

Summary	<p>This project is an opportunity to restore Copeland Creek to an aesthetically pleasing and recreational usable landscape, while retaining native biodiversity and flood control ability. It also offers an education opportunity to students interested in gaining restoration experience as well as promoting community awareness of Copeland Creek.</p> <p>We plan to restore Copeland Creek located on the Sonoma State University campus in Rohnert Park, CA. We plan to exponentially increase biodiversity by planting native flora and fauna, and removing invasive plant species, fire-prone dead vegetation, and flood-causing waterway blockages. This will create habitat for endangered species and wildlife, as well as improve water quality and flow, prevent wildfires and floods, combat climate change, and increase the aesthetic qualities of Sonoma county. Additionally, the site is used for educational purposes by students at Sonoma State University, as well as the public using the trails alongside the creek.</p>
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1. **Need for the project.** Describe the specific problems, issues, or unserved needs the project will address.

Copeland creek is a critical water source for wildlife inhabiting Rohnert Park and provides the city with flood control. The project site is overgrown and poses a potential risk to the creek's ability to maintain flood control. The predominant species at the site are invasive and threaten the sites native biodiversity

One of the problems at Copeland Creek is the abundance of invasive species such as Himalayan blackberry and hemlock outcompeting native species such as the California blackberry. Invasive species are limiting biodiversity and imposing a fire hazard due to large amounts of dried and dead vegetation.

Another problem is the aesthetically unappealing landscape of dead vegetation, homogeneous vegetation and bare land. This is linked to a larger problem of bare land having a lower albedo than vegetated land. The greenhouse effect and excessive amount of CO₂ in the atmosphere is in part due to a lack of vegetation and low albedo. The exposed land is space that can be used to combat climate change with native vegetation.

The area is used by students for educational purposes to study environmental and biological sciences. Restoring this area teaches future scientists and environmentalists the techniques and application of restoration projects, as well as creating a green outdoor classroom setting that allows students to be involved in hands-on learning.

2. **Goals and objectives.** The goals and objectives should clearly define the expected outcomes and benefits of the project.

Goals: Increase native plant cover, maintain creek's flood control ability, and increase site's aesthetic qualities.

Objectives: Remove 50% of invasive species plant cover by May 23rd 2019, increase native biodiversity by 25%, clear any large debris and other objects that could obstruct water flow, and cut back any plant species that are overgrown and obstructing recreational pathways.

1. Remove invasive plants at a minimum of 50% for Himalayan blackberry and 75% for hemlock within the restoration boundaries using manual removal techniques without the use of harmful and costly pesticides.
2. 100% Increase in native vegetation richness and diversity by planting seeds, cuttings, and sproutlings in the restoration site.
3. Minimum 90% removal of dead vegetation to increase plant growth and diversity, and prevent fires.
4. Create a minimum of five informational signs along the walking trails to educate the public about restoration efforts and protect the site.
5. Construct fencing at snowberry corner to protect the site from the frequently used shortcut across vegetation.

3. **Site Description.** Describe the project site or area, including site characteristics that are tied to your project objectives (i.e.: for acquisition of habitat, describe current vegetation assemblages, condition of habitats, known wildlife migration corridors, etc.). When relevant, include ownership and management information.

The site is a small strip of riparian habitat located alongside Copeland Creek. The project area is filled with a majority of invasive species, a large portion of it being Himalayan Blackberry. The areas are overgrown with large debris in the creek and potential threat of more branches falling into the creek bed. The site is owned by Sonoma State University and there is a set of guidelines in the Copeland Creek Master Plan for any work done on or near Copeland Creek.

The restoration site of Copeland Creek is on the 269-acre Sonoma State University campus located in Rohnert Park in southern Sonoma County. The campus is located in the eastern portion of the Laguna de Santa Rosa watershed that flows into the Russian River. Copeland Creek is a steelhead-bearing stream with significant habitat and ecological value. The creek is of huge interest to Sonoma State University Environmental Studies and Biology department as well as the community. The creek is rich in biodiversity necessary for educational purposes for students to gain restoration practice. The creek is known to have a significantly altered habitat with many invasive plant species present.

1. **Project and Applicant History:** Provide a history of the project, and any background information not provided in the project description. Is the project related to any previous or proposed Coastal Conservancy projects? If so, which ones and how are they related?

Copeland Creek restoration project has been in the works for two years with the University's Restoration Ecology class. The Sonoma County Water Agency has taken interest in our

project and has provided some resources for us. This project has been funded by Sonoma State's Center for Environmental Inquiry.

This project has never been proposed or funded by Coastal Conservancy. Our project falls under the category of urban greening because the creek runs through Rohnert Park and is used by a variety of people on campus, as well as in nearby underserved communities.

The project site and its goals are still primarily determined using the Copeland Creek Master Plan, which remains as comprehensive and oriented with our objectives as when it was first adopted by the Sonoma State University Campus Planning Committee in 2001. Oversight of the project areas goals is done through the Copeland Creek Committee, under the chairmanship of the Director of Planning. One of our main focuses for this year is replanting native vegetation. Unfortunately the plants from the previous years replanting did not survive as a result of low precipitation throughout the winter.

The project is related to previous Coastal Conservancy projects including Ellis Creek, Suisun Creek, Alameda Creek and East Bay Creek restoration in which riparian vegetation was implemented to be restored as well as the installment of better signage, removal of invasives and improvement of community outreach in order to promote educational and recreational features as well as an overall appreciation for the preservation of nearby natural habitats.

1. **Regional Significance:** Describe the regional significance of the project with respect to recreation (regional trails and parks, staging areas, environmental education facilities, etc.), agricultural resources, and natural resources (including listed species, identified high priority habitat, wildlife corridors, watersheds, and agricultural soils).

Copeland creek provides significant habitat for many local species such as migratory birds, invertebrates, and small mammals. Along the urban part of the creek, there is a bike path that is enjoyed by local residents. The creek acts as a refugia habitat for many species since it is in an urban area.

2. **Need for Conservancy Funds:** What would happen to the project if no funds were available from the Conservancy? What project opportunities or benefits could be lost and why if the project is not implemented in the near future?

Without funds from the Conservancy, our project would continue to be completed as best it can. Having funding for this project would speed up our restoration project by supplying us with necessary resources. Currently, our project is done slowly which can enable invasive species to reemerge before we have the chance to plant natives. We would be losing the opportunity to make the scale of our project larger and more effective.

California Water Action Plan

- **Goals:**
 - Restoration of important species and habitat

- More resilient, sustainably managed water resource system.
- Actions:
 - Manage and prepare for dry periods
 - Increase flood protection

□ CA Wildlife Action Plan

- Goals:
 - Maintain and enhance the integrity of ecosystems by conserving key natural processes and functions, habitat qualities, and sustainable native species population levels, so that California's ecosystems are resilient to shifting environmental conditions resulting from climate change.
 - Promote partnerships with federal, state, and local agencies; tribal governments; and nongovernmental organizations with aligned conservation goals to leverage efficient use of funding and other public resources.
 - Educate the public about wildlife conservation issues, including hunting and fishing as a conservation tool, and inspire a conservation ethic in present and future generations through public outreach.

□ California Aquatic Invasive Species Management Plan

The plan's overall goal is to identify the steps that need to be taken to minimize the harmful ecological, economic and human health impacts of AIS in California.

□ California Essential Habitat Connectivity Strategy for Conserving a Connected California

Provide a corridor habitat for local and migratory animals in an urban area.

1. **Vulnerability from Climate Change Impacts Other than Sea Level Rise:** Using Exhibit F: Climate Change Guidance, and the latest regional scenarios, predictions and trends, describe how the project objectives or project may be vulnerable to impacts (fire, drought, species and habitat loss, etc.) from climate change, other than sea level rise, coastal erosion or flooding. Identify design, siting, or other measures incorporated into the project to reduce these vulnerabilities.

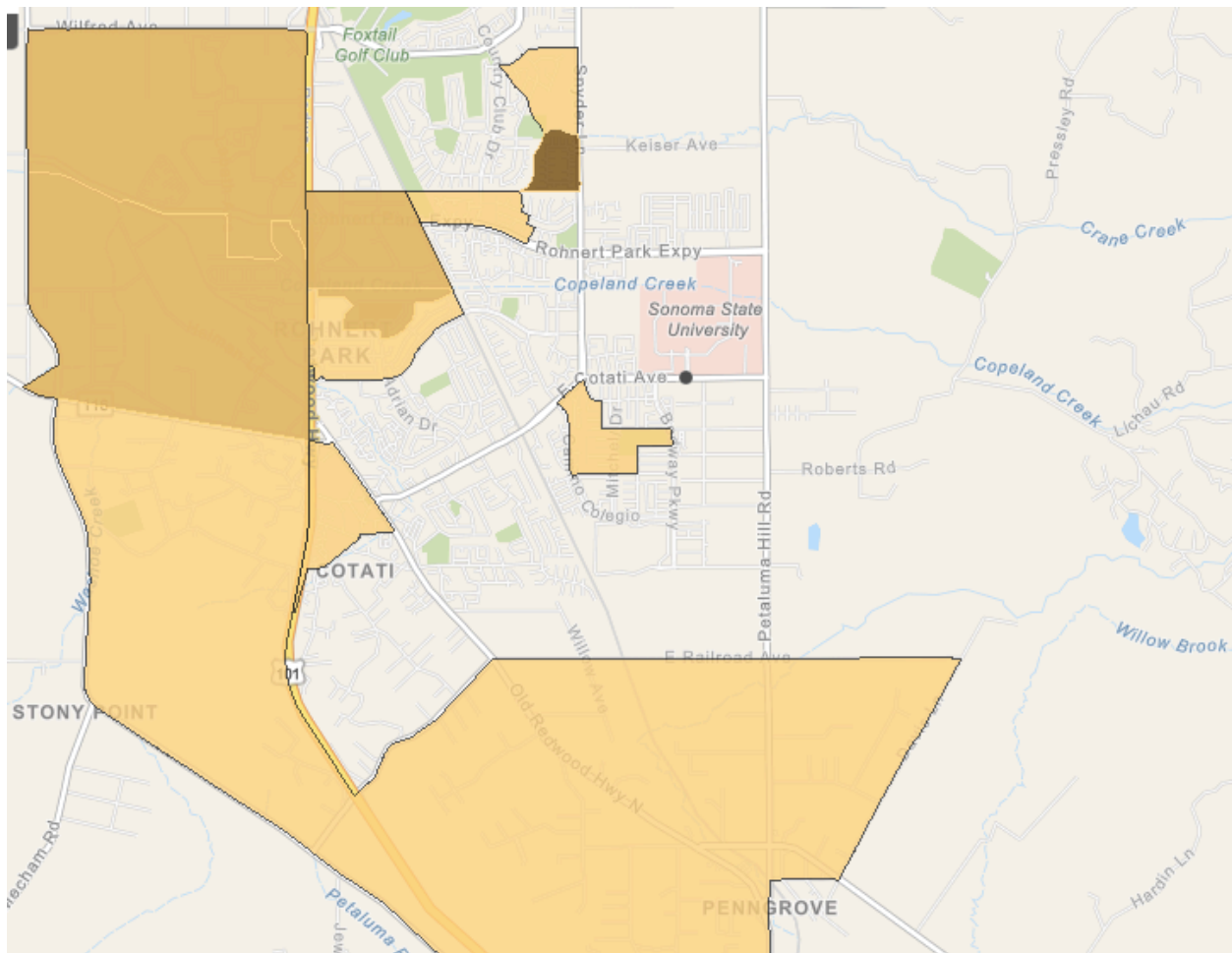
Increasing temperature can create problems to both plant and animal species. Plant species may not be able to survive through longer drought periods and create dead plant material that makes the site vulnerable to fire. A decrease to plant species survival can reduce the amount of habitat cover and food availability for wild fauna. The vulnerabilities may be reduced by using plant design tools such as the one created by Point Blue Conservation Science. The tool allows to select plant species that are drought resistant, provide habitat and food resources throughout the year.

1. **Disadvantaged Communities.** Does the project benefit a disadvantaged community? Proposition 1 defines a disadvantaged community as “a community with an annual median household income that is less than 80 percent of the statewide annual median household income.” (CA Water Code Section 79505.5.) The Department of Water Resources has developed an online [map viewer](#) which shows the maps of California’s disadvantaged communities, based on census data including the American Community Survey. Communities are defined at different geographic scales, including county, census tract and census place.

If yes, specify which community and how it will be benefited by the project.

There are disadvantaged communities downstream from the site in Rohnert Park that have two different household median incomes; between \$38,270 and \$51,026. The project can help with ensuring flood control practices are continued to keep the communities from getting damaged.

The site contains willow trees that are known to have falling branches that can potentially block debris in the creek and cause flooding. The willow trees have been managed and will continue to be managed to control flooding. The project will also provide educational opportunities and recreational use for the communities.



A map representing disadvantaged communities in brown areas that surround the planned Copeland Creek restoration site on Sonoma State University campus. Copeland Creek flows through and is near

six disadvantaged communities. There are a total of 15,246 households in these disadvantaged communities with median household salaries ranging from \$22,021 to \$51,026. The creek is located slightly south of a severely disadvantaged community (dark brown), and flows through the large disadvantaged community in the northeast. Additionally, many low income college students live on Sonoma State University where the restoration project is being done.

The restoration project will improve water quality in the creek that runs through these disadvantaged neighborhoods. Clearing the site of hazardous debris such as creek blockages will help protect against flood control, and removing fire hazards such as dead vegetation will prevent the fuel and spread of wildfires. Protecting and improving water quality, and preventing disasters such as floods and wildfires will help to protect the surrounding disadvantaged communities and students on Sonoma State University campus, as well as increase property value with the improvement of nearby Copeland Creek. Also, college students on the campus will receive the aesthetic benefits of an improved environment that will promote a peaceful atmosphere.

1. **Best Available Science.** Describe how the project is consistent with best available science.

The project is utilizing climate-smart planting design tools provided by Point Blue Conservation Science. The tool is specific for sites in Sonoma and Marin counties and helps determine which native species of plant are best suited for climate change. Native plant species can be added to the tool to have a greater variability of projections for the site.

The project is consistent with best available science by upholding adequate methods and standards to manage flood control, remove invasive species and introduce native species and monitor that our goals are positively affecting the ecosystem. We also use up to date sensor equipment such as wildlife cameras to identify wildlife populations and be able to better plan for enhancing the protection of habitat and vegetative biodiversity.

2. **New Technology.** Does the project employ new or innovative technology or practices? If yes, describe those technologies and/or practices.

Planting trees and other tall shrubs that create shade has been shown in studies to reduce the presence of invasive Himalayan Blackberry. By creating more shade, the Himalayan Blackberry will be controlled, so newly planted shade-tolerant natives can survive. Using this technique will save money, time, and labor in the future by not having to remove excessive invasive Himalayan blackberry, and will create a more biodiverse landscape. This will also prevent the use of polluting herbicides to remove the plants.

3. **Sustainability.** Described how the project will deliver sustainable outcomes in the long-term.

Sustainable water systems to promote the early growth of plant species will be utilized. The water systems can help the early stages of native plant species that are drought tolerant and fire adapted

to create and support a diverse community that is self-sustainable. The drought tolerant plants won't need to rely on a steady source of water and can provide the habitat cover that wild fauna need. Furthermore, the native plant species support wild fauna by providing fruits and seeds year around.

The project will deliver sustainable outcomes in the long-term by establishing a more adaptable habitat for native plants and animals. Our continuous stewardship efforts of maintaining the project areas historic range of variability, biodiversity of native plant and animal species and minimization of anthropogenic effects can create conditions for a more resilient ecosystem.