USU Extension Grant – Final Report

Project Leader: Brittany Ingalls, Conservation Coordinator, Swaner Preserve and EcoCenter

Project Title: Streambank Restoration Methods: A Study on the Swaner Preserve

Project Duration: June 1, 2015 – May 30, 2016

Total Requested Amount: $6,300.00

Project Objectives:

The overall goal of this project was to improve two stream restoration techniques widely used in northern Utah. Specifically, the objectives were to measure the impact of reed canarygrass (Phalaris arundinacea) on the success of willow plantings, to determine the best planting season for regionally native willows along East Canyon Creek in Summit County, Utah, and to measure the level of success of streambank revetments in preventing erosion and increasing sedimentation in the stream.

Project Results:

Reed canarygrass is pervasive along East Canyon Creek and as such the vast majority of willow stakes were planted in areas where reed canarygrass is present. The aggressive growth and thick, strong root mat of this plant seems to pose barriers to willow growth, and if possible willow stakes should be planted in areas without reed canarygrass.

Willow stakes planted in the fall of 2015 had a slightly lower mortality rate (38.8%) than those planted in the spring of 2016 (42.4%). Overall willow mortality was 40.1% for the project. Some of the data was effected by ungulate browsing and utilization from beavers. Additional mortality counts will be completed in the spring of 2017, after the planted willow stakes have all endured one dry summer season and at least one harsh high-altitude winter. Data collected after the willow plantings have had more time establish will be more conclusive as to which season, if any, is most successful for planting willows.

The streambank revetments installed for this project were extremely successful. An average of 11” of vertical sediment accumulated per conifer revetment, which will continue to protect vulnerable eroded banks from further erosion and even aid in shading the stream as vegetation reestablishes. Significantly more sedimentation occurred behind streambank revetments installed along straight sections of the stream. An average of 15” of sediment collected along straightaways, compared to an average of 9.3” where the revetments were installed along the outer banks of a turn.

The results of this project will be presented to the East Canyon Watershed Committee, a community work group in Summit County concerned with water quality and water quantity in the upper Weber River watershed. The information will also included in a future best practices fact sheet to be published through USU Extension, after the long-term mortality of willow plantings can be properly assessed. Dissemination of the project results in this way will contribute to both the body of regional restoration ecology knowledge as well as to the land-grant mission of Utah State University by improving the lives of Utah citizenry.



From left to right: a surviving planted willow, an installed streambank revetment, and sediment accumulating behind a revetment.