Willow Staking and Living Dams

The Arroyo willow, (*Salix lasiolepis*), is native to California and occurs naturally in wetlands. Willows are especially important because they can propagate from cuttings, an adaptation that allows willows to easily take root when branches and stems break.

Willow staking is a natural, inexpensive, and effective technique for controlling eroding stream banks and reintroducing native habitat. Stem cuttings of a significant size are harvested from healthy willow trees and inserted directly into the stream bank. Eventually, the stems take root and grow into adult trees! In addition to controlling for erosion, willow trees act as "living dams," regulating waterflow and capturing silt. Starting in 2015, we have worked to prevent trail degradation and erosion along the Moody Creek with both built structures and willow stalking.

Willow stalking project on the Moody Creek. (Top left: Winter 2017, Bottom Right: Spring 2020)

Restoration Progress on the Moody Creek Floodplain

Before, Fall 2015

After, Spring 2019

Notice the revegetation of native plants and the introduction of a fence to prevent Westwind horses from grazing on the natives

Restoration Techniques at Byrne Preserve

Byrne's 88 acres are home to a diversity of native habitats and wildlife. Grassroots Ecology manages restoration sites within the preserve. This brochure is a review of restoration practices and techniques. Look for the sites (marked by our logo below) as you enjoy the preserve!

GRASSROOTS ECOLOGY

Our mission is to engage and educate the public to restore local ecosystems. For more information, or to volunteer with us visit: grassrootsecology.org/

What is an Invasive Species?

An invasive plant species is one that causes ecological harm in a new environment where it was introduced, most commonly through human means (both intentional and unintentional). These plants spread quickly in their new environment as they do not encounter the same pressures from their original habitats. In turn, invasive plants outcompete native species for essential resources such as water, nutrients, sunlight, and space.

French Broom (Genista monspessulana)
Source: blueplanetbiomes.org

Some of the invasive plants we target at Byrne Preserve, such as French broom, Italian thistle, and Yellow star thistle, have taken over wide swaths of our grassland and woodland habitats.

Left: Yellow Starthistle (Centaurea solstitialis)

Source: Carol W. Witham, Calflora

Managing for Invasive Plants

When native plants can thrive, they provide habitat and promote local biodiversity- from other plants, to insects, birds, and wildlife. But native species cannot live and grow when their habitat is crowded out by invasive plants. Applying pesticides devastates more than just the target species, killing wildlife and contaminating creeks and streams! In some sites, we hand-pull invasive plants, a labor-intensive job.

Another strategy for managing for invasive plants is sheet mulching. Weedy sections are covered first by a layer of cardboard then by 2-3 inches of woodchips to block out sunlight. The weeds are suppressed by the layers, and eventually the cardboard breaks down and incorporates into the soil. Native plants are planted by breaking a hole in the cardboard and benefit from moisture retention in the soil, and decreased competition from invasive plants.

Sheet mulching and revegetation at the floodplain restoration site (Winter 2019- compare with progress panel)

Promoting Native Plants and Habitat

Managing for invasive plants is an ongoing process that is not finished after one season, workday, or sheet mulching. For example, invasive French Broom has a seedbank of ~30 years, making it difficult to completely eradicate. In the long-term, restoration aims to stimulate native habitat and biodiversity in combination with continuous invasive species management.

Container Installation

Native plants are cultivated from cuttings and seeds at Grassroots Ecology's Nursery located in Foothills Park. The plants are grown and transported in sanitized plastic containers before they are planted at restoration sites, usually in places previously sheet mulched. While native plants are specially chosen for each site and ecosystem, every restoration project's installations have varying levels of success due to seasonal weather patterns, soil quality, water supply, or human interference.

Natural Recruitment

In some cases, native plants are not intentionally planted. Instead, a site is managed for invasive species with the goal of removing the competition and "recruiting" or encouraging native species to the space naturally. Often container installation leads to eventual natural recruitment.