

The UC Berkeley Student Restoration Leadership

Program (amended)

Recipient: University of California – Berkeley Project Period: January 19, 2016 – January 31, 2021 Award Amount: \$10,000 Project Number: #8006.16.051353

Summary of Accomplishments

Accomplishments over the course of this grant-

Four UC Berkeley students were hired and trained as Student Restoration Leaders capable of leading and teaching a wide pool of volunteers in the principles of habitat restoration.

Leaders and volunteers worked nearly year-round within UC Berkeley owned riparian corridors to remove and control invasive plant species and re-plant these areas with endemic native plants, many of which were propagated in the student built and operated Strawberry Creek Native Plant Nursery.

The Student Restoration Leaders hosted more than 500 volunteers over the course of the grant period providing both education and direction in habitat restoration activities as well as organized trash removal and construction of storm water treatment amenities.

Leaders also served as specialist level landscape maintenance staff successfully working within biodiverse restored habitats to suppress invasive species while encouraging natural recruitment of desirable native species.

Project Activities & Outcomes

The origin of this project, funded by the NFWF, arose out of a negotiated mitigation settlement for damaged reaches of Strawberry Creek within the UC Berkeley Central Campus that were impacted by a December 2011 diesel spill from a malfunctioning emergency generator located at Stanley Hall.

This project expanded upon a highly successful pilot program conceived by staff within the University's Office of Environment, Health & Safety to fund and train a corps of Cal students to lead habitat restoration activities on University managed creeks and open spaces. The activities consisted of: invasive plant removal and suppression, native plant identification and habits, plant propagation and out-planting, volunteer recruitment and training, and surface water quality impacts and pollution mitigation.

During the pilot program Student Restoration Leaders and volunteers (primarily Cal students but also members of nearby K-12 schools and community at large) removed invasive plant species from the Strawberry Creek riparian zones and re-planted using endemic flora in the newly opened areas in an effort to restore much of the biodiversity that was mostly absent from UC Berkeley's "natural" open spaces. The pilot was funded by a onetime grant from the Chancellor's Advisory Committee on Sustainability (CACS).

This NFWF grant allowed the restart of the program by providing funds to pay student leaders which were hired from a pool of applicants replying to job postings created at the start of each fall semester (hired students had the option of continuing their roles for another academic year at their option).

The project began with the hiring of two students at the beginning of the fall 2016 semester and ended on October 31, 2020 after many successes and some future challenges which are detailed below.

Outcomes

Student engagement and education

Perhaps the greatest success of this program was the opportunity to engage the UC Berkeley student body in the discussion AND practice of the fundamentals of habitat restoration within the context of a highly urbanized watershed.

The Student Restoration Leaders, as students themselves, were able to learn on the job and share their experiences with peers as they gained skills in restoration principles and then performed the hard work of assessing impacts, preparing a plan, and then implementing mitigation measures designed to restore native biodiversity to the campus riparian areas.

Over the term of this grant, more than 500 Cal students and a significant number of local K-12 students and surrounding community members took part in dozens of volunteer events where they learned about issues affecting both creek water quality as well as streamside habitat. Then participants were provided with tools and instruction in the control of invasive species including plant identification, methods of control, and selection of appropriate native plants to revegetate cleared areas, as well as performing litter removal and ongoing weed management.

Leaders also managed the daily operations of the Strawberry Creek Native Plant Nursery until it was dismantled in early 2019 to make room for the seismic upgrade of Giannini Hall. The nursery served as both a classroom and a source of the majority of native plant stock for the restoration effort on campus. Also, while in use by the Restoration Program, our Student Leaders gained skills in plant propagation, irrigation set up and maintenance, and pest management.

Habitat restored

The program's Student Restoration Leaders leave a legacy of beautiful and biodiverse native riparian habitat on the central campus of UC Berkeley thanks to their hard work and their leadership of volunteer work parties. While most of the program's efforts concentrated in the largest of the three campus Natural Areas (known as the Grinnell Natural Area), the fruits of the students' labor can be seen in nearly every corner of university open space with native plants thriving in formerly invaded monocultures and including the rehabilitation of long neglected landscape plantings.

Several of the tree saplings planted by the first cohort of student leaders and their volunteers have grown into healthy adolescent specimens and will serve as symbols of the energy and intention of these young adults in the decades to come. Countless grasses, forbs, and shrubs out-planted by the

students during the many volunteer events, along with the care provided after, now provide high quality habitat for the unique food web that had largely disappeared from large swaths of the campus due to impacts from dominant non-native plants such as Algerian ivy and periwinkle.

The success of these efforts is also evident in the re-appearance of fauna in these restored areas that had rarely been seen in years past. This result has raised the value of the campus Natural Areas as teaching resources as well as places of wonder and respite for the campus community and public as well.

Lessons Learned

Invasive Species

The campus Natural Areas continue to be fertile ground for a vast array of non-native invasive plant species that are a constant threat to the establishment and long-term health of native plant communities restored by the Program. Given campus budget restraints it is difficult for the Landscape Services Department to hire both the numbers and expertise levels needed to suppress weeds in native plantings and recently, the UC system banned the use of glyphosate as a tool to aid in this effort, further exacerbating the labor shortage.

The Student Restoration Leaders were most competitive as candidates when they already possessed the knowledge or were currently studying plant identification skills and these students served as specialists in directing the often difficult work of weeding around desirable plants and naturally recruiting natives.

It is the intention of the both the Office of EH&S as well as Landscape Services to continue to tap student expertise to assist in the control of noxious weed species and discussions are ongoing to find a way to continue this program using university funds.

Human impacts within the restored areas

Sadly, a significant amount of damage sustained by the restoration plantings occurs due to both unintentional and in some cases the intentional actions of humans visiting these areas. The relative seclusion of these restored natural habitats encourages illegal camping by the region's homeless population as well as daily visits by high school students who are often looking for places to meet with friends away from the eyes of authority figures.

From simple trampling of newly planted specimens to willful cutting or pulling, littering, loud or raucous behavior, often the human presence in these areas degrades the habitat quality for the fauna that would otherwise flourish there.

Campus police prefer and in some cases require the removal of mid height shrubbery or low hanging tree branches to aid in patrolling these areas much to the detriment of the habitat quality. However, the program understands the need and so this reality has modified the planting strategy going forward.

While the cost and complexity of erecting suitable exclusion fencing in some of the areas has so far proven to be an insurmountable hurdle, a pilot project to demonstrate the efficacy of such a "preserve" on the central campus is still in discussion.

Successional Planning

Lastly, EH&S staff presence and passion for this program was essential for its continuation over the last 20 years. While staff attrition threatens the continuity of the restoration program, efforts are *Created by CDFW-OSPR*

underway to identify career track employees, either faculty or staff, from other stakeholder departments that show an interest in taking on the responsibilities to manage and mentor future Student Restoration Leaders.

The Strawberry Creek Restoration Program has existed in some form since 1988 when graduate student Robert Charbonneau wrote the campus watershed Master Plan and envisioned student involvement with the creek and its care.

Over the years the program has waxed and waned but the desire of the Cal community to care for and nurture its most valued natural asset has never diminished and will endure because of the determination of the Cal students to re-create and restore what was lost—the program will continue as it has with assistance from likeminded staff rising to take on this important task.

Dissemination

The four Student Restoration Leaders engaged during the duration of this grant made many presentations to classes and clubs as part of their employment responsibilities. They also forged alliances with other established UC Berkeley volunteer organizations (such as the Landscape Architecture/Environmental Design student group and the Bee Friendly Campus club) which in turn raised the awareness of both the restoration program as well as the need to protect biodiverse native habitats at Cal and beyond.

Project Documents

Selected photos are included below. Additional annual reports for this project can be provided upon request.

POSTING OF FINAL REPORT: This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as "PROTECTED" and provide an explanation and complete citation to the statutory or regulatory source for such protection.



Image 1: Berkeley Project volunteers attack dense Algerian ivy carpet along Strawberry Creek's North Fork in May 2019



Image 2: UC Berkeley students from the College of Environmental Design installed this California natives garden adjacent to the Strawberry Creek South Fork in the Wickson Natural Area in Sept. 2019

Created by CDFW-OSPR



Image 3: Native strawberries bloom and fruit once again on the banks of Strawberry Creek as it rungs through the campus of UC Berkeley thanks to the hard work of Cal's Student Restoration Leaders.



Image 4: UC Berkeley student volunteers from the annual Berkeley Project with their day's haul of invasive ivy and panic veldt grass in October 2018