2019–2020 Annual Report

Chico State Enterprises
Ecological Reserves

BCCER and BCEP
“The work that is taking place at the CSU, Chico Ecological Reserves is essential to the health and safety of our community. The Butte County Fire Safe Council is a proud partner of the wide array of activities taking place in the majestic Big Chico Creek watershed including the land restoration, forest health, watershed protection, and fire safety education.”

—Calli-Jane DeAnda
EXECUTIVE DIRECTOR
Butte County Fire Safe Council
“BCCER and the CSU, Chico Ecological Reserves have become increasingly-connected partners for our community. The staff and programs support our efforts to build resilient forests and people, and we’ve developed great partnerships to share ecological knowledge and resources. Our efforts will have long-standing ripple effects for the ecological and community healing that we need in the footprint of the Camp Fire.”

—Dan Efseaff
DISTRICT MANAGER
Paradise Recreation and Park District
Where Education Meets The Land

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Dear Friends of the Reserves,

THIS PAST YEAR HAS BEEN A ROLLERCOASTER for our world, our country, our community, our program, and many of us individually. We are faced with many complex challenges and the gravity of what is happening around the world is truly unprecedented. I have struggled to internally process and communicate my feelings to my own family, let alone anyone else. To that end, I will not even attempt to include them in this reflection, but will instead focus on the progress and challenges unique to our program.

As you will read later in this report, we launched two very important initiatives this year aimed at preparing our next generation of wildland professionals and conservationists. First, after nearly two years in development, a collaboration of faculty from five colleges at CSU, Chico in partnership with the Ecological Reserves has accepted our first cohort of students into the MS Interdisciplinary Studies: Wildland Management postgraduate program.

We are enthusiastically welcoming eleven students into the program with the varied experiences, undergraduate degrees, and future goals that will make this program unique and valuable. Over the next two years, we will be working with this cohort to develop and implement projects that not only further their careers, but protect the wildlands and cultural assets in our community and throughout California.

Second, I am extremely excited to announce the formal launch of our Ecological Stewardship Crew. This crew will complete ecologically important projects outside of our lands to help our community be a leader in wildland management, while increasing the financial stability of our program.

I am deeply honored and humbled by the continued community support our program receives. Our Adopt an Acre campaign has seen 55 acres adopted this past year, which has proven to be critical in keeping our staff employed during the pandemic. To that end, we are preparing for budgetary challenges as the economic impacts trickle down from the state level to CSU, Chico. Because of the predicted shortfall and in an effort to preserve hourly staff and student portions into the future, I reduced my position to 60-80 percent time for the months of April, May, and June and took the month of July off unpaid.

I am confident that with projected work and community support, we can continue to preserve and steward critical habitat and to provide a natural area for environmental research and education.

We recognize that there are a lot of important causes and organizations that need support at this time and truly appreciate the support that we receive. See the end of this report for some pictures from our adopted acres, a map of acres still available, and a list of the partners that make everything we do possible.

Enough babbling from me. Turn the page to get to the good stuff.

ELI GOODSELL
DIRECTOR, CSU, CHICO ECOLOGICAL RESERVES
Land Management

- The Ecological Reserves conducted stewardship work on over 128 acres, which includes 65 acres treated with prescribed fire.
- Over 260 piles were burned 2019 - 2020.

Social Media Highlights

Total Instagram Impressions 2019-2020: 44,380

- Over the past year, the Ecological Reserves gained over 260 new page likes and averaged over 21 new page likes per month.
- The Ecological Reserves made its most successful Instagram post in October 2019 reaching over 1,850 unique accounts and making 2,363 impressions.

“There are approximately 617 trout per mile of creek within the Reserve.”

In August 2019, the Big Chico Creek Ecological Reserve partnered with FISHBIO to complete a snorkel survey of Big Chico Creek. Participants surveyed randomly selected units of the creek to perform trout and salmon counts. After completion of the survey, it was estimated that there were approximately 2,576 rainbow trout living within the reaches of our section of Big Chico Creek.
The Altacal Audubon Society has banded over 1,000 owls at the Big Chico Creek Ecological Reserve.

This past year, the society banded the third owl recaptured from another station since banding began in 2005. This particular owl was originally banded in 2017 as a hatch-year bird from British Columbia. The other two recaptured owls were somewhat surprising being from Montana and Iowa, but the original band site for the 2019 recapture made more sense considering their typical north/south migration pattern. British Columbia is over 600 miles away, straight line, as the owl flies.

In February 2019, The Ecological Reserves partnered with Terra Fuego and CAL FIRE to conduct a 25 acre prescribed burn on the Reserves. This burn reduced potentially dangerous fuel loads for the upcoming fire season, provided prescribed fire training for students, and returned nutrients to the soil, resulting in a healthier, more fire-adapted landscape.
The Reserves strategic priorities include a plan to “Develop and expand innovative sustainable land management activities for devastating wildfire mitigation, forest health, academic goals, cultural practices, and wildlife habitat conservation”. We are undertaking this challenge through launching an MS Interdisciplinary Studies: Wildland Management degree (see next page) and our Ecological Stewardship Crew. Through our Ecological Stewardship Crew, we now have the ability to take best practices used on our lands over the past 20 years and implement them outside of the Ecological Reserves. To develop and support this endeavor we have hired an additional Field Coordinator, Rhianna Dutra. Rhianna is a graduate of the University of California, Berkeley with a BS in Forestry and Natural Resources and is a registered Professional Forester (RPF #3098). Under Rhianna’s leadership, the Ecological Stewardship Crews will be conducting important environmental surveys, fire mitigation, and habitat restoration work throughout our region. So far, our crews have conducted work for the City of Chico, private landowners, and the Butte County Resource Conservation District. Starting this fall, we will be implementing a fire mitigation and forest health project in collaboration with the Butte County Fire Safe Council on 250 acres of land within the Big Chico Creek watershed. This project is funded by the Sierra Nevada Conservancy and will provide our crews valuable experience while protecting our communities and enhancing our wildlands.
The MS Interdisciplinary Studies Wildland Management postgraduate program provides students with the unique opportunity to design a course of study focused on experiential learning and collaboration. Students will customize their postgraduate experience to best fit their career pursuits in this field. This program was developed with innovation in mind and designed specifically to address the exponentially growing need for responsive forest and land management.

Learning Outcomes
- Students will understand multiple land management practices.
- Students will attain industry-recognized certifications.
- Students will understand environmental compliance and reporting.
- Students will receive applied field experience.
- Students will receive diverse perspectives on land stewardship (indigenous and other).

“This program is going to provide the North State a great service by answering the demand and fulfilling the ever-growing need for professional land managers, particularly in our area where fire always poses an imminent danger.”

—Carson Medley
GRADUATE STUDIES ADVISOR
California State University, Chico
Even before I accepted my appointment for the entomologist position in the Department of Biological Sciences in Spring 2002, I was aware of the great potential of the newly-acquired Reserve straddling a 7-kilometer swath of Big Chico Creek canyon just upstream from Chico. It was obvious the Reserve encompassed a rich mosaic of habitats both terrestrial and aquatic, and in a state largely intact from its former existence as a sprawling canyon ranch. My research program, as well as that of my students, explores the ecology and evolution of Tamalia aphids acting as extreme specialists on manzanita shrubs. I had already been pursuing the ecology of Tamalia aphids beginning in 1992 as a graduate student, so the Big Chico Creek Ecological Reserve provided an ideal opportunity to continue this work. In my research, I have found that Tamalia aphids are highly specialized for life within galls initiated on the leaves of the Arctostaphylos host plant. Two years prior to beginning my research at Big Chico Creek Ecological Reserve, I discovered and named another Tamalia aphid acting as a brood parasite of the first species. Because it invades existing galls induced by Tamalia coweni, this species acts as an inquiline, hence its name Tamalia inquilina. It is on the ecology of the host Tamalia aphid and its inquiline that most of my efforts have focused. Apparently the Tamalia inquilina had escaped notice for almost a century after Tamalia coweni was described because of their close resemblance. Yet my phylogenetic investigation and field work, much of it at Big Chico Creek Ecological Reserve, have revealed that these are distinct lineages with a recent common ancestor. Since 2008 I have enlisted the assistance of my general ecology undergraduate students, who every fall help me carry out a “gall census” of the number and distribution of all galls appearing on a given year. The data students collect not only help me track patterns of colonization of new Arctostaphylos shrubs, but they provide information for estimating the size of these dynamic aphid populations, thus offering a basic lesson in population ecology. We have thus gathered an extensive longitudinal data set as part a long-term ecological study.

“The proximity of Big Chico Creek Ecological Reserve to campus, together with focused efforts to monitor and study populations of both the host plants and gall aphids, has yielded penetrating insights into the spatial and population ecology of insects and plants in this landscape rejuvenated by periodic fire.”

—Don Miller, PhD
PROFESSOR OF BIOLOGICAL SCIENCES
California State University, Chico
Alumna Highlight

Sophia Munoz-Oliverez leading a crew of volunteers in Paradise, CA.

During my time as a Land Steward at the Big Chico Creek Ecological Reserve I was able to gain invaluable, hands-on experience in land management and ecological stewardship. Working on the Ecological Stewardship Crew allowed me to gain a unique experience that increased my level of confidence and knowledge, and has led me to the position I’m in now.

After a time well spent at the Big Chico Creek Ecological Reserve, I am now honored to be working with the Paradise Recreation and Park District (PRPD) as their Coordinator of Volunteer Services. Historically, the district did not have an official volunteer program with a coordinator to guide it. So far, I have been able to build up the program by developing initial documents, such as liability waivers, safety guidelines, and a volunteer guidebook to be referenced by volunteers and staff alike. The beauty of this job is that I can recruit, mobilize, and follow up with the wonderful individuals in the community who donate their time to help support their local parks.

—Sophia Munoz-Oliverez
BS PARKS AND NATURAL RESOURCE MANAGEMENT
California State University, Chico

“Sophia is extraordinarily bright, energetic, and cares about our citizens and environment. She knows the area well and is well prepared from her experience working at the Big Chico Creek Ecological Reserve and as a Chico State student. We are entrusting her with building a volunteer program and assisting with developing management plans for several of our parks. She’s been an awesome addition to our team!”

—Dan Efseaff
DISTRICT MANAGER
Paradise Recreation and Park District (PRPD)
Beginning in September of 2019, the Ecological Reserves expanded its Outdoor Education Program by 33 percent to address a constriction of outdoor education opportunities in our community. During the 2019 Fall semester, Reserves employees, interns and volunteers hosted 24 field trips, 28 in-classroom visits, and facilitated fire education programming to over 440 grade school students from Chico, Paradise, Oroville, Hamilton City and Durham school districts. We were able to support schools with their need for a California state standards-based program that demonstrates local indigenous use of natural resources and stewardship of the land. With so few areas that are similar to pre-contact California, the Big Chico Creek Ecological Reserve is an invaluable example of what a native, sustainably managed landscape looks like.

The Reserve’s K-12 Outdoor Education team was looking forward to a fully booked spring season, but had to be reallocated to different projects due to the COVID-19 crisis. The Big Chico Creek Ecological Reserve remained open to the public during the COVID-19 outbreak, serving as a much needed refuge for Butte County resident’s physical and mental health during the months of the shelter-in-place mandate.

**BY THE NUMBERS**

| 24 | 843 | 7 |
| K-12 FIELD TRIPS | OUTDOOR CLASSROOM PARTICIPANTS | CSUC STUDENTS EMPLOYED |
In December of 2019, the Big Chico Creek Ecological Reserve partnered with the University of California Cooperative Extension to host a workshop focused on the science and art of prescribed fire. 75 community members attended the workshop, with some coming from as far as Lake and Humboldt County. Some participants owned property burned entirely or partly by catastrophic wildfires in recent years and were determined to do something to avoid fires burning homes and properties in the future. Over 90,000 acres were treated using prescribed fire last year in California, according to CAL FIRE data.

Prescribed fires can lower the risk of catastrophic wildfires by reducing fuels while also promoting native species and ecosystem restoration. Butte County Resource Conservation District surveyed landowners and found 70 percent were interested in prescribed fire as a tool to manage their lands. Of the 80 percent who said they were interested in reforestation after the camp fire, 59 percent wanted to replant in a way that would accommodate fire.

The Ecological Reserves are committed to working with our partners and our community to continue innovative projects and public education with a focus on prescribed fire.

“In we need to work on our wildland-urban interface, and our structures, but we also need to work on our wildlands. We use tools that are accepted like mastication, but what’s really under-utilized is prescribed fire.”

—Kate Wilkin
FORESTRY, FIRE, AND NATURAL RESOURCE ADVISOR
UC Cooperative Extension

Private landowners and managers throughout Northern California are increasingly interested in fighting fire with fire.

Don Hankins, Faculty Field Director, speaking at December’s prescribed fire workshop.
The Big Chico Creek Watershed Tour is an innovative project providing a multidisciplinary learning experience to students about the Big Chico Creek watershed and how it relates to California’s water, climate, and sustainable resource issues. Led by Sandrine Matiasek and Jack Webster, students metaphorically follow a drop of water through the watershed as they engage with faculty in research activities that address the health and sustainability of the watershed from its headwaters through the Big Chico Creek Ecological Reserve, into the heart of campus, to its confluence with the Sacramento River. The ongoing research activities involve water quality, fire ecology, forestry resource management, river restoration and monitoring, climate change, and vegetation assessment. By creating an opportunity that engages students in complex real-world problems, the tour allows students to understand the value of a local watershed and how it relates to the sustainability of the larger Sacramento River valley system.

The Big Chico Creek Ecological Reserve contributed greatly to this experiential learning opportunity. Students camped near the Reserve headquarters in wet conditions and found reprieve under the historic barn building during meal times. The Reserve staff supported the watershed tour in many ways, including transportation up and down the steep canyon.

“I can say with certainty the Big Chico Creek Watershed Tour has not only proven to be my favorite class at Chico State so far, but an unforgettable experience that opened a whole new world to me surrounding the watershed.”
— Michaela Marr, Physical & Environmental Geography
David Dempsey (1955 – 2020)

Our volunteer of the year is Dr. Dave Dempsey. Dave was only able to volunteer at the Big Chico Creek Ecological Reserves for a short time, but his enthusiasm, environmental knowledge, and kindness was invaluable and will be greatly missed. Dave had a unique ability to tell stories through the written word and photography. The volunteer experiences he was able to capture while with us are inspiring and beautiful. Somehow, he was able to capture in photos the joy of doing good work in the woods. Dave committed his career to the Department of Earth & Climate Sciences at SFSU where he was an innovated educator who was dedicated to the success of his students. Dave brought his legacy as an educator to his work at the Reserve along with sense of humor and adventurous spirit. He understood the challenges in wildland management, but also understood the importance of volunteering when he wrote, “I was surprised by how much progress four determined people (even four old guys), working methodically and persistently for 6-7 hours, could make. (I’m probably a little deluded about that—we made a drop in the bucket of the 4,000 acre reserve. However, maintained consistently over time, such one-day contributions begin to add up.)”

We are grateful for all of the one-day contributions that Dave gave us. We will sorely miss Dave and our hearts will forever be with the entire Dempsey family who are good friends of the Reserve and the natural environment as a whole.

The picture in my memory of Dave is always on some high mountaintop, smiling and photographing, with enthusiasm and joy in every moment. He will be missed by many.

— Paul Dempsey
Financials
CSU, CHICO ECOLOGICAL RESERVES

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Community Support

The Adopt an Acre program allows friends of the Reserves to support the important environmental and educational work that we do by adopting an individual acre of the Big Chico Creek Ecological Reserve.

LEGACY LEVEL
Paul Maslin, Wes Dempsey, Colin Stokes, Bruce Gallaway, Paul Lake

IN PARTNERSHIP WITH:

MOUNTAIN LION
($5,000+)
Maggie Hill, Anonymous, Penelope Gallaway

BLACK BEAR
($1,000 - $4,999)
The Hassenzahl Family
Ailsie McInteggart
Doug & Kelly Guerrero
Ann & Tim Edwards
Roger Lederer & Carol Burr
Ann Sherman

BOBCAT
($700 - $999)
Paul & Leslie Dempsey
Jeff & Jeanne Henning
Steve Dresler

GRAY FOX
($300 - $699)
Marti Leicester
Tyler Pilger
Kären Edwards

SAW-WHET OWL
($120 - $299)
Brooke Banks & Andy Miller
Jessica Harrington
Julie & Mark Vugrenes
Courtney Silver
Bob & Kathy Fritz
Mandy Banet
Tom & Kirsten Morgan
Chuck & Kaelin Lundgren

< $120
Lisa Roy
Sharon Barrios
Richard Vondran
Thomas Lambert
Scott Giannini
Christian Burke
Jennifer Mays

IN PARTNERSHIP WITH:

USAA Giving Fund
Jeff Mott
David John Scotto
Butte County Fire Safe
Council
David & Debra Scotto
Judy & Kevin Robison

Elizabeth Quail
USAA Giving Fund
Jeff Mott
David John Scotto
Butte County Fire Safe
Council
David & Debra Scotto
Judy & Kevin Robison

Miranda King
Rob & Becky Berger
Meagan Fischer

Branon Ertis
Marvin & Bonnie Megibow

Sandrine Matiassek
John Unruh
Calli Jane DeAnda
Sterling O. Mattoon
Dulcy Schroeder
Kate Post
Anne Goodsell
James Crane

Lionel Valley
Donald Miller
Matthew Hansen
Claudia Stuart
Renaissance Charitable
Foundation
Torene Schwab
Trish & Tom Reilly

Irving Schiffman
Signe Miller
Lawrence Schwab
Scott Giannini
George Armstrong
Richard Donner
Kathryn Roark
Holly Swan
Daria Booth
Renee McAmis

George Armstrong
Roger Mathews
Kelley Parsons
Katelyn Ault
Mathew Squillante
Geoffrey Wintrup

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Adopt an Acre of the Reserve today!
Visit our website: www.csuchico.edu/bccer/adopt-an-acre.shtml
Or call: 530-228-1525
PHOTOS TAKEN ON ADOPTED ACRES
SEE PAGES 15 - 17 FOR MORE INFORMATION