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Oak Woodland Restoration Project in Bidwell Park, Chico CA 2019 Progress Report to the California Wildlife Foundation



Report Authored by Danielle Baxter, General Manager, December 2019

OVERVIEW

Through the generous funding and support from the California Wildlife Foundation, the Butte Environmental Council has been able to provide the community of Butte County opportunities to gain knowledge improve wildlife habitat and care for sensitive oak woodlands in our region. This project supports the goals of the Bidwell Park Master Management Plan including; involvement of the public in oak woodlands restoration; increasing oak recruitment; and supplemental oak planting. This report includes a summary of project accomplishments in years 2014-2017, project growth in years 2018-2019, and guidelines for program completion and impact through the final project year of 2020.

ORIGINAL PROJECT GOALS

1. Restore oak woodlands in Upper Bidwell Park.
 - a. Apply for a permit to collect Valley and Blue oak acorns in Bidwell Park.
 - b. Collect, store, and clean acorns for planting.
 - c. Purchase and collect supplies and materials.
 - d. Plant 100 sites the first year and 100 sites the second year for a total of 200 trees. Depending upon the Valley Oak (*Quercus lobata*) and Blue Oak (*Quercus douglasii*) acorn crop, plantings will be from acorns.
2. To protect existing oak seedlings.
 - a. Identify and map 25 seedlings to protect from browsing, near plantings. Those protected will be a mix of city planted trees that have outgrown their cages as well as wild trees.
 - b. Install/replace caging, clear weeds, and apply mulch in the spring of 2015.
 - c. Install enclosure caging around two small areas of drip line seedlings located across the road from parking lot G (Alligator Hole) to encourage vertical growth, and to research the effects of browsing on regeneration.
3. Engage park users, community members, and students in the tree planting efforts.
 - a. Develop education and involvement outreach for the park kiosks; including on-site tabling, jug distribution, and contacting groups.
 - b. Organize four planting and cage installation days in the 2014 fall and winter.
 - c. Form a core team of “Tree People”, and calendar for group participation.
 - d. Develop a way for trail users to participate individually by bringing an extra gallon for the trees and create a sense of ‘adoption’ within various park user groups.
 - e. Collaborate with interested 6th through 12th grade teachers to develop research projects and guidelines for students.

ADDITIONAL PROJECT GOALS FOLLOWING EXTENSION

1. Plant an additional 100 Blue Oak seedlings with community volunteer groups and established group of “Tree People” in November 2017.
2. Organize community volunteers in the seeding of native grasses in Middle and Upper Bidwell Park in 2018.
3. Continue efforts in three more years of watering, monitoring, and caging oak seedling plots.
4. Continue community education events focused on the education of sensitive oak woodland habitat and importance of restoration efforts in Middle and Upper Bidwell Park.

SUMMARY OF PROJECT YEARS 2014-2017

2014

- Worked closely with the City of Chico's Parks and Natural Resource Manager to determine locations and methodology. Planting locations were chosen based on soils, historical conditions, need, and accessibility for maintenance.
- Organized three volunteer acorn collection outings in Bidwell Park.
- Partnered with Kids & Creeks, Butte County Juvenile Hall and the public Bidwell Park Golf Course, California State University Chico students, community members, and dedicated 'Tree People' to plant and protect 100 tree sites in Upper Bidwell Park.

2015

- Watered 100 plots planted in the first year with the help of community volunteers during the summer months and caged 3 oak seedlings that had outgrown their tubes.
- Surveyed the health of existing oak seedlings planted in the first year (77% success rate).
- Organized two community volunteer acorn collecting days to prepare for the upcoming plantings and four volunteer planting days with a total of 145 additional oak seedling plots.
- Partnered with California State University Chico, Butte College, Alpha Phi Omega, C.A.V.E. Adopt a Park Program, Klean Kanteen Co., Chico Equestrian Association, Bidwell Park Golf Course, Orchard Supply & Hardware, City of Chico Parks Dept. and our community!

2016

- Organized 200 volunteer hours over the course of the year through weekly watering, a caging day, and a citizen science assessment day.
- Watered 204 seedling plots with the help of dedicated community volunteers in hot summer months and caged 25 oak seedlings that had outgrown their tubes.
- Created local hardware partnership for significant donations of supplies with Orchard Supply Hardware.
- Monitored success rate from year 2 to year 3 and found they were similar to year 1 and 2; 78% of the seedlings survived (159 plots).
- Gathered GPS coordinates of all plots to generate accurate map of planting sites.
- Created an online interactive map for the public to see the locations and statistics of individual plots.
- Provided public outreach efforts to inform the community about Oak Woodlands, including: a guided hike, a school field trip, and informational presentations.

2017

- Held February volunteer assessment day to collect height, and health data for oak seedlings finding: 59% of the 204 seedling plots planted in 2014/15 survived and 83% of the 144 surviving plots in 2016 were surviving.
- Organized community efforts to cage 7-8 oaks and obtained donation of t-posts from City of Chico Parks Department reducing costs.
- Planted 101 new seedling sites with Blue Oak acorns in November partnering with local groups like Social Stewards and Students from Pleasant Valley High School and Butte College.
- Renumbered oak seedlings to help volunteers during watering and make data consistent with additional planning sites.
- Updated our online interactive map and embedded on BEC website for the public to see the current locations and statistics of individual plots, including newly planted plots.

PROJECT MAINTENANCE IN 2018 & 19

2018

- Hosted two November volunteer days to seed native grasses in Upper Bidwell Park with community groups including CSU, Chico Parks and Natural Resource Management Cohorts, Bidwell Equestrian Association and Wildflower Open Classroom.
- Organized October 6th caging day of 5 oaks ready to graduate from planting tubes with the help of 30 Klean Kanteen employees and family members.
- Carried out June - October weekly watering of seedlings, maintaining relationship with existing “Tree People”.



a. Klean Kanteen family work day caging oaks at Bidwell Park Golf Course

2019

- Updated and posted educational signage at 3 planting site kiosks for recreational park users in partnership with City Parks Department.

Native Oak Woodland Species

BLUE OAKS

VERSUS

VALLEY OAKS

COMPARING THE 2 SPECIES

Oak Distribution

Blue Oak

Valley Oak

Blue Oaks are a drought tolerant species often found in grasslands. They bloom from March to May.

Valley Oaks are a riparian species, meaning they thrive in habitats near rivers, and do not fare well under water stressed conditions. Valley Oaks bloom in February and March.

Leaves & Acorns

Blue Oak leaves have a blue-ish hue. Their acorns are shorter than valley oak acorns.

Valley Oaks have deep lobed leaves and long and slightly pointed acorns.

<p>Typical Lifespan of 90-100 years.</p> <p>Oldest Known Tree: 400 years</p>	<p>Typical Lifespan of 100-200 years.</p> <p>Oldest Known Tree: 500 years</p>
<p>Thick, blue-green leaves</p>	<p>Deep lobed, pale green leaves</p>
<p>Drought Resistant</p>	<p>Not Drought Resistant</p>
<p>Max heights to scale:</p>	

Native Grasses

These native grasses are a part of the Butte Environmental Council's Oak Restoration Program.

Purple Needlegrass is the state grass of California. It is very tolerant to dry, hot weather and poor soil conditions.

Blue Wildrye is a widely distributed bunch grass. It is very tolerant to fire and pairs well with slender wheatgrass.

Three weeks fescue is often found in purple needlegrass communities and can survive in compacted soils.

California Brome is a bunch grass that grows well in a variety of soil types. It can improve water infiltration in soils and survive periods of drought.

Slender Wheatgrass is found all over North America. It provides a steady source of energy for deer and a nesting cover for many duck species.

- Presented oak restoration program updates to City of Chico Bidwell Park & Playground Commission in July.
- Organized educational work and weeding day on the first watering day in 2019 for community groups including Inspire High School and Chico Velo.
- Updated oak survival assessment through educational series with Upward Bound Program high school students and found a survival rate from 2017 of 67.6% leaving 148 thriving oak seedlings.

GUIDELINES FOR FINAL PROJECT YEAR 2020

- Alter watering schedule in the summer months of 2020 for oaks planted in November 2017 to withstand natural water supply in 2021 and onward.
- Continue caging and monitoring efforts of all 148 oak trees involving groups of K-12 Butte County students.
- Organize an assessment of survival rate in May of 2020 with established group of “Tree People”.
- In partnership with Chico Park Staff, update signage as needed to further educate recreational park users.
- Continue tubing optimally located oak seedling volunteers around BEC planting sites for protection from browsing and mowing.
- Create a culminating report and updated mapping for www.becnet.org to promote ongoing education.
- Work with City of Chico Parks Manager, Linda Herman, to offer knowledge we’ve gained in oak restoration efforts to assist with the Chico Creek Nature Center site restoration following the March 2019 unauthorized mature and protected oak tree cutting.

BUDGET UPDATE

This budget reflects the original 4 year project budget and includes the expenditure of grant funds following the extension of the project by three additional years in 2018, 19, and 20. The extension of this funding has allowed us to reach hundreds more in native oak woodland habitat education and maintain monitoring efforts of 100 more native seedling planting sites.

Project Yr.	2014	2015	2016	2017	2018	2019	2020	Totals
Personnel	\$2,697	\$4,611	\$8,324	\$10,248	\$6,600	\$4,750	\$3,646	\$40,876
Supplies	\$721	\$2,218	\$824	\$351	\$1,211	\$500	\$500	\$6,325
Outreach, Insurance, Mileage	\$74	\$777	\$572	\$452	\$300	\$300	\$300	\$2,775
Overhead	\$349	\$751	\$972	1,056	\$890	\$555	\$448	\$5,021
Totals	\$3,841	\$8,357	\$10,692	\$12,107	\$9,001	\$6,105	\$4,894	\$54,997

THANK YOU CA WILDLIFE FOUNDATION

The California Wildlife Foundation’s generous funding and support has helped us fulfill our mission of protecting and defending the land, air and water of Butte County and allowed us to involve and educate over 700 people on the importance of oak woodland habitat in Middle and Upper Bidwell Park. From K-12 students assisting in planting these seedlings to CSU, Chico Natural Resource classrooms assessing soil health and learning hands on restoration, we could not have made this impact over the last 6 years without your help! *From all of us here at BEC, we send our sincerest gratitude for this opportunity.*