San Diego South County Grasslands Project

Test of Habitat Restoration Methods

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Introduction

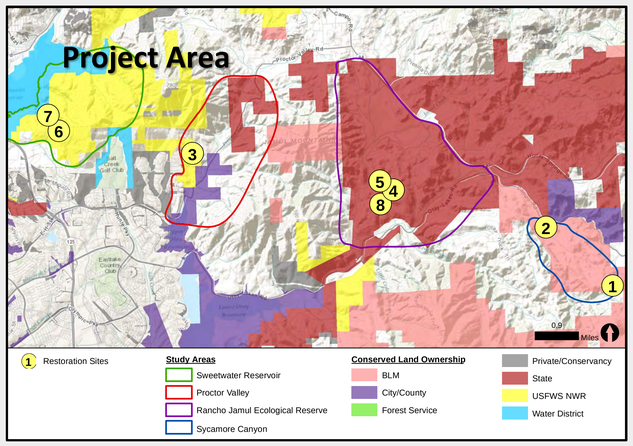
The South San Diego County Land Managers (USFWS, CDFW, BLM, Sweetwater Reservoir Authority, City of San Diego) have collaborated with Land IQ, Conservation Biology Institute (CBI), Nakae & Associates and The Nature Conservancy (TNC) to develop land management priorities and research questions for the restoration of grasslands, in what is known as the South County Grasslands Project.

In Phase 1 of the Project, landscape-scale management visions were developed for forbland and grasslands management, including focus on Otay tarplant (*Deinandra conjugens*) and Quino checkerspot butterfly (*Euphydryas editha quino*). These species and habitats are identified as high priorities in the 2014 Management Strategic Plan (MSP) for Conserved Lands in Western San Diego County.

In Phase 2, we designed a restoration experiment to inform the development of Best Management Practices (BMPs) for restoration of the following habitat types:

- Native Grassland
- Otay Tarplant (OTP) Habitat
- Forbland
- Quino Checkerspot Butterfly Habitat

Methods incorporated in the experimental design include prescribed burn, mowing, hand equipment (i.e. line trimmer), herbicide, hand seeding and drill seeding. The restoration experiment was implemented across eight sites and three different land managers (see the project area map below). Site preparation began in fall 2013 and will continue through spring 2015. Seeding of the experimental treatment plots is anticipated in fall 2015 and maintenance weeding and biological monitoring to inform the development of the BMPs is on-going.



Research Objectives

There are four different habitat types, each with several research questions being studied. As an example, one of the research objectives for Native Grassland habitat restoration is presented here:

Compare the effectiveness of two landscape-scale grassland restoration methods:

- The Full Extent Seeding Method (red plots in figure C); and
- The DeSimone Strip Method (blue plots in figure C), which has the promise of allowing for recruitment of maturing seeded natives into mowed buffer strips, thereby expanding the area capable of being restored when seed material is limited.

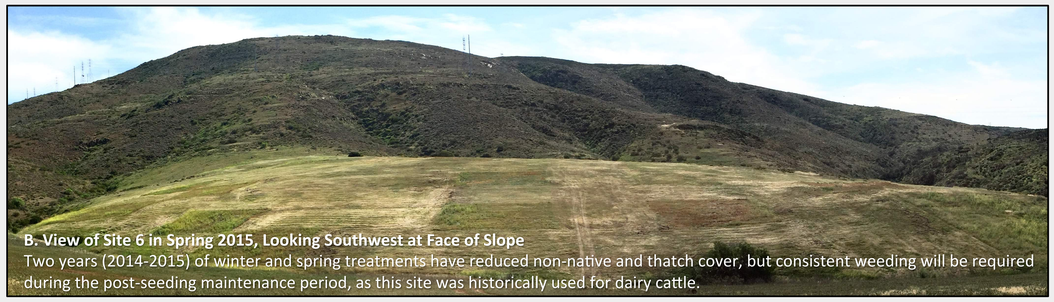
Experimental Design

The two Native Grassland methods (i.e. the red and blue plots in figure C) are being tested as treatments in a paired sample experimental design (n=6) fully replicated across two sites with similar recent fire histories (Site 5 at Rancho Jamul and Site 6 at Sweetwater Reservoir) and at a third, Site 4 at Rancho Jamul, with a different fire history. The grassland plots are 72 by 72 ft.

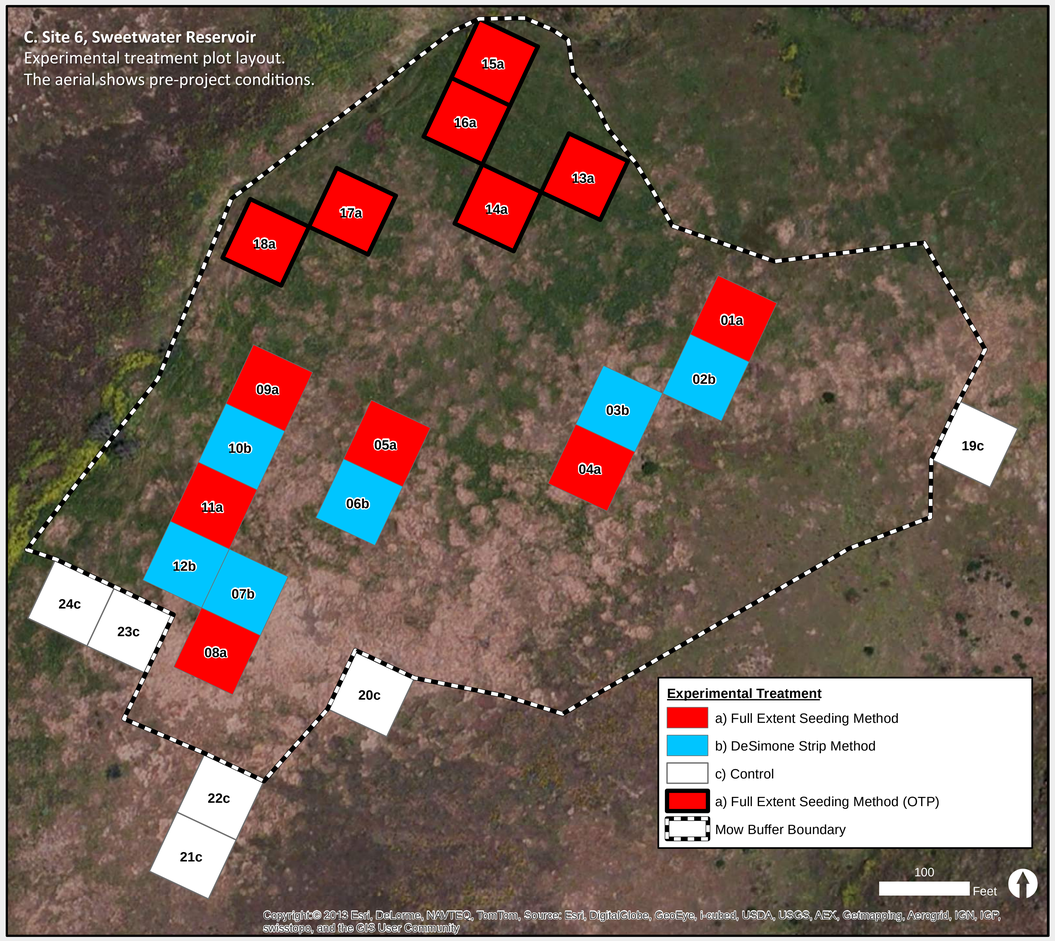
Sites 4, 5, and 6 have similar soil types and clay content but differ in their fire histories. Site 4 was last burned in fall 2012, while Site 5 and 6 were not. Sites 4 and 5 were both burned in the 2003 Otay fire. All three sites were burned in the 2007 Harris fire.

A weed management buffer area (shown as dashed black-white line in figure C) has been maintained. And, the controls (shown as white in figure C) are randomly located outside of the weed management buffer, so they are compatible with the longer term habitat restoration goals at the site. The red plots with the solid block outline are OTP habitat experimental plots located in heavier clay soils.

A. Spring 2015 Mowing of Blue Plots at Sweetwater Reservoir (Site 6)
A skidsteer-flail mower apparatus is used to mow purple false brome (*Brachypodium distachyon*) that has flowered close the ground (2-4 inches) prior to seed maturation.



B. View of Site 6 in Spring 2015, Looking Southwest at Face of Slope
Two years (2014-2015) of winter and spring treatments have reduced non-native and thatch cover, but consistent weeding will be required during the post-seeding maintenance period, as this site was historically used for dairy cattle.



C. Site 6, Sweetwater Reservoir
Experimental treatment plot layout.
The aerial shows pre-project conditions.

Project Partners & Support

Support for the Project has been provided by the SANDAG TransNet Environmental Mitigation Program, in-kind support from The Nature Conservancy, the South County Land Managers, and volunteers through the Earth Discovery Institute.