

## Work Task C55: Techniques to Increase Leaf Litter Decomposition Rates

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$0	\$0	\$0	\$0	\$125,000	\$75,000	\$75,000

**Contact:** Dianne Bangle, (702) 293-8220, [dbangle@usbr.gov](mailto:dbangle@usbr.gov)

**Start Date:** FY13

**Expected Duration:** FY17

**Long-term Goal:** Develop techniques to reduce litter biomass.

**Conservation Measures:** MRM2, CMM1 (WIFL, YBCU, ELOW, GIFL, GIWO, VEFL, BEVI, YWAR, SUTA).

**Location:** Palo Verde Ecological Reserve.

**Purpose:** The purpose of this study is to evaluate methods to reduce litter biomass at habitat creation sites, which contributes to fuel load build up. If reduction is successful, the study will evaluate whether water movement across the field has improved.

**Connections with Other Work Tasks (past and future):** Post-development habitat monitoring will be conducted at habitat creation sites detailed in work tasks F1-F5; fire management plan under E18; create and manage a mosaic of native land cover types under E4.

**Project Description:** In many of the LCR MSCP habitat creation sites there is a buildup of dead vegetation and leaf litter that contributes to fuel loads at LCR MSCP habitat creation sites, which could eventually become a fire hazard. Determining an effective method to reduce the accumulated litter is needed. Additionally, the accumulation of litter may impede the movement of irrigation water across the site, thus, another objective of this research is to determine if a reduction in litter improves irrigation efficiency.

At habitat creation sites, cottonwood-willow habitat type is planted in high densities. The canopy closure varies as well as the density and cover of understory shrubs, forbs and grasses. These shrubs, forbs, and grasses have the potential to create a substantial wildfire hazard under certain conditions at LCR MSCP habitat creation sites, reduction of fuel loads, including the accumulation of litter, may be a necessary management action. It is also necessary to determine if water movement across the field is hindered by excesses of litter is important for managing irrigation at habitat creation sites.

The objectives of this study are to 1) determine the effectiveness of adding a biological compost tea to habitat creation areas with excess accumulation of litter, and 2) determine whether a reduction in litter improves irrigation water distribution across the gradient of the field.

**Previous Activities:** N/A

**FY11 Accomplishments:** N/A

**FY12 Activities:** N/A

**Proposed FY13 Activities:** Biological compost tea (BCT) will be added to PVER in order to test its effectiveness at increasing litter decomposition rates via biological processes provided by microorganisms. In addition to potential fuel reductions and more efficient irrigation, benefits from BCT include, an increase in soil nutrients, organic matter, and microorganisms essential for healthy soil.

This study will include determining the proper BCT recipe, testing at least two application methods (including incorporating the BCT into the litter layer), monitoring plots before and after BCT treatment, and monitoring irrigation water distribution across the field before and after BCT treatment.

**Pertinent Reports:** N/A