

Work Task E9: Hart Mine Marsh

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$500,000	\$738,284.20	\$5,241,049.31	\$300,000	\$750,000	\$250,000	\$200,000

Contact: Gregg Garnett, (702) 293-8644, ggarnett@usbr.gov

Start Date: FY05

Expected Duration: FY55

Long-term Goal: Habitat creation.

Conservation Measures: CLRA1, LEBI1, and CRCR2.

Location: Reach 4, Cibola NWR, River Mile 92, Arizona.

Purpose: Create and manage marsh habitat for Yuma clapper rail, least bittern, and Colorado River cotton rat.

Connections with Other Work Tasks (past and future): Vegetation and species monitoring are being addressed under F1-F4.

Project Description: Hart Mine Marsh was a decadent marsh located on Cibola NWR that was restored and expanded to create functional habitat for covered species. This was accomplished by the installation of control structures to manage water levels, providing sources of higher quality surface water flows, making physical changes to the site's topography, and by planting and supporting native wetland and marsh vegetation. The basic approach was to remove a substantial amount of existing saltcedar from the site, deepen areas of existing open water and contour areas adjacent to those deeper areas, and manage water at the higher elevations to promote and sustain marsh cover type vegetation and wetland functions. The creation of habitat included both the establishment of native plants and management of water levels to meet performance standards for integrating emergent vegetation and open water at varying depths into a mosaic of marsh habitats.

Previous Activities: In FY08, NEPA compliance activities, cultural surveys, topographic surveys, and pre-development surveys for marsh birds and riparian obligate birds were conducted. Engineering designs were finalized, and all regulatory permitting required for construction was completed including NEPA, ESA, sections 401 and 404 of the CWA, and Section 106 of the NHPA. In FY09, the first phase of construction was completed and resulted in 92 acres of marsh. In FY10, phase 2 of construction created an additional 163 acres of marsh.

FY11 Accomplishments:

Maintenance/Restoration/Management. The third and final construction phase at HMM was completed in FY11. These activities included additional grading, contouring, and water control structure installation. A new 40 cfs pump was partially purchased with funds from FY10; the pump replaced the existing 40 cfs pump which suffered irreparable damage in late FY10. Additional funds for this procurement as well as for the installation of the pump were provided by FY11 funds. A portion of the FY11 budget overage was justified by these additional actions.

As part of an effort to increase vegetation species diversity at HMM, supplemental planting occurred in FY11. Saltgrass plugs were planted along the margin of the north side of cell 1 at elevation 217 feet. Three-square bulrush, great bulrush, and California bulrush were also planted on the eastern side of cell 2 (table 1).

Table 1. Species, common name, and number of containers of plants ordered for cells 1 and 2 of HMM for planting in February, 2011.

Species	Common Name	Number of Plants
<i>Schoenoplectus californicus</i>	California bulrush	10,000
<i>Scirpus tabernaemontani</i>	Great bulrush	10,000
<i>Scirpus olneyi</i>	Three-square bulrush	30,000
<i>Distichlis spicata</i>	Inland saltgrass	70,000
Total		120,000

In addition, alkali sacaton (*Sporobolus airoides*) seed was spread in some of the adjacent upland areas around the marsh for ground stabilization and to add to the native vegetation mosaic of the site.

The saltgrass and emergent marsh species planted in 2011 had high establishment and survival. By the end of the season, the planted marsh species had noticeably filled in and expanded from the planted areas. The seeded alkali sacaton, however, was completely unsuccessful. We expect that this was due to the inability to create suitable germination conditions (low enough salinity, wet enough surface soil, etc.) at the site. Due to the success of the saltgrass establishment and its effectiveness at inhibiting the colonization of invasive saltcedar at the margin of the marsh, an additional 500,000 saltgrass plugs were purchased in FY11 for planting in early spring of FY12. This purchase also contributed to the budget overage in FY11. The continued establishment of saltgrass is expected to reduce long-term weed management costs at HMM.

Monitoring. Marsh birds were surveyed three times following the North American Marshbird Protocol. Yuma clapper rail and least bittern were both detected within the marsh.

FY12 Activities:

Maintenance/Restoration/Management. The majority of the activities that will occur in FY12 deal with management, maintenance, and monitoring. Water management, including the

maintenance of water levels and water delivery activities on the site will be performed. Invasive and nonnative vegetation control will continue to be performed. Monitoring of abiotic and biotic parameters is also conducted.

Only minor construction activities will occur in FY12. These include: improving access to one of the large islands in cell 1 to permit more efficient vegetation management and, the expansion of one of the parking areas in the north east corner of cell 1. The vegetation maintenance contract will be modified to include controlling weedy species on the islands in HMM. Up to this point, little attention was paid to the islands, mainly due to accessibility issues. Controlling invasive and nonnative species on these islands is considered extremely important to reduce nonnative seed sources throughout the marsh and to keep nonnative invaders from completely colonizing the islands within the marsh. This increase in effort is expected to increase costs for FY12 and FY13 budgets.

Planning and procurement of materials for future infrastructure repairs and upgrades will also take place in FY12. To account for the time requirements of the procurement process and to avoid potential schedule problems during the short time window when installation of the new unit 2 water supply lines would occur, the decision was made to purchase the materials and supplies needed for the infrastructure repair in FY12 for installation in winter of FY13. Although necessary to insure minimal system down-time these purchases are expected to cause a substantial increase in cost for the FY12 budget.

Monitoring. Marshbird surveys will be conducted again in FY12. Marsh vegetation monitoring will begin in FY12.

Proposed FY13 Activities: Major infrastructure repair is planned for FY13. This will involve the replacement of the leaking water delivery lines from the Unit 2 pumps and the installation of a dedicated water line for HMM. The water delivery infrastructure for the Unit 2 management area on Cibola NWR (that also supplies HMM) needs to be replaced to handle the water demands of HMM and the water volume generated by the newly installed 40 cfs pump. To avoid system failures during critical times for covered species breeding seasons and to maintain adequate water levels to keep vegetation at HMM alive, pro-active steps to upgrade the infrastructure components are being made to protect the investments made by the LCR MSCP. A revised estimated budget for FY13 reflects the replacement of the Unit 2 water supply lines for HMM.

Regular management and monitoring activities will continue in FY13. Water management, including the maintenance of water levels and water delivery activities on the site will continue. Invasive and nonnative vegetation control will continue. Monitoring of marsh vegetation and marshbirds will be conducted.

Pertinent Reports: *Hart Mine Marsh, Existing Conditions Report*, the *Comprehensive Conceptual Restoration Plan*, and *Hart Mine Marsh Conservation Area Development Plan* are posted on the LCR MSCP website. *Hart Mine Marsh Annual Report 2010 and 2011* will be posted when available.