

Work Task C54: Techniques to Establish Native Grasses and Forbs

FY13 Estimate	FY13 Actual Obligations	Cumulative Expenditures Through FY13	FY14 Approved Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate
\$200,000	\$9,110.44	\$9,110.44	\$200,000	\$0	\$0	\$0

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Start Date: FY13

Expected Duration: FY14

Long-term Goal: Develop techniques to establish native grasses and herbaceous perennial forbs while suppressing establishment of invasive species.

Conservation Measures: MRM2, CRCR2, YHCR2, CMM1.

Location: Cibola NWR Unit #1.

Purpose: The purpose of this study is to develop successful planting techniques and research alternative methods of native grasses and forbs establishment while suppressing weed species establishment. Typically, grass and forb species can be difficult to establish when competition from weed species is high. Additionally, invasive plant species can modify riparian plant communities, degrade wildlife habitat, and increase risk of fire.

Connections with Other Work Tasks (past and future): Post-development habitat monitoring will be conducted at habitat creation sites detailed in work tasks F1-F4.

Project Description: This study addresses several conservation measures that include creation of species habitat, maintenance of existing species habitat, monitoring, and research. The HCP requires the creation of over 8,100 acres of various land cover types to provide habitat for targeted LCR MSCP covered species. The habitat requirements of covered and associated species can be established at each habitat creation site through the design and maintenance of habitat mosaics, especially through manipulation of plant species composition, stand seral stages, tree densities, and water regimes.

Currently groundcover being utilized includes non-natives such as alfalfa. Native herbaceous grass and forb species can be difficult to establish especially in areas with an abundance of weed species. This study will attempt to determine effective planting techniques that may increase the survival of native plantings while testing different methods of weed suppression and control. Once natives are established, they typically become effective competitors and may be able to keep weed presence down to a

minimum. In this way, native grasses can be used in place of the non-native groundcovers, which may provide better habitat for covered species such as cotton rats.

As the LCR MSCP moves forward, it is anticipated that conservation areas planted previously will be managed to improve habitat quality by increasing diversity at all trophic levels. A collection of native herbaceous and shrub seeds is a useful tool to have on hand when there are opportunities for seeding. Seeds of many native species are difficult to obtain from vendors on short notice. They become available based on how abundant each species was at the time of collection, and if there is a market for particular species. Some species are simply not collected because vendors are not aware of a need for them. This work task will also provide funds for seed purchase and/or collection and storage each year for research and adaptive management purposes. This funding will also be used to determine the best and most cost-effective seeding techniques, storage, and handling of native seed.

Previous Activities: Seed bank samples were collected in February and May 2012 in both control and experimental fields. The experimental field was plowed and watered several times to encourage weed seed germination. Seed bank samples were grown at a University of Nevada Las Vegas greenhouse and identified to species.

FY13 Accomplishments: One additional seed bank sample was collected in FY13. It was sent to the University of Nevada Las Vegas and samples were grown out and identified to species. The work plan for FY13 was canceled due to sequestration.

FY14 Activities: It was determined that this project will be discontinued at this time and funds will be distributed to higher-priority projects.

Proposed FY15 Activities: Closed in FY14.

Pertinent Reports: A final report titled *Seed Bank Study at Cibola National Wildlife Refuge* describes the results of the greenhouse grow out; greenhouse facilities and University staff were provided by the University of Nevada Las Vegas.