

Work Task E9: Hart Mine Marsh

FY14 Estimate	FY14 Actual Obligations	Cumulative Expenditures Through FY14	FY15 Approved Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate
\$250,000	\$229,824.73	\$6,559,043.30	\$250,000	\$250,000	\$250,000	\$250,000

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Start Date: FY05

Expected Duration: FY55

Long-Term Goal: Habitat creation

Conservation Measures: CLRA1, LEB11, BLRA1, and CRCR2

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

Purpose: To create and manage marsh habitat for Yuma clapper rail, least bittern, California black rail, and Colorado River cotton rat

Connections with Other Work Tasks (Past and Future): Vegetation and species monitoring are being addressed under Work Tasks F1–F4 and F7.

Project Description: Hart Mine Marsh was a decadent marsh located on the 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 approach was to remove a substantial amount of existing salt cedar from the site, deepen areas of existing open water, 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 Clean Water Act, and Section 106 of the National Historic Preservation Act. In FY09, the first phase of construction was

completed and resulted in 92 acres of marsh. In FY10, Phase 2 of construction was completed and resulted in the creation of an additional 163 acres of marsh. In FY13, upgrades to the water delivery infrastructure were completed, which allowed for greater flexibility and control of water delivery to the marsh.

FY14 Accomplishments:

Maintenance/Restoration/Management: The majority of the activities that occurred in FY14 were for management, maintenance, and monitoring of the established marsh. Water management activities, including water delivery to maintain static water levels during marsh bird nesting season, were performed. Invasive and non-native vegetation control continued. Monitoring of abiotic and biotic parameters was also conducted.

In December 2013, the pumps that supply water to the marsh were vandalized. The copper wiring was removed, and the pumps were inoperable until repairs could be completed; this interfered with the scheduled marsh drawdown and flush that is typically performed during the winter months to aid in controlling marsh salinity levels. After the pump wiring was repaired, an abbreviated flush was completed in February 2014, which kept salinity levels within management thresholds.

In February/March 2014, security fencing was installed around the flow delivery valves and flow measurement instrumentation to prevent unauthorized entry and vandalism.

During March and April 2014, increased river stage due to the Minute 319 pulse flow caused marsh levels to rise. This increased surface water level in the marsh was due to both groundwater interactions and surface backflow into the marsh from downstream and adjacent water bodies, including Cibola Lake. Water levels in the marsh did not exceed the established thresholds for Yuma clapper rail nesting season but did reach areas of the marsh footprint that normally do not become inundated. These areas responded positively, and observations showed that native vegetation was able to become established in previously barren areas after the marsh levels receded.

Control of invasive, non-native vegetation continued throughout FY14. Vegetation maintenance at the marsh employs an integrated pest management approach that utilizes both manual (hand pulling) and chemical (herbicide) treatment of invasive species, including salt cedar, phragmites, and five-hook bassia. These efforts were primarily carried out by a vegetation maintenance contractor, but additional assistance was provided by a youth conservation corps in September 2014. Improved access to the islands allowed maintenance to occur on the marsh perimeter and the islands that form part of the marsh footprint.

Monitoring: Marsh bird surveys were conducted four times between March and May. One Yuma clapper rail was detected during the March 17 survey, four were detected during the April 7 survey, five were detected on the April 28 survey, and six were detected during the May 15 survey. At least 1 least bittern was detected during all 4 surveys, with a maximum of 10 detected during the May 15 survey. One California black rail was detected in May.

MacNeill's sootywing surveys were conducted on the northeastern corner of Hart Mine Marsh between May and August. The adult life stage was detected in May and August, and the larval life stage was detected in July.

FY15 Activities: Regular management and monitoring activities will continue in FY15. Water management, including the maintenance of water levels and water delivery activities on the site, will continue. Invasive and non-native vegetation control will continue.

Minor construction activities planned for FY15 include upgrades to the water control infrastructure. Most canal gates will be retrofitted (new headrails and stems will be installed) so that they can be exercised (raised and lowered) with a gas-powered or electric actuator. Currently, the gates can only be exercised by manually turning a handwheel, which requires large inputs of manual labor. The retrofit and upgrade will allow for more efficient use of labor resources and will also allow the gates to be exercised on a more frequent basis. Frequent exercising of the gates will ensure that they do not become seized and will prevent the subsequent damage that typically occurs when attempting to unseize an immobilized gate.

Major infrastructure improvements at shared locations, such as Hart Mine Marsh, are identified in cooperation with the USFWS to pool resources and ensure upgrades are made in a proactive manner. Initial planning and design will be conducted in FY15 for these upgrades, which will include abandoning the existing pump stand and constructing a new one. The pump stand replacement was targeted as a priority since it was close exceeding its normal operational lifespan. Additional infrastructure maintenance and upgrades that will also be investigated include the farm canal delivery system and automation of marsh water levels. The USFWS is contributing \$500,000 for the replacement of both the pump stand at Hart Mine Marsh as well as the pump stand at Unit #1.

Monitoring: Marsh bird surveys will be conducted in March, April, and May, and MacNeill's sootywing surveys will be conducted in the spring and summer.

Proposed FY16 Activities: Depending on the planning, design, and permitting activities completed in FY15 for the pump stand relocation project, some construction may take place in FY16, but it is likely that construction will

not begin until FY17. In addition to the pump stand project, it is also possible that the additional maintenance and upgrade projects identified in FY15 will be added to the schedule for FY16.

Other activities are expected to be limited to marsh management, maintenance of access roads, invasive plant control, and monitoring. To maintain relatively static water levels for marsh birds during the nesting season and to mitigate salinity in the marsh, a combination of drainage water from Arnett Ditch and pumped Colorado River water is used. Annual maintenance costs include electrical utility bills associated with pumping, labor to turn on the pumps and adjust water control structures, invasive and non-native vegetation control, water quality sampling, and road grading.

Monitoring: Marsh bird surveys will be conducted in March, April, and May, and MacNeill's sootywing surveys will be conducted in spring and summer.

Pertinent Reports: The *2013 Hart Mine Marsh Conservation Area Annual Report*, which summarizes any construction, planting conducted, site management, the results of monitoring, and any recommendations for future adaptive management, will be posted on the LCR MSCP Web site once integration of the data collected throughout the calendar year is complete.