Stand Improvement
- Native Vegetation Underplanting
- Ridge & Swale Restoration (topographic diversity)

As part of the feasibility study, a full range of measures and alternative formulation strategies would be developed and evaluated.

Implementation Considerations. The project has been endorsed by the River Resources Action Team Exec on July 30, 2021. The following data needs have been identified: LiDAR, soils, cultural resources, and forest inventory (only for Horse and Beaver Islands).

Financial Information (Estimate). The estimated Total Project Cost is approximately \$5-10M including an estimated \$250,000 for monitoring and \$500,000 for adaptive management. Project measures would require an estimated \$10,000-