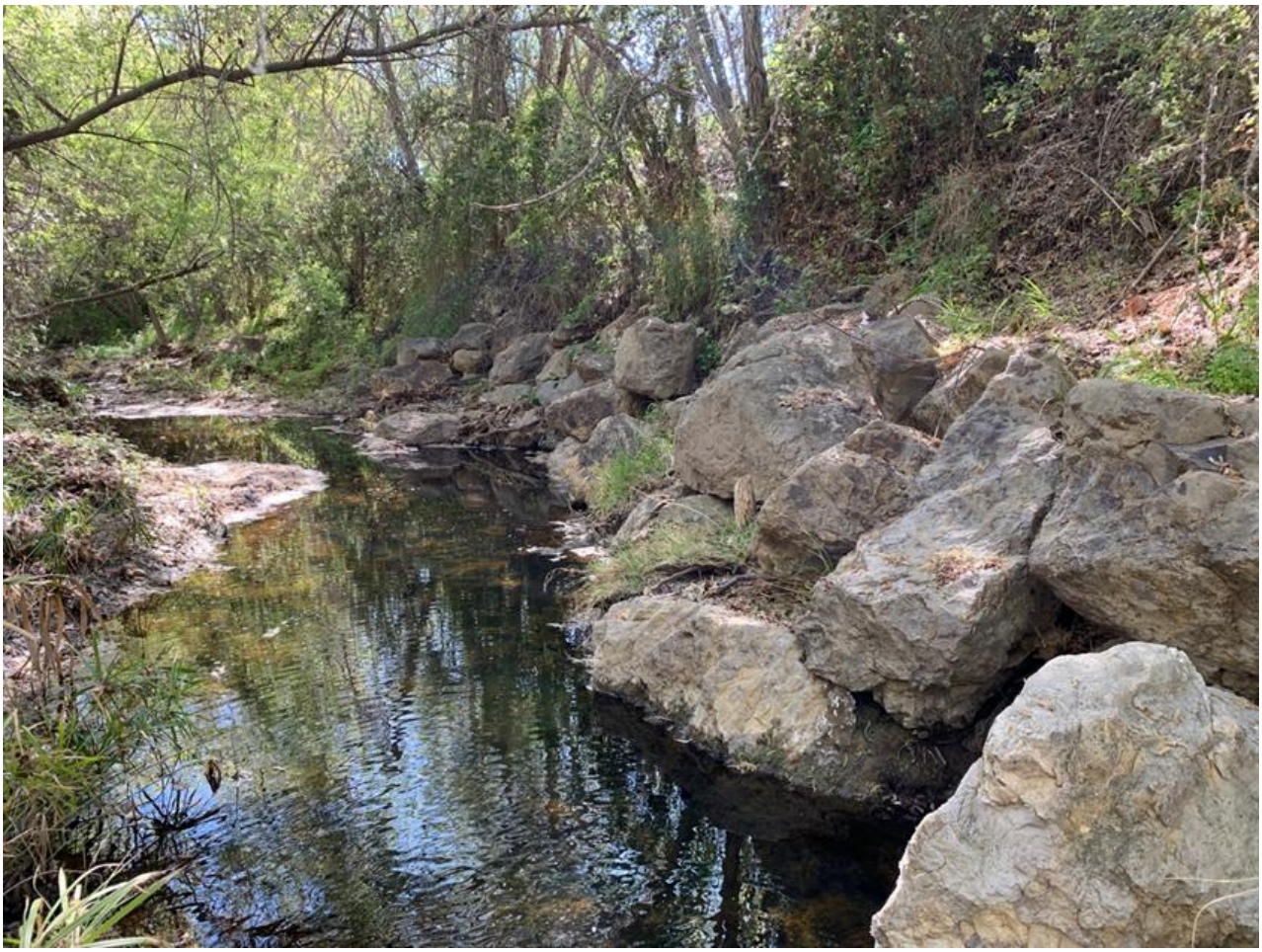
San Jose Creek Flood Control Revegetation Sites And Los Carneros Mitigation Bank

Review and Recommendations



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Cover Photo: Norma Revegetation Site on San Jose Creek with tip-rap bank stabilization and willow woodland habitat installed by Santa Barbara County Flood Control District.

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I. Executive Summary

A. Background

The Santa Barbara County Flood Control and Water Conservation District ("SBCFCWCD") maintains creeks throughout Santa Barbara County to reduce the threat of flooding. In 1987, creek maintenance involving clearing riparian[1] habitat on San Jose Creek led to public concern over the effects of creek maintenance on fish, wildlife, and habitat along local creeks.[2] The Santa Barbara County Board of Supervisors acting as the SBCFCWCD Board of Directors required the SBCFCWCD to evaluate its Annual Maintenance Program pursuant to the California Environmental Quality Act ("CEQA"). The SBCFCWCD prepared a programmatic environmental impact report ("EIR") in 1991 to assess the environmental effects of annual creek maintenance.[3] A second EIR was prepared in 2001.[4] Projects such as the Annual Maintenance Program may only be approved if they avoid or substantially lessen significant environmental impacts whenever feasible.[5] The 2001 EIR includes alternatives and mitigation measures termed Best Management Practices designed to lessen unavoidable environmental impacts.[6] The SBCFCWCD also secured a California Department of Fish and Wildlife ("CDFW") Stream Bed or Lake Alteration Agreement ("SAA") pursuant to Fish and Game Code Section 1601. If an activity such as the Annual Maintenance Program may substantially affect fish and wildlife resources, CDFW may issue a SAA "that includes reasonable measures necessary to protect the resource."[7] The SAA which CDFW issued to SBCFCWCD is a multi-year permit authorizing SBCFCWCD's Annual Maintenance Program subject to measures CDFW deems necessary to protect fish and wildlife resources in local creeks subject to CDFW jurisdiction.[8] The most recent SAA for the Annual Maintenance Program was approved in 2015 and expires on December 31, 2025.[9]

Mitigation measures developed in the EIRs and permit conditions, including measures in the SAA, are intended to avoid, minimize, and compensate for environmental impacts, including removal of native vegetation and impacts to native habitats and species caused by creek maintenance. Numerous measures to protect water quality, riparian and aquatic habitat, and sensitive species are employed by SBCFCWCD.[10] The primary method for compensating for

[1] Riparian means "relating to or living or located on the bank of a natural watercourse (such as a river) or sometimes of a lake or a tidewater." https://www.merriam-webster.com/dictionary/riparian
[2] Keith Dalton, Santa Barbara News-Press, *Creek Bed Caper Creating Waves* (June 1987).
[3] SBCFCWCD *Program Environmental Impact Report for Routine Maintenance Activities* (1991).
[4] SBCFCWCD *Final Program Environmental Impact Report for Updated Routine Maintenance Program* (November 2001). ("SBCFCWCD (2001)").
[5] California Public Resources Code § 21002; CEQA Guidelines § 15092.
[6] SBCFCWCD (2001) Chapters 5.0 and 7.0; *See also* SBCFCWCD *Annual Routine Maintenance Plan Fiscal Year 2021-2022* at i-5 ("SBCFCWCD (2022)").
[7] California Fish and Game Code § 1602 (a)(4)(B).
[8] Letter from Betty J. Courtney, Environmental Program Manager, California Department of Fish and Wildlife to Seth Shank, SBCFCWCD re *Final Lake or Streambed Alteration Agreement Notification No. 1600-2015-0053-R5 Annual Routine Maintenance Program* at 4 (August 5, 2015) ("CDFW (2015)").
[9] CDFW (2015) at 21.
[10] SBCFCWCD (2001) Chapter 5.0; *See also* CDFW (2015) at 7 - 17.

temporary and permanent impacts to habitats is creation or restoration of habitat, a process called revegetation. This report focusses on riparian habitat revegetation projects implemented by SBCFCWCD along San Jose Creek between 1992 and 2021 and at the Los Carneros Mitigation Bank between 2005 and 2020 to compensate for the effects of creek maintenance on riparian habitats.

B. Overview of the SBCFCWCD Annual Maintenance Program

The SBCFCWCD Annual Maintenance Program includes projects in Santa Barbara County creeks to protect public safety and infrastructure by lessening the potential for flooding and erosion. Maintenance projects involve removing obstructive vegetation from creek beds, reducing buildup of sediment which can constrict channel capacity, and stabilizing creek banks.[11] More specifically, maintenance activities include limbing of downed trees and limbs, brushing, herbicide application, desilting, channel shaping, bank stabilization, and repair and construction of check structures.[12] Work typically involves the use of hand tools including chain saws, application of herbicide to prevent regrowth of in-channel vegetation, and heavy equipment work in select areas to shore up banks, remove vegetation from creek beds, and facilitate sediment movement.[13]

The SBCFCWCD conducts springtime annual creek walks in north and south County creeks to identify locations where work is required.[14] The SBCFCWCD prepares an Annual Maintenance Plan in May and June of each year.[15] Annual Plans are approved by the SBCFCWCD Board of Directors in June or July.[16] Projects are implemented in the Fall, typically during a narrow window "Between August 1 and December 15" after bird nesting season and before steelhead migration season.[17]

As part of the Annual Maintenance Plan, SBCFCWCD implements revegetation projects to mitigate the effects of vegetation and habitat removal. The current requirement to mitigate impacts comes from the 2001 SBCFCWCD Program EIR[18] and regulatory permits. Regulatory permits and approvals include California Coastal Commission Coastal Development Permits or Coastal Consistency Determinations for projects in the Coastal Zone.[19] Army Corps of Engineers Clean Water Act Section 404 permits are required for projects "such as bank stabilization or channel shaping" which discharge fill or dredged material into wetlands or Waters of the US.[20]

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[11] SBCFCWCD *Annual Routine Maintenance Plan – Fiscal Year 2021-2022* at i-2 (2021-2022) ("SBCFCWCD (2021-2022)").
[12] CDFW (2015).
[13] *Id*.
[14] SBCFCWCD (2021-2022) at i-2 – i-3.
[15] *Id*. at i-4.
[16] *Id*. at i-10.
[17] *Id*. at i-12.
[18] SBCFCWCD (2001) at 4.4 – 4.10.
[19] SBCFCWCD (2021-2022) at i-10 and i-12; *See also*: California Coastal Commission *Staff Report and Adopted Findings for Application 4-19-1158, Agenda Item F15a*, Atascadero Creek Flood Control Project, Santa Barbara County available at https://www.coastal.ca.gov/meetings/agenda/#/2020/7 (July 10, 2020).
[20] SBCFCWCD (2021-2022) at i-10.

The State Water Resources Control Board issues a 401B Water Quality Certification "for projects that also require a 404 permit from the Army Corps of Engineers."[21]

Maintenance projects which alter the streambed, bank, or riparian habitat are also regulated by the CDFW SAA.[22] The SAA is a permit issued by CDFW authorizing SBCFCWCD to implement the Annual Maintenance Plans subject to permit conditions requiring protection of biological and other natural resources such as habitats, species, and water quality. It requires SBCFCWCD to implement revegetation projects to replace native habitats that are removed during maintenance activities.[23] The SAA sets forth measurable performance standards called "success criteria" to evaluate effectiveness of revegetation projects. Criteria include plant survival rates, tree growth rates, absence of woody invasive species, percent cover of herbaceous nonnative plants, and percent cover of native species.[24] The SAA requires SBCFCWCD to track and report on the implementation of the Annual Maintenance Plans, including revegetation projects and "their ability to meet success criteria."[25] Tracking and reporting on revegetation projects is essential so that CDFW can measure and track success pursuant to the success criteria and ultimately sign-off on completed revegetation projects to ensure that the impacts of SBCFCWCD's maintenance projects are mitigated.

The SBCFCWCD prepares Annual Maintenance and Revegetation Reports which are "designed to incorporate all the information that each agency has requested" to demonstrate implementation of maintenance projects and revegetation projects.[26] Annual Maintenance and Revegetation Reports are required to provide "a detailed discussion of data collection, ability to meet success criteria, monitoring activities, and tasks performed at each restoration site."[27] They are intended to demonstrate that the revegetation projects are sufficiently mitigating the impacts of maintenance projects. These reports are therefore critical for determining whether revegetation projects fulfill the quantitative success criteria and comply with permits, including the SAA. These reports must therefore contain a detailed accounting and quantitative analysis of success pursuant to the criteria. As discussed below, EDC's analysis concludes that these reports do not contain adequately detailed data collection or assessment of revegetation sites' performance pursuant to the required success criteria.

CDFW evaluates revegetation sites to determine whether they are successful. In this case, CDFW signed off on the San Jose Creek revegetation sites as having been successful.[28] Yet CDFW may lack resources to inspect the numerous revegetation sites on each of the thirty-six south coast drainages, including at least nineteen revegetation sites on San Jose Creek.[29] Given this, CDFW must rely on the SBCFCWCD's Annual Maintenance and Revegetation Reports to

[21] *Id.*
[22] *Id.; See also* CDFW (2015).
[23] *Id.* Section 3.7 at 15-16.
[24] *Id.* Section 3.9 at 17.
[25] *Id.* Section 3.5 at 15-16.
[26] SBCFCWCD (2020-2021) at i-13.
[27] CDFW (2015) at 15.
[28] Spencer (2022).
[29] CDFW (2015) at 1; *See also* Sarah Rains, CDFW phone call with Brian Trautwein (2021) ("Rains (2021)").

gage success.[30] The Reports, however, do not consistently include specific information necessary to demonstrate success of revegetation projects pursuant to the SAA's success criteria, including tree growth rates, plant survival rates, presence of invasive woody species, percent cover of herbaceous invasive nonnative plants, and percent cover of native plants, as described below, and are thus insufficient to demonstrate compliance with the SAA's success criteria.[31]

C. Findings and Recommendations

This report includes an evaluation of the success of nineteen revegetation sites on San Jose Creek and fifteen revegetation polygons in the Lake Los Carneros Mitigation Bank. The Environmental Defense Center ("EDC") concludes that some revegetation sites, including the Lake Los Carneros Mitigation Bank, continue to function very well with few exotic plant species present and substantial cover by native plant species. All sites have reportedly met the applicable success criteria outlined in the CDFW SAA.[32] SBCFCWCD state that, "Restoration sites are monitored by District Environmental staff for success criteria, percent cover, mortality, and tree-height. Generally, most revegetation sites achieve the success criteria within 3 to 5 years. Results and photos are submitted each year in the Post-Project Report."[33] However, EDC's analysis demonstrates that percent cover, tree height, and mortality rates are not recorded in SBCFCWCD's Annual Maintenance and Revegetation Reports and that most revegetation sites do not currently meet the SAA's specific measurable success criteria.[34] Some sites have become dominated by nonnative plants, including aggressive invasive species which undermine the long-term success of revegetation and raise concerns that SBCFCWCD's revegetation program may not provide long-term replacement of riparian habitat.

EDC's report sets forth site-specific recommendations to achieve compliance with the SAA's success criteria and ensure that existing revegetation sites successfully mitigate the effects of creek maintenance on riparian habitats over the long term. Programmatic recommendations are also included to ensure that SBCFCWCD's future revegetation projects fully compensate for losses in riparian habitat quantity and quality. Recommendations are intended to ensure that SBCFCWCD and permitting agencies, including CDFW, effectively monitor, track, and record short-term and long-term success pursuant to the SAA's measurable success criteria. The Annual Maintenance and Revegetation Reports must provide a more detailed and quantitative assessment of the success of restoration sites to demonstrate whether the measurable success criteria are met. In addition, CDFW should visit each revegetation site annually and only approve revegetation projects when all success criteria set forth in the SAA are met.

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[30] SBCFCWCD *Annual Maintenance and Revegetation Reports* (2000-2001 through 2020-2021)
[31] *Id.*
[32] Maureen Spencer, Operations and Environmental Manager, SBCFCWCD, phone call with Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (January 25, 2022) ("Spencer (2022)").
[33] SBCFCWCD *Four-Year Status Report 2016-2019 Annual Routine Maintenance Program* at 6 (January 2020).
[34] Some revegetation sites were required under previous SAAs. However, EDC used the most recent SAA's success criteria to gage success of existing revegetation sites.

D. Acknowledgements

UCSB Associated Students Coastal Fund, MUFG Union Bank, and Clif Family Foundation provided generous grant funding to enable revegetation site surveys, research, meetings with SBCFCWCD staff, and preparation of this report. UCSB Associated Students Coastal Fund also provided a generous stipend to EDC's Watershed Program Intern and Coauthor, Natalie Blackwelder.

The authors of this report are extremely grateful to Maureen Spencer, SBCFCWCD Operations and Environmental Manager, for providing Annual Plans, Annual Maintenance and Revegetation Reports, Lake Los Carneros Mitigation Bank reports and information in a timely manner, taking time to speak with us to explain the SBCFCWCD's revegetation program, and accompanying us in the field. Without this exceptionally helpful assistance, EDC would not have been able to understand the details of the SBCFCWCD's revegetation program or been able to produce this detailed report.

EDC is grateful for Sarah Rains, CDFW Environmental Scientist, for providing EDC with the SAA and other documents related to SBCFCWCD's Maintenance Program and providing commentary on CDFW's process for evaluating revegetation success.

II. Purpose, Goals, and Methods

A. Purpose

This analysis evaluates the effectiveness of SBCFCWCD revegetation projects required to mitigate the effects of Annual Maintenance Plans on riparian habitat pursuant to CEQA and CDFW's SAA. EDC intends for this report to be utilized by the SBCFCWCD to improve the effectiveness of its revegetation program to ensure long-term success and prevent net loss in the extent or quality of riparian habitat along creeks in Santa Barbara County. EDC intends for this report to inform permitting agencies, including CDFW, regarding the long-term success of revegetation projects and to inform future Annual Maintenance Program permitting and tracking and monitoring of effectiveness pursuant to CDFW's success criteria.

B. Goals

In order to fulfill this purpose, the goals of this report are to:

- Identify successes and shortcomings in SBCFCWCD's existing revegetation projects.
- Identify site-specific recommendations for existing revegetation projects.
- Identify global recommendations for SBCFCWCD and for CDFW and other permitting agencies to ensure successful monitoring, effective revegetation, and tracking of success.

C. Methods

1. Process of Evaluating Success of Revegetation Projects

The following steps were undertaken to evaluate success of SBCFCWCD revegetation sites on San Jose Creek and within the Lake Los Carneros Mitigation Bank:

1. Reviewed all Annual Plans dated from 1993-94 through 2021-22.
2. Reviewed all available Maintenance and Revegetation Reports dated 1993-94 through 2020-21.
3. Created chart tracking revegetation sites and revegetation square footage at each site on San Jose Creek.
4. Created map showing each revegetation site on San Jose Creek.
5. Reviewed CDFW's SAA.
6. Researched revegetation and habitat mitigation ratios for permanent and temporary impacts.
7. Researched pros and cons of mitigation banks.
8. Met with Maureen Spencer, SBCFCWCD Operations and Environmental Manager.
9. Visited all known revegetation sites on San Jose Creek and at the Lake Los Carneros Mitigation Bank.
10. Photo-documented each site.
11. Counted or estimated and recorded the number of installed plants observed and calculated the estimated percent survival,[35] general condition, plant heights and/or lateral spread, percent cover of native species, presence of woody nonnative species, and extent of invasive nonnative herbaceous understory species.
12. Documented nonnative and invasive exotic species.
13. Identified recommendations to enhance the success of revegetation projects at each site, to enhance the success of future revegetation efforts, and to improve tracking and reporting of success.

This report will be submitted to the SBCFCWCD, CDFW, United States Army Corps of Engineers, National Marine Fisheries Service, the City of Goleta, and nonprofit organization involved with creek preservation, management, and restoration, agencies. EDC will follow up with such agencies to discuss the EDC's findings and recommendations.

[35] It was only possible to estimate percent survival when the number of plants planted was recorded by SBCFCWCD. When the number of plants planted was not recorded in SBCFCWCD documents and is therefore unknown, it was infeasible to estimate percent survival unless zero surviving plants were observed (0% survival).

2. Problems Encountered Evaluating Revegetation Project Success

- **Inadequate Mapping and Field Demarcations**. Difficulty identifying locations and boundaries due to inadequate mapping, field demarcations, and descriptions of locations.

- **Failure to Record Plant Numbers**. Difficulty tracking survival rates because number of overall plants and number of plants of each species planted at each site plants of each species not recorded.

- **Failure to Record Species Planted**. Species planted are frequently not documented in Maintenance and Revegetation Reports.

III. Habitat Mitigation for Flood Control Annual Maintenance

A. CDFW Performance Standards

SBCFCWCD must create or restore riparian habitat through a process called revegetation to compensate for temporary and permanent habitat losses and degradation caused by the Annual Maintenance Program. CDFW established "Success Criteria for Restoration Areas" to measure success of habitat and tree replacement through revegetation.[36] Native trees that are removed must be replaced. If those trees are three inches to six inches in diameter breast height ("DBH"), then they must be replaced at a two-to-one (2:1) ratio. If those trees are six inches or more DBH, then they must be replaced at a ten-to-one (10:1) ratio.[37] Successful tree replacement requires achieving three-year and five-year height-based milestones.[38] The success criteria for tree replacement depends on the species. Sycamore trees, for example, must be at least five feet tall after three years and nine feet tall after five years, to be considered successful.[39]

Revegetation sites may be considered successful after they complete a five-year period of monitoring, maintenance, and reporting.[40] At the end of the five-year period, no single species planted can constitute more than sixty percent (60%) of the vegetative cover with the exception of willow trees, which can constitute eighty percent (80%) cover.[41] No woody invasive species can be present.[42] Herbaceous nonnative invasive species must be limited to less than five percent (5%) cover in revegetation sites.[43] Additionally, there must be no supplemental irrigation for at

[36] CDFW (2015) Section 3.9 at 17.
[37] *Id*. Section 3.2 at 15.
[38] *Id*. Section 3.8 at 16.
[39] *Id*.
[40] *Id*. Section 3.9a at 17.
[41] *Id*. Section 3.9b at 17.
[42] *Id*. Section 3.9c at 17.
[43] *Id*.

least 2-years.[44] When planted plants perish, replacement plants are required. Replacement plants must be monitored with the same growth and survival requirement for five years after planting.[45]

Each species planted must have at least eighty percent (80%) survival for the first year and one hundred percent (100%) survival for every subsequent year and/or sites must exhibit seventy-five percent (75%) cover after three years and ninety percent (90%) cover after five years "and for the life of the project" in order for the sites to be deemed successful.[46] "In some scenarios, if it can be demonstrated that the restoration area has achieved its goals and met the success criteria, CDFW can provide concurrence that no further restoration activities are required."[47]

Lake Los Carneros Mitigation Bank success criteria are divided into 3-year and 5-year criteria.[48] When the 3-year success criteria are met in a given restored area, half of the available banking credits become available and the other half after the 5-year success criteria are met.[49]

B. Mitigation Ratios

According to the CDFW, the SBCFCWCD must provide mitigation for any removal of riparian habitat on a one-to-one (1:1) basis for temporary impacts.[50] SBCFCWCD activities that result in permanent impacts require a three-to-one (3:1) mitigation ratio. The one-to-one (1:1) ratio was established in SBCFCWCD's 2001 Program EIR and the CDFW SAA.[51] The three-to-one ratio (3:1) is required by the CDFW SAA.[52] However, if revegetation to offset temporary impacts does not take place within the next growing season, the CDFW SAA may require a higher but unspecified ratio.[53] At the Lake Los Carneros Mitigation Bank, riparian habitat is mitigated on a 1:1 ratio, while upland habitats must be mitigated on a .75:1 ratio.[54]

Permanent impacts caused by SBCFCWCD's maintenance program must be mitigated at three-to-one (3:1) ratio.[55] Examples of permanent impacts include "activities such as new grade stabilizers and non-vegetated bank protection," including the use of cement or grouted rock, or other intrusions that cannot easily be removed.[56]

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[44] *Id*. Section 3.9d at 17.
[45] *Id*. Section 3.9g at 17.
[46] *Id*. Section 3.9f at 17.
[47] *Id*. Section 3.9h at 17
[48] *Id*. at 16.
[49] *Id*.
[50] A 1:1 mitigation ration requires replacement of every area impacted with an equal or larger area of replacement habitat.
[51] Spencer (2022); *See also* SBCFCWCD (2001) at 4-7 – 4-11; *See also* CDFW (2015) at 15.
[52] Spencer (2022); *See also* CDFW (2015) at 15. Note the 2001 Program EIR requires a two-to-one (2:1) ratio for permanent impacts but the CDFW SAA requires a three-to-one (3:1) ratio.
[53] CDFW (2015) Section 3.1 Mitigation for Impacts to Habitat at 15.
[54] *Id*. at 16.
[55] CDFW (2015) Section 3.1 at 15.
[56] *Id*.

C. Revegetation Locations and In-kind Mitigation

Whenever possible, mitigation efforts should take place directly where the impacts occurred.[57] If it is infeasible to mitigate onsite, then another nearby location within the same creek should be required. In the event there are no other revegetation sites available in the watershed, a nearby watershed is another less desirable offsite revegetation option. As outlined in the CDFW SAA, "Restoration is conducted with the primary intent that it will be located at the project areas or along the same drainage near the project/impact area. If these locations are not suitable, restoration is then located in an adjacent watershed."[58] As a last result, the impact may be mitigated in another area known as a "mitigation bank." In Santa Barbara County, the Lake Los Carneros Mitigation Bank has served as SBCFCWCD's alternative restoration site which includes a total of 6.5 acres of revegetated habitats.

The County's CEQA Thresholds and Guidelines Manual also directs mitigation to be located onsite or as close to the area of impact as possible whenever feasible, and that offsite mitigation is least preferred.[59] SBCFCWCD employs this same hierarchical approach favoring onsite mitigation, offsite but within the same creek, offsite in a nearby creek, or as a last resort, at the Lake Los Carneros Mitigation Bank. [60]

Mitigation should also be in-kind with the replacement vegetation matched to the habitat type impacted.[61] During surveys EDC noted that some SBCFCWCD revegetation sites, such as the Cathedral Oaks Village Association ("COVA") sites described below, include upland species planted to replace riparian species. The Lake Los Carneros Mitigation Bank allows this but employs a lower ratio (.75:1) for upland vegetation to compensate for not replacing riparian species in-kind with riparian species.[62]

D. Mitigation Banks

The SAA requires mitigation in the form of revegetation at or near the site of the impact but allows for revegetation at the Lake Los Carneros Mitigation Bank when nearby sites are not available.[63] "Mitigation banking is a system of credits and debits devised to ensure that ecological loss, especially loss to wetlands and streams resulting from various development works, is compensated by the preservation and restoration of wetlands, natural habitats, and

[57] CDFW (2015) Section 3.4 Revegetation Plan and Restoration Goals at 15; *See also* Santa Barbara County, *CEQA Thresholds and Guidelines Manual* at 32 – 33 available at https://www.countyofsb.org/ceo/asset.c/479 (2008) ("Santa Barbara County (2008)").
[58] CDFW (2015) Section 3.4 Revegetation and Restoration Goals at 15.
[59] Santa Barbara County (2008).
[60] Maureen Spencer, Operations Manager, SBCFCWCD, personal communication with Natalie Blackwelder, Watershed Program Intern, EDC, and Brian Trautwein, Environmental Analyst/ Watershed Program Coordinator, EDC (February 19, 2022).
[61] Santa Barbara County (2008).
[62] SBCFCWCD, *Los Carneros Mitigation Bank Goleta, CA Progress Report* at 1, 2, and 13 (2021).
[63] CDFW (2015) at 4.

streams in other areas so that there is no net loss to the environment."[64] Mitigation banks can be an effective way to compensate for the loss of habitat because they may result in larger contiguous areas of habitat and thereby reduce the potential for edge effects, which are adverse ecological effects that occur when natural habitats have large perimeters relative to size and may decrease the efficacy of a restored area.[65] Edge effects can allow new invasive, nonnative species that are better adapted to disruptions to take root, undermining revegetation goals.[66] Mitigation banks are typically larger areas which have smaller perimeter to size ratios and therefore may reduce edge effects.

Further, mitigation banks are more economical to build and manage over the long-run.[67] For example, it is easier to install irrigation on a one-acre area than ten different irrigation systems in ten .1-acre areas.

However, in the context of ecological restoration, mitigation banks can be less desirable for several reasons. For example, they often only require a one-to-one (1:1) mitigation ratio as opposed to site-specific revegetation sites that may require higher ratios.[68] Further, mitigation banks allow revegetation to occur offsite from the direct ecological impact, which prevents those impacted areas from getting restored. As a result, mitigation banks can result in fewer and more widely dispersed albeit larger habitats separated by greater distances which may impair wildlife movement between habitats.

In preparing this report, EDC considered the mitigation ratios required in the CDFW SAA, the SAA's ten-year mitigation reset period discussed below in I.E., information about mitigation ratios used for other temporary and permanent habitat removal projects, the SAA success criteria and requirements for tracking and reporting success, and the short-term and long-term mitigation success at the SBCFCWCD's revegetation sites. EDC identified recommendations regarding mitigation ratios for SBCFCWCD's revegetation program which are included at the end of this report.

E. Mitigation for Repeated Impacts in the Same Locations

SBCFCWCD is required to mitigate one time for repeated temporary impacts in the same location for a period of ten years. Thus, if creek maintenance temporarily removes habitat from the same location multiple times during a ten-year period, SBCFCWCD must only mitigate the impacts of that repeated impact once per decade. However, mitigation would again be required the first time this same area is impacted after the decade has elapsed.

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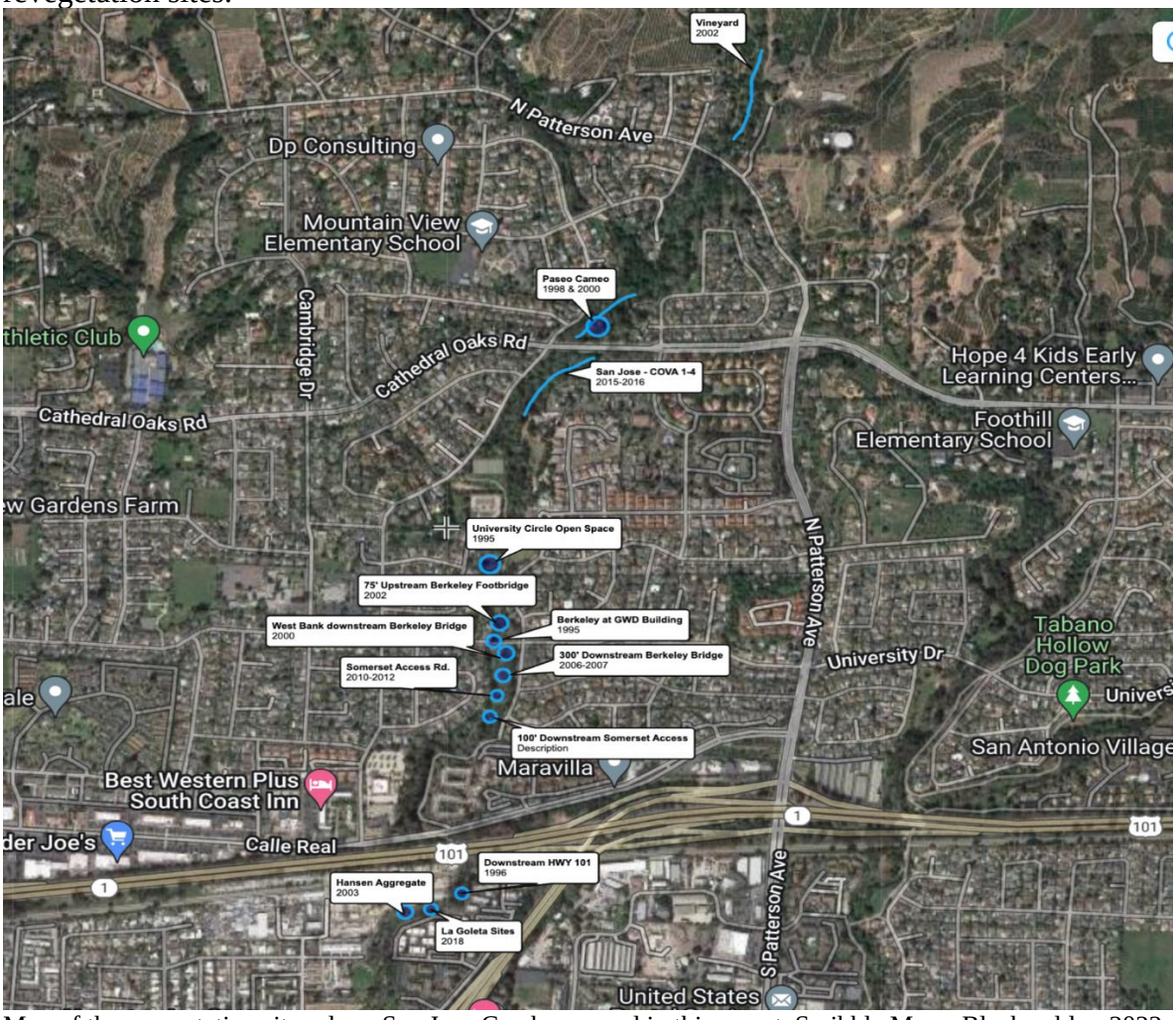
[64] Virkam Jhawar, *Understanding the Basics of Mitigation Banking* available at https://www.investopedia.com/articles/dictionary/031615/understanding-basics-mitigation-banking.asp (January 31, 2022).
[65] DUDEK, *Mitigation Bank Advantages* (2011) ("DUDEK (2011)").
[66] Vallejo, David, *Edge effects and habitat fragmentation* (2018).
[67] DUDEK (2011).
[68] *Id*.

IV. SAN JOSE CREEK REVEGETATION SITES[69]

EDC's analysis of the success of nineteen revegetation sites on San Jose Creek is set forth below along with site-specific recommendations. The SBCFCWCD's descriptions of the nineteen revegetation projects are found in the SBCFCWD's Annual Plans and Maintenance and Revegetation Reports. Information regarding the long-term success and current status of the nineteen revegetation sites is derived from observations during EDC's surveys of creek revegetation sites.



Map of the revegetation sites along San Jose Creek assessed in this report. Scribble Maps. Blackwelder. 2022.

[69] EDC evaluated nineteen revegetation sites on San Jose Creek. The following three sites failed and/or could not be located and were not visited: Cavaletto Site (Site 3) was unsuccessful. (SBCFCWCD, *Maintenance and Revegetation Report 1997/1998 Maintenance Season* (December 1, 1998)); The site one hundred feet downstream from Berkeley Footbridge (Site 6) was having limited success. (SBCFCWCD *Maintenance Work Performed During 1995/1996 Maintenance Season and Revegetation Update* (December 1, 1996)); The site upstream from Hollister Avenue behind pipe and wire revetment (Site 9) SBCFCWCD personnel were unable to provide a location or directions to this site due to the fact it predated current staff's employment by the SBCFCWCD.

A. Vineyard Road Site

SBCFCWCD revegetated a site on the west bank and western terrace of San Jose Creek between Vineyard Road to the north and North Patterson Avenue to the south in 2002.[70] (Figure 1)

Figure 1. EDC divided the Vineyard Road revegetation site into six sections for evaluation. Google Earth. 2021.

Year Planted: 2002
Size:

- Reported: 10,000 square feet[71]
- Observed: 14,380 square feet[72]

Site Visits: January 24 and 25, 2022

[70] SBCFCWD *Maintenance and Revegetation Report 2003/2004 Maintenance Season* (2004).
[71] SBCFCWCD Annual Maintenance and Revegetation Report (2010-2011).
[72] EDC estimated this site at 14,380 square feet.

Plant Table

Species Planted[73]	**# Planted**	**# Observed**[74]	**Avg height or spread**	**General Condition**	**Estimated % Survival**
Coast live oak	7	7	2'-15'h	Fair to Good	100
Black cottonwood	10	8 - 10[75]	3'-10'h[76]	Fair to Good	80 - 100
Western sycamore	4	0	-	-	0
Willow	89	3 - 7	5'-10'h[77]	Fair to Good	<10
Elderberry	11	2 - 3	1-10	Poor to Good	<30
Coyote brush	23	0 - 3	5'-7'h	Good	<15
Coffeeberry	26	0		-	0
Santa Barbara honeysuckle	13	2 - 4	3'-5'h	Good	<33
Wild blackberry	100	15 - 25	1'-4'h	Fair to Good	15 - 25
Mugwort	50	20 - 28	1' – 6'h .5 – 2' spread	Good	40 - 56
Toyon	13	10	1' – 15'h	Poor to Good	77
California sage	26	6 - 9	3' – 7' h 2' – 10' spread	Good	24 - 34
Gooseberry	20	4	3' – 8'h	Good	20

[73] SBCFCWCD Annual Maintenance and Revegetation Report (2010-2011).
[74] Number of plants observed are estimates of surviving plants installed as part of the revegetation project based on field observations on January 24 and 25, 2022. Numbers may not represent the total number of surviving plants given (1) the potential for surviving plants to have been overlooked during surveys and (2) the potential for naturally-occurring plants to have been mistaken for plants that were installed as part of the revegetation project.
[75] A range of plants observed is listed when it is unclear whether observed plants were planted or are naturally occurring.
[76] The current SAA would require black cottonwoods to be at least twelve feet tall after five years but these plants measure only three to ten feet tall after twenty years.
[77] The current SAA would require red, black, and arroyo willows to be at least fifteen to eighteen feet tall after five years but these trees measure only five to ten feet tall after twenty years.

Estimated Percent Total Cover:[78]

- 4,662 square feet / 14,380 square feet **32.4%** (based on 14,380 square feet[79])
- 4,662 square feet / 10,000 square feet **46.6%** (based on 10,000 square feet[80])

Estimated Percent Total Cover by Section:

- North Section: 500 sq ft / 2,500 sq ft (20%)
- Highly Successful Section: 2,850 sq ft / 3,000 sq ft (95%)
- Oak Hollow Section (understory): 300 sq ft / 3,000 sq ft (10%)
- Field Section: 160 sq ft / 1,600 sq ft (10%)
- Spoil Pile Area Section: 600 sq ft / 1,200 sq ft (50%)
- BMX Area Section (understory): 0 sq ft / 600 sq ft (0%)
- South End West Bank Section: 252 sq ft / 2,480 sq ft (10%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Rockrose (west of trail, spreading east toward revegetation site and creek)
- Vinca (South End West Bank Section)
- Arundo (creek banks and west of trail)
- Shamel ash (South End West Bank Section by trail)
- Algerian or English ivy (climbing up sycamore trees)
- Castor bean (in creek, north end)
- Brazilian pepper (in creek, north end)
- Nonnative grasses (throughout; Spoil Pile Area Section, Field Section, South End West Bank Section; and areas between trail and successful revegetation locations)

Vineyard Road Site Highlights:

- The Highly Successful Section south of Vineyard Road has performed extremely well with nearly a 100% cover by native species including wild blackberry, sage species, and Santa Barbara honeysuckle.
- The large size of this site allows for establishment of continuous habitat and reduces edge effects compared to smaller restoration sites.

[78] Estimated cover is the percentage of cover provided by installed native plants over the revegetation site as a whole. For example, if half of the revegetation site is covered by planted native vegetation, the cover is fifty percent.
[79] EDC estimated the Vineyard Road Revegetation Site as 14,380 square feet based on field measurements and visual estimates of areas planted as described by SBCFCWCD in the 2003 Maintenance and Revegetation Report i.e., "essentially from the top of [west] bank out to the dirt walking/bike path seen in the picture." EDC included the area below the top of the west bank in the south end upstream from North Patterson Avenue which EDC estimates at 2,480 square feet.
[80] SBCFCWCD estimates the Vineyard Revegetation Site as 10,000 square feet in the 2003 Maintenance and Revegetation Report.

- The perennial nature of the Creek creates hydrological conditions which support native plant establishment.
- The project revegetates a section of San Jose Creek used by resident and potentially anadromous endangered southern California steelhead and threated California red-legged frogs.

Vineyard Road Site Recommendations:

The following actions are recommended to fulfill the current CDFW SAA revegetation success criteria:[81]

- Entire site: Eradicate perennial invasive and aggressive non-native plants listed above and control nonnative grasses and forbs.

- South End West Bank
    - Remove or solarize all nonnative grasses for three consecutive years and then plant 200 blackberries on 3' centers to establish native understory.
    - Plant toe of wet bank three feet above creek bed with red, black, and/or arroyo willow trees on ten-foot centers. Plant mugwort underneath willows.
    - Plant lower two-thirds of west bank with twenty-five black cottonwoods on average fifteen-foot centers. Plant five coast live oaks on top third of west bank.

- North End
    - Remove nonnative grasses and weeds prior to seed set or solarize these invasive species west and east of the trail for three consecutive years. Then plant wild blackberries on six-foot centers, five to ten gooseberries, four to six Santa Barbara honeysuckle plants, and four to six coast live oak trees between the trail and the areas of successful revegetation.

- BMX Course
    - Chip wood pile and spread as woodchips.
    - Plant sixty wild blackberries on six-foot centers. Cage plants using chicken wire to prevent vandalism for five to ten years or until blackberries reach fifty percent cover then remove cages using wire cutters to avoid damaging vines.

- Spoil Pile Area
    - Remove nonnative grasses prior to seed set for two to three consecutive years or solarize and plant spoil pile and open field south of spoil pile with blackberries on six-foot centers and fifteen to twenty coast live oak trees.

[81] EDC acknowledges that the current SAA was approved in 2015 and that revegetation occurred prior to the approval of the current SAA but believes the 2015 SAA provides useful success criteria for measuring long-term effectiveness of revegetation projects.

- Oak Hollow / Field
    - Plant fifty to eighty blackberries under the large oak tree's dripline. Cage plants using chicken wire to prevent vandalism.
    - Remove all grasses and weeds from field by removing for three consecutive years prior to seed set or solarize these invasives. Plant with fifty blackberries, three to five gooseberries, and four to six Santa Barbara honeysuckle plants. Cage to prevent vandalism.
    - Remove cages after five to ten years or once blackberries reach fifty percent cover. Remove cages using wire cutters to avoid damaging vines.

Photos

Figure 2. North End of Vineyard Site. Successful establishment of blackberry understory with gooseberry in center of photo. Trautwein. January 25, 2022.

Figure 3. North end of Vineyard Site looking north from trail. Note the failure to establish native vegetation cover between the trail and the Creek. Successful establishment or oaks (presumably two of seven planted at Vineyard site). Trautwein. January 25, 2022.

Figure 4. North end of Vineyard Site looking southeast. Successful establishment of toyon and Santa Barbara honeysuckle. Trautwein. January 25, 2022.

Figure 5. Highly Successful Section of Vineyard Site with estimated 95% cover (estimated 2,850 square feet out of 3,000 square feet). Gooseberry and California sage. Trautwein. January 25, 2022.

Figure 6. Southwest edge of Highly Successful Section of Vineyard Site looking north by northeast. Large toyon in center of image. Note lack of native vegetation between toyon and trail in lower left and bottom portions of photo. Trautwein. January 25, 2022.

Figure 7. Highly Successful Section of Vineyard Site looking south across area with nearly 100% native cover of blackberries and California sage. Trautwein. January 25, 2022.

Figure 8. Looking south along trail from Highly Successful Section of Vineyard Site to Oak Hollow Section (center) and Spoil Pile Area Section (center right). Note toyon on left is the same plant shown in Figure 6. Trautwein. January 25, 2022.

Figure 9. Spoil Pile Area Section with oaks established on spoil pile. Herbaceous layer is dominated by nonnative grasses. Scattered wild blackberry and mugwort also present. Trautwein. January 25, 2022.

Figure 10. Spoil Pile Area Section (right side) looking north along trail to Field Section containing nonnative grasses and Oak Hollow Section (upper center). Trautwein. January 25, 2022.

Figure 11. Field Section containing mostly nonnative weeds between Highly Successful Section (to left of picture), Spoil Pile Section (center right), east of trail, and west of San Jose Creek bank. Trautwein. January 25, 2022.

Figure 12. Oak Hollow Section. Scattered wild blackberry in understory. Lack of wild blackberry understory may be the result of vandalism. Trautwein. January 25, 2022.

Figure 13. BMX Section. No native understory plants established likely due to BMX course established in this location and associated removal of native understory. Trautwein. January 25, 2022.

Figure 14. Pile of deadwood likely created during clearing of area to construct BMX course. Trautwein. January 25, 2022.

Figure 15. South End West Bank Section dominated by nonnative grasses. Note mugwort plants (tall thin plants center and right), and coast live oak and cottonwood saplings (orange flagging tape center left). Trautwein. January 25, 2022.

Figure 16. South End West Bank Section. Mugwort plants amidst dense nonnative grasses dominating this section of Vineyard Revegetation Site near North Patterson Avenue. Trautwein. January 25, 2022.

Figure 17. Small, four-foot tall, healthy black cottonwood sapling. South End West Bank Section. Trautwein. January 25, 2022.

Figure 18. Successful willow saplings near toe of west bank at South End West Bank Section, near North Patterson Avenue. Note extensive nonnative grass understory. Trautwein. January 25, 2022.

Figure 19. Scattered mugwort plants surrounded by dense nonnative grasses. South End West Bank Section near North Patterson Avenue. Trautwein. January 25, 2022.

Figure 20. Successful willow sapling (left side of image) established on South End West Bank Section near North Patterson. Smaller cottonwood sapling to right of willow. Note extensive nonnative grasses. Trautwein. January 25, 2022.

Figure 21. Small thirty-inch-tall black cottonwood sapling at South End West Bank Section of Vineyard Site. Note extensive nonnative grasses. Trautwein. January 25, 2022.

Figure 22. Small cottonwood sapling on South End West Bank Section of Vineyard Site. Trautwein. January 25, 2022.

Figure 23. Trail at South End West bank Section of Vineyard Site. Note Patterson Avenue Bridge in background. Nonnative oxalis and grasses dominate strip along trail's edge. Trautwein. January 25, 2022.

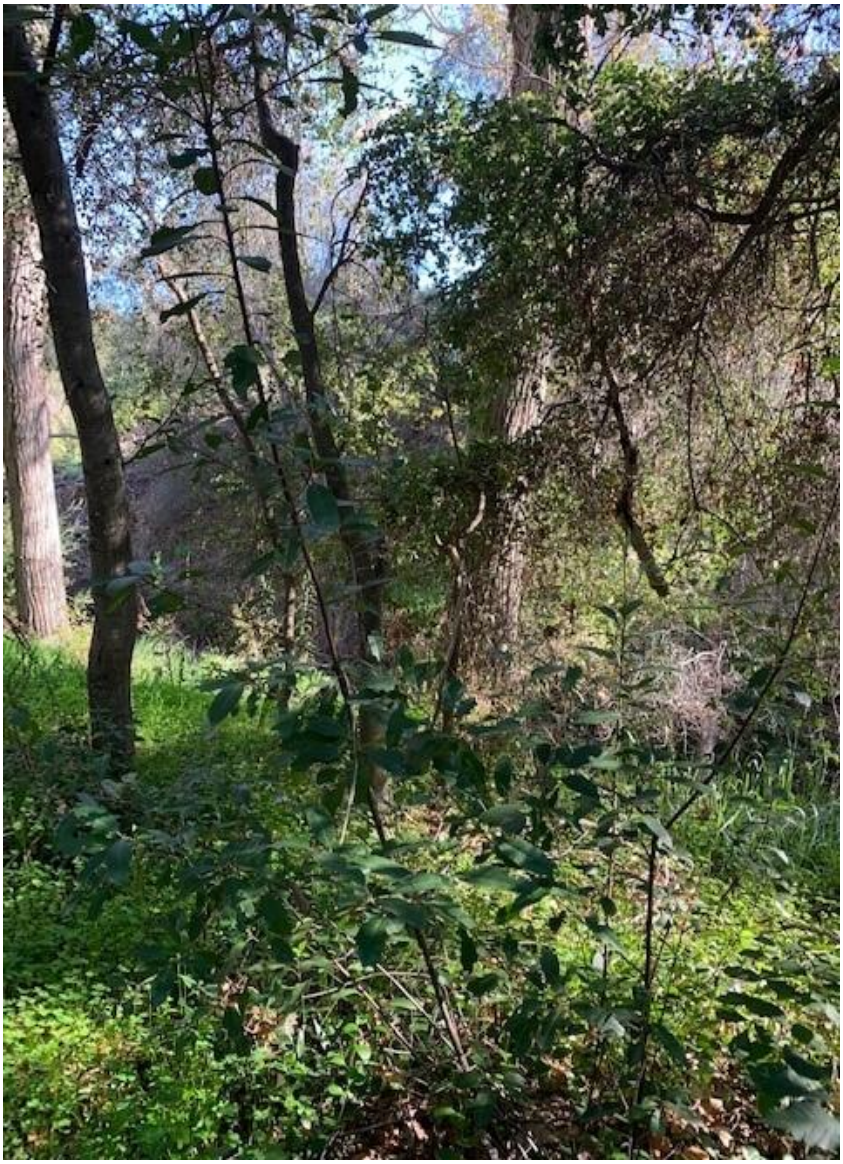


Figure 24. Toyon in shade of oak canopy. South End West Bank Section of Vineyard Site adjacent to trail near Patterson Avenue Bridge. Understory dominated by nonnative oxalis and vinca. Trautwein. January 25, 2022.

B. Norma Site (Site 1)

SBCFCWCD installed rip rap to repair an eroded bank and planted many willow trees to restore riparian habitat.[82]

Year Planted: First planting 1996, second planting 1997, third planting 1998
Size: 300 feet x 20 feet = 6,000 square feet[83]
Site Visit: February 25, 2022

[82] SBCFCWCD *Annual Maintenance and Revegetation Report 1996/1997 Maintenance Season* (1997).
[83] EDC observed a revegetated area that measured approximately two hundred feet by twenty feet, or 4,000 square feet.

Plant Table

Species	**# Planted**	**# Observed**	**Avg. Height or Spread**	**General Condition**	**Estimated % Survival**
Willow	Unknown	>40	20-35' tall, 4-10" DBH	Fair-Good some dead	Unknown
Coast Live Oak	Unknown	-	15' tall	Good	Unknown
Blackberry	Unknown	-	-	Good	Unknown
Wild Cucumber	Unknown	-	-	Good	Unknown

Estimated Total Percent Cover:

- Understory 75-80% native vegetation
- Overstory 95% native vegetation

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Oxalis
- Wild Grasses
- Arundo
- Shamel Ash
- Wild Radish
- Eucalyptus

Norma Site Highlights:

- Remarkably high native willow canopy percent cover.
- Good example of revegetating bank that had been eroded by high flows.
- Apparent perennial or near perennial flows support healthy willow woodland.
- A lot of willows were present and in fairly good condition

Observation:

- Rip rap was used to stabilize the Creek bank. It appears that the willows are growing above the rip rap but not from within it. It is unclear if willow wattling was used within the rip rap.

Norma Site Recommendations:

- Remove invasive Arundo, aggressive nonnative Shamel ash, and naturalized olive tree to fulfill success criteria related to presence of woody nonnative vegetation.[84]
- Diversify the understory with more mugwort, blackberries, and giant rye.
- Diversify the riparian tree overstory with more cottonwoods, bay laurels, and sycamore trees.
- Remove eucalyptus tree(s) on east of site.

Figure 25. Looking downstream San Jose creek at the Norma Site (Site 1). Successful establishing of willow woodland. Note the riprap installed on the west bank. This site was visited in late February/early March and water was still flowing. All of the surviving revegetation is located above the installed rip rap. Trautwein. March 7, 2022.

[84] CDFW (2015) at 17.

Figure 26. Looking down the west bank of San Jose Creek at the Norma Site. Note the understory is primarily nonnative grasses, and poison oak, however in the lower foreground are young black cottonwoods and a coast live oak sapling about 3' tall. These appear to be from natural recruitment. Blackwelder. March7, 2022.

Figure 27. West bank of San Jose Creek at Norma Site above the installed rip rap. The understory is primarily nonnative grasses. Coast live oak sapling about four feet tall in the right third of the photo. There is nonnative, invasive Arundo in the background along the upper mid-right edge. Blackwelder. March 7, 2022.

Figure 28. Nonnative grasses and oxalis on west bank San Jose Creek at the of Norma Site. There are also oaks and willows in the background near the top of the image. Blackwelder. March 7, 2022.

Figure 29. Along the trail west of the Norma Site on San Jose Creek. Understory is primarily nonnative grasses and poison oak. The upper half of this image shows the thick cover of willow trees planted on the west bank, with coast live oak saplings appearing through natural recruitment. Blackwelder. March 7, 2022.

Figure 30. Naturalized olive tree (dark waxy lanceolate leaves), poison oak and native wild cucumber. Ground covered includes nonnative oxalis. Blackwelder. March 7, 2022.

Figure 31. Looking north along the trail at the Norma Revegetation Site on the west bank of San Jose Creek. The trail runs parallel to the Creek. Note the dense willow woodland along the right side of the trail. These trees contribute to a healthy native riparian habitat. Ideally there would be more plant species diversity in the overstory and groundcover along this section of the Creek. Blackwelder. March 7,

C. Paseo Cameo (Site 11)

The Paseo Cameo Site located within a County Open Space on Paseo Cameo Road experienced significant erosion after a heavy storm in 1997 which eroded the east bank, parkland, and part of Paseo Cameo.[85] SBCFCWCD repaired the tall east bank of San Jose Creek which had eroded in 1998, installed rip rap at the base of the bank, and planted willow trees to restore habitat and stabilize the bank.[86]

Year Planted: April 1998 and Spring 2000
Size: 150 feet x 40 feet = 6,000 square feet[87]
Site Visit: March 7, 2022

Plant Table

Species	# Planted	# Observed	Avg. Height or Spread	General Condition	Estimated % Survival
Willow	100	25	< 45' h	Fair to Good. 6 dead	25%

Estimated Percent Cover: 95-100%

Other native plants present:

- Coast live oak
- Wild blackberry

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nasturtium
- Nonnative grasses including wild oats and brome

Paseo Cameo Site Highlights:

- In 2022, twenty-two to twenty-four years after planting, the site boasts nearly 100% cover of native willow trees installed by SBCDCWCD, and approximately ten coast live oak saplings and several bay laurel saplings which have been added through natural recruitment. While percent survival is below the success criterion in the 2015 CDFW SAA[88] the 100% cover indicates the site has been successful in establishing native riparian trees.

[85] Neighbor on Paseo Cameo, personal communication with Natalie Blackwelder, EDC Watershed Program Intern, and Brian Trautwein, Environmental Analyst/Watershed Program Coordinator, EDC (February 22, 2022).
[86] SBCFCWCD *Annual Maintenance and Revegetation Report 1997/1998 Maintenance Season* (December 1998).
[87] SBCFCWCD *Annual Maintenance and Revegetation Report* (2000).
[88] CDFW (2015) at 17.

Paseo Cameo Site Recommendations:

- Introduce more riparian tree and shrub diversity (i.e., cottonwoods, sycamores, coast live oaks, toyon, gooseberry, and coffeeberry).
- Remove nasturtium and nonnative grasses and plant the understory with greater diversity of native groundcovers (i.e., mugwort, wild blackberry, and giant wild rye grass).
- Relocate the wood rail fence twenty feet out from the top of the bank and plant coast live oak trees and native oak woodland understory species such as mugwort, hummingbird sage, and giant wild rye grass in this area.

Figure 32. Paseo Cameo Site. Wood rail fence installed after 1998 storm eroded bank approximately twenty-five feet into street. One hundred willows were planted on the east creek bank inside the fence. Site experiencing natural recruitment of coast live oak and bay laurel saplings. Trautwein. March 7, 2022.

Figure 33. Paseo Cameo. Willow trees as tall as forty feet comprise the riparian canopy but the understory is mostly devoid of vegetation and contains nonnative species. Trautwein. March 7, 2022.

Figure 34. Paseo Cameo site with wood rail fence in foreground. Note the amputated branches of the willow tree above the fence. Most trees along this stretch seem to be in fair to good condition. Trautwein. March 7, 2022.

D. North of Cathedral Oaks (Site 2)[89]

SBCFCWCD stabilized the east bank in 1995 and planted willow and sycamore trees and wild blackberry between 1996 and 2000 north of the Cathedral Oaks Bridge.[90] In 1987 maintenance work resulted at this location impacted riparian habitat and a steelhead spawning pool leading to public complaints which led to preparation of the first Program EIR in 1990, approval of a CDFW SAA, and significant changes in SBCFCWCD's standard maintenance practices.

Year Planted: First planting Spring 1996; second planting April 1998 (willow and sycamore trees); third planting Spring 2000 (blackberries).
Size: 300 feet x 10 feet = 3,000 square feet
Site Visits: March 7 and March 22, 2022

[89] SBCFCWCD describes this site as being located on the outside bank (east bank) upstream from the Cathedral Oaks Road Bridge.
[90] SBCFCWCD *Annual Maintenance and Revegetation Report 2000/20001 Maintenance Season* (2001).

Plant Table

Species	**# Planted**[91]	**# Observed**	**Avg. Height or Spread**	**General Condition**	**Estimated % Survival**
Willow	Unknown	11[92]	15' – 30' h	Fair	Unknown
Sycamore	"a couple"	8[93]	20' - 45' h	Good	High
Blackberry	Unknown	Four stands	10' - 40' s	Fair to Good[94]	Unknown

Estimated Total Percent Cover:

- The willows, blackberries, and naturally occurring bay and oak saplings located above the pipe and wire revetment create an estimated 70% - 80% cover.

- The sycamores and blackberries near the northern terminus of the access ramp form a nearly 100% cover.[95]

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Shamel ash trees
- Brazilian pepper tree
- Vinca
- Cape ivy
- Nasturtium
- Oxalis

North of Cathedral Oaks Site Highlights:

- The Site boasts a high percent cover on the east bank with blackberries and sycamores[96] where the access ramp terminates on the Creek bank.
- The size of the sycamores as tall as forty-five feet demonstrates excellent growth and success at the access ramp's terminus. [97]

[91] SBCFCWCD *Maintenance and Revegetation Report, 1997-1998 Maintenance Season* (December 1998).
[92] Given the planting date of 1998, it is unclear how many of the willow trees were planted and how many may be naturally occurring. Of the eleven observed, six were located above the revetment and believed to be planted. The remaining five are located below the revetment and are likely natural occurring because we do not believe the SBCFCWCD planted trees in the streambed.
[93] The sycamores ranged from 4" to 12" DBH and 20' to 45' tall. Given that only a "couple" were planted, it is likely that several are naturally occurring., including two that appear to be growing below the pipe and wire revetment.
[94] The health and size of the blackberry stands increased going from downstream near the Cathedral Oaks Bridge to upstream adjacent to the access ramp.
[95] The sycamores and blackberries near the access ramp may be naturally occurring.
[96] *Id.*
[97] *Id.*

- Natural recruitment of four California bay laurel, and several coast live oak and black cottonwood saplings above and east of the pipe and wire revetment indicates that this riparian habitat revegetation site is developing into a more robust, diverse, and mature plant community.

North of Cathedral Oaks Site Recommendations:

- Eradicate cape ivy in area north of Cathedral Oaks and along access road.
- Remove Arundo patch on east bank near Cathedral Oaks Road.
- Eradicate patches of Arundo on west bank near access ramp.
- Eradicate periwinkle, oxalis, and nasturtium on east Creek bank and along the access road and ramp. Control nonnative grasses.
- Plant cottonwood trees on top of rock revetment on west bank near access ramp.[98]
- Plant willow poles within rock revetment on west bank near access ramp.
- Extend plantings east from narrow strip of plantings atop east bank near Cathedral Oaks Bridge to widen riparian habitat and enhance Creek buffer.

Figure 35. San Jose Creek looking upstream (north by northeast) from Cathedral Oaks Bridge at willows planted on east (right) bank.
Figure 36. Willow on east bank and dead *Arundo donax* stalks in foreground likely remaining after SBCFCWCD eradication efforts. Trautwein. March 22, 2022.

[98] While the site is limited to the east bank, and west bank near the access ramp was reconstructed using rock rip rap and lacks riparian tree cover.


Figure 37. Willows on east bank of San Jose Creek and Arundo recovering between trees.
Figure 38. Arundo not fully eradicated is surviving around base of willow tree. Trautwein. March 22, 2022.


Figure 39. Nasturtium in riparian understory below willow tree on east bank upstream from Cathedral Oaks.
Figure 40. Willows along east bank next to SBCFCWCD access road. Trautwein. March 22, 2022.


Figure 41. Willow trees on east bank of San Jose Creek at North of Cathedral Oaks Site.
Figure 42. Willow trees with bay laurel sapling recruitment and wild blackberry. Trautwein. March 22, 2022.

E. Cathedral Oaks Village Association Sites

SBCFCWCD obtained approval from COVA in 2015-2018 to revegetate four sites on COVA property along San Jose Creek near Cathedral Oaks Road and Kellogg Avenue.[99] (Figure 43) These four sites are evaluated below. COVA was required by CDFW to revegetate riparian habitat to mitigate the impacts of unauthorized clearing of riparian vegetation adjacent to Cathedral Oaks Village. However, EDC did not identify any revegetation sites attributed to COVA to mitigate the impacts of its clearing of riparian habitat. Instead, EDC observed SBCFCWCD's four revegetation sites planted as mitigation for the Annual Maintenance Program's impacts to San Jose Creek. Thus, it appears that COVA did not implement revegetation projects as required by CDFW, or COVA has improperly double counted SBCFCWCD's revegetation projects as mitigation for COVA's clearing of riparian habitat. In either case, COVA has yet to implement revegetation for the extensive riparian habitat COVA removed along the east side of San Jose Creek

COVA #1

This site is located on a steep north-facing upland slope south of Cathedral Oaks Road below Cathedral Oaks Village. SBCFCWCD obtained COVA's approval to revegetate COVA Sites #1[100] and #2, provided all labor and materials, including irrigation lines and was credited with mitigation for both Sites.[101] (Figure 43) COVA supplied irrigation water. However, COVA Sites #1 and #2 were required by CDFW to serve as mitigation for COVA's clearing of riparian

[99] SBCFCWCD *Maintenance and Revegetation Report, 2020-2021 Maintenance Season* (July 2021); Personal Communication, Andrew Raaf, Environmental Team Leader, SBCFCWD to Brian Trautwein, Senior Analyst/Watershed Program Director, EDC (August 25, 2022) ("Raaf (2022)").
[100] COVA Site #1 does not appear to have been successfully revegetated as described herein.
[101] SBCFCWCD *Maintenance and Revegetation Report 2020-2021 Maintenance Season* at 49-50 (July 2021); Raaf (2022).

habitat within San Jose Creek.[102] Given that these sites were revegetated by SBCFCWCD, COVA has yet to implement revegetation required by CDFW to mitigate the effects of COVA's riparian habitat clearing along San Jose Creek.[103]

Year Planted: 2015-2018
Size: 1,900 square feet[104]
Site Visits: January 23, 2022, January 27, 2022, and January 30, 2022

Figure 43. The four COVA revegetation sites east of San Jose Creek south of Cathedral Oaks Road. Google Earth. 2021.

Plant Table

Species Planted	# Planted[105]	# Observed	Avg Height or Spread	General Condition	Estimated % Survival[106]

[102] Email from Natasha Lohmus, retired CDFW, to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (January 28, 2022) ("Lohmus (2022)"); *See also* CDFW Streamed Alteration Agreement 1600-2012-0132-R5 (2012).
[103] Lohmus (2022).
[104] SBCFCWCD *Annual Maintenance and Revegetation Report* (2020-2021).
[105] "Approximately 400 plants were planted at the two sites" (COVA 1 and COVA 2), SBCFCWCD *Annual Maintenance and Revegetation Report* (2015-2016).
[106] Only twenty-nine surviving plants were observed at COVA Sites #1 and #2 combined, less than 10% survival.

Willows	Unknown	0	-	-	0
Elderberry	Unknown	4[107]	2' – 8' h	Poor to Good	Unknown
Blackberry	Unknown	0	-	-	Unknown
Wildrye	Unknown	1	10 sq ft s	Fair	Unknown
Deergrass	Unknown	0	-	-	0
Toyon	Unknown	0	-	-	0

Estimated Percent Total Cover:

- Fifty percent (50%) cover including mugwort which is not on the planting list.[108]
- Estimated percent total cover is less than ten percent (10%) excluding mugwort.

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Kikuyu grass
- Shamel ash
- Oxalis
- Yucca tree
- Cape ivy

COVA Site #1 Highlights:

- Cooperation with landowners is beneficial because it greatly increases opportunities for onsite mitigation.
- Location of COVA Site #1 adjacent to UCC's San Jose Creek Restoration Site has the potential to magnify environmental enhancement and benefits for birds and wildlife.

COVA Site #1 Recommendations:

- Control invasive plant species through weeding and/or solarization then seed with mugwort from locally collected source.
- Remove ash and yucca trees.
- Replant wild blackberries at five-foot centers.
- Plant three coast live oak trees and five elderberries.

[107] Two of these four are large healthy elderberry plants but are located outside of COVA #1 and may be naturally occurring or may have been planted by UCC or Audubon Society as part of the County-approved San Jose Creek Restoration Project.
[108] SBCFCWCD *Annual Maintenance and Revegetation Report* (2015-2016).

- Increase plant diversity by planting additional shrub and understory species such as toyon, coffeeberry, hummingbird sage, gooseberry, and wild rose propagated from plant materials collected along San Jose Creek near COVA.

Figure 44. COVA Site #1. This site was one of the sites COVA was supposed to plant as mitigation for COVA's clearing of riparian habitat, but it was planted by SBCFCWCD as part of its Annual Maintenance Program, therefore COVA must still implement revegetation to mitigate the effects of COVA's riparian vegetation removal. This site is dominated by nonnative weeds, including oxalis, kikuyu grass, dandelion, and cape ivy which are visible using binoculars from the Cathedral Oaks Road Right of Way. (Figure 44b) Yucca trees and a Shamel ash are also present. Four hundred native deergrass, willow trees, elderberry, toyon blackberry, and wildrye plants were reportedly installed by SBCFCWCD at COVA Site #1 and #2 in 2016, however only one giant wild ryegrass, and one to two elderberries including one which has been knocked down by a fallen limb are present at COVA Site #1. Two other elderberries are located outside COVA Site #1 and it is unclear if they were planted by SBCFCWCD or as part of UCC's San Jose Creek Restoration Project or are naturally-occurring. COVA Site #1 is largely dominated (over 50% cover) by invasive nonnative herbaceous vegetation including oxalis and kikuyu grass. Mugwort is also common but is not one of the species planted. CDFW SAA success criteria require <5% cover by herbaceous invasive plants but this criterion is not being met. Irrigation lines are still present but appear to be in disuse. Trautwein. January 30, 2022. Figure 44b. Photographer location. On-X.

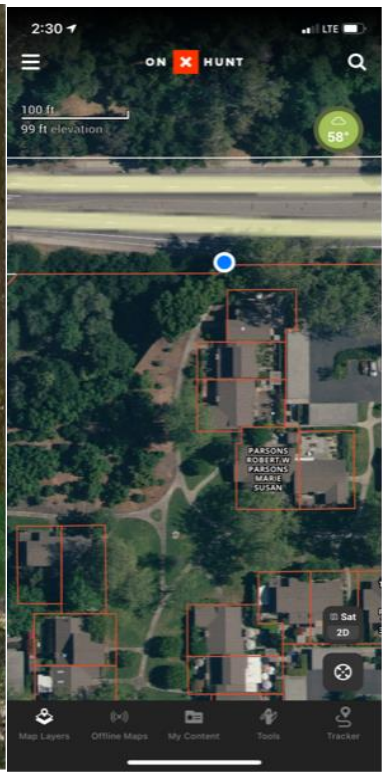


Figure 45. COVA Site #1 is located on the slope behind and under trees in the background of this image. The center of this image is a portion of UCC's San Jose Creek Restoration Project Site #1 which was cleared incrementally by COVA between 2007 and 2018. Note one of two healthy elderberries naturally occurring or planted near COVA Site #1 (upper right quadrant right of image). Trautwein. January 2022.

COVA #2

SBCFCWCD obtained COVA's approval to plant this northwest-facing slope and provided all the materials (other than irrigation water) and labor.[109] The slope is in an upland setting and was planted primarily with upland species rather than riparian species.

Area: 2,700 square feet[110]
Year Planted: 2015-2016[111]
Site Visits: January 23, 2022, January 27, and January 30, 2022

[109] Raaf (2022).
[110] SBCFCWCD *Maintenance and Revegetation Report* for 2020-2021 Season at 49 (July 2021).
[111] *Id*. at 49 – 52.

Plant Table

Species Planted[112]	**# Planted**[113]	**# Observed**	**Avg Height or Spread**	**General Conditions**	**Estimated % Survival**[114]
Willow	Unknown	1	10' h	Poor	Unknown
Deergrass	Unknown	1	3' s	Fair	Unknown
Giant wildrye	Unknown	9	6' s	Fair to Good	Unknown
Mulefat	Unknown	4	5' - 10' h	Fair to Good	Unknown
Toyon	Unknown	3	7' h	Fair	Unknown
Coyote brush[115]	Unknown	1	5' h	Fair to Good	Unknown
Coast live oak	Unknown	1	15'	Good	Unknown
California sage	Unknown	3	3' h, 3' – 5' s	Fair to Good	Unknown
White sage	Unknown Unknown	1	2' h X 2' s	Fair	Unknown

Estimated Percent Cover: Eighty Percent *(*80%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nasturtium
- Oxalis

COVA Site #2 Highlights:

- Upland species such as sages and coast live oak are performing well.
- Restoration of upland habitat adjacent to riparian habitat increases plant and habitat diversity and provides transitional areas for wildlife species.

[112] At least one species is not the local native variety which raises the concern that none of the species planted in COVA Site #2 are local genotypes.
[113] The number of plants installed at COVA Site #2 is not provided in the Maintenance and Revegetation Reports however approximately 400 native plants were installed at COVA Sites #1 and #2 combined. SBCFCWCD *2017-2018 Maintenance and Revegetation Report* at 55.
[114] Only twenty-nine surviving plants were observed at COVA Sites #1 and #2 combined, less than 10% survival.
[115] The coyote brush installed at COVA Site #2 does not appear to be the local native variety of coyote brush and should be replaced by appropriate native species of local genotype. Planting non-local genotypes may result in hybridization and impacts to the local native gene pool and is inconsistent with proper restoration protocol which requires use of local genotypes.

COVA Site #2 Recommendations:

- Remove nonnative species and replace them with native oak woodland and coastal sage species.
- Plant riparian vegetation in the cleared area west of COVA Site #2 to restore dense willow riparian woodlands removed by COVA between 2013 and 2015. (See below.) Note: COVA Site #3 was planted by SBCFCWCD and credited as mitigation for the Annual Maintenance Program.[116] COVA should be required to restore riparian vegetation cleared by COVA adjacent to COVA Site #3 to mitigate the impacts of COVA's riparian habitat clearing.

Figure 46. COVA Site #2 showing California sage, mulefat, and toyon surviving with portion of site in lower left quadrant covered by invasive herbaceous species. Trautwein. January 23, 2022.

[116] Raaf (2022).

Figure 47. COVA Site #2 with giant wild ryegrass (center left), deergrass (lower left), coast live oak sapling (upper center-right), and mule fat (left side). Note area in foreground was cleared of riparian vegetation and consists of one hundred percent nonnative species. Trautwein. January 30, 2022.

COVA Site #3

SBCFCWCD planted an upland slope on COVA property with approval from COVA.[117] Adjacent riparian habitat was cleared by COVA around the same time; however, EDC's surveys did not identify revegetation areas planted by COVA.

Area: 2,300 square feet[118]
Year Planted: 2015-2018[119]
Site Visits: January 23, 2022, January 27, 2022, and January 30, 2022

Plant Table

Species Planted	# Planted[120]	Number Observed	Avg. Height or Spread	General Condition	Estimated % Survival[121]
Black sage	Unknown	10	3' – 6' s	Fair to Good	Unknown
Nightshade	Unknown	1	4' h	Fair	Unknown
Willow	Unknown	2	5' – 10' h	Poor	Unknown
Ceanothus[122]	Unknown	2	6' h	Fair	Unknown

[117] SBCFCWCD (2021) at 49; Raaf (2022).; *See also* Aaron Stein, COVA Homeowners' Association personal communication with Brian Trautwein, Senior Analyst/Watershed Program Director (September 9, 2022).
[118] SBCFCWCD *Annual Maintenance and Revegetation Report* (2017-2018) at 56.
[119] *Id*.
[120] The number of plants planted was not provided in Maintenance and Revegetation Reports.
[121] It is impossible to estimate percent survival because the number of plants planted was not provided.
[122] Ceanothus installed at this site is not the local native variety of greenbark or spiny ceanothus (*Ceanothus megacarpa* or *Ceanothus spinosa*) and should be replaced with native plants of local genotypes consistent with habitat restoration protocols.

Coyote brush[123]	Unknown	8	5' h	Fair to Good	Unknown
California sage	Unknown	3-5	3' – 4' h	Fair to Good	Unknown
Nightshade	Unknown	1	4' h	Fair	Unknown
Coast live oak tree	Unknown	1	10' h	Good	Unknown

Estimated Percent Cover:

- 70% including non-local or nonnative coyote brush and ceanothus
- 50% excluding these two species.

Nonnative and Aggressive Plant Species Present in and near Revegetation Site:

- Kikuyu grass
- Nasturtium
- Nonnative grasses
- *Eucalyptus citriodora*

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:[124]

- Jacaranda (observed spreading in other portions of San Jose Creek, including La Goleta Pollinator Garden (See Section II.O. below)).
- Palm tree
- Lemon-scented gum (eucalyptus) tree

COVA Site #3 Highlights:

- Upland coastal sage scrub species and coast live oak trees are well established and healthy.

COVA Site #3 Recommendations:

- Remove all Kikuyu grass by rhizomes for three consecutive years or by solarization.
- Remove medium-sized multi-trunked *eucalyptus citriodora* tree west of Site. This tree was retained when native willows and riparian habitat was removed during 2013-2015 in violation of CDFW SAA No. 1600-2012-0132-R5.

[123] Coyote brush (*Baccharis pilularis*) installed at this site is not a local variety and should be replaced with native plants of local genotypes.
[124] These species were retained while high quality riparian habitat was cleared.

- Remove nonnative or non-local ceanothus and coyote brush and other native species determined to be non-local genotypes.
- Plant local genotype oak woodland species to ensure 80-100% cover within five years pursuant to CDFW SAA success criteria.
- Maintain weeds to ensure < 5% cover by invasive herbaceous species pursuant to CDFW SAA success criteria.
- COVA must plant cleared area west of COVA Site #3 to restore dense willow riparian woodlands removed by COVA between 2013 and 2015 in apparent violation of CDFW SAA No. 1600-2012-0132-R5. (See below.) *Note: SBCFCWCD paid for the plants and labor to install and maintain COVA Site #3 as mitigation for the Annual Maintenance Program. COVA will need to revegetate an area(s) such as the cleared area west of COVA Site #3 as mitigation for COVA's clearing of sensitive riparian habitat in this area.*

Figure 48. COVA Site #3. Large palm tree retained on edge of site when riparian habitat was cleared. Planted species on slope are primarily non-riparian upland species including California sage, black sage, coyote brush and ceanothus. A large area of dense riparian habitat had been removed (lower half of image). Trautwein. January 30, 2022.

Figure 49. COVA Site #3. Nonnative jacaranda tree retained within revegetation site is shading native upland species such as California shade which prefer full sunlight. COVA requested SBCFCWCD to retain nonnative trees in revegetation areas. Understory is comprised of aggressive nonnative herbaceous species including nasturtium. Weedy area in foreground is where riparian habitat was cleared. Trautwein. January 30, 2022.

Figure 50. COVA Site #3. Note healthy coast live oak sapling in upper middle portion of image. Weedy area in lower portion of image is where riparian habitat was cleared. Trautwein. January 30, 2022.

Figure 51. COVA Site #3 (upper right quadrant of image). Lower half of image is where COVA cleared dense willow-riparian woodland with nearly impenetrable understory of blackberries. Area is now comprised of invasive nonnative grasses. Note multi-trunked *Eucalyptus citriodora* tree behind tri-trunked sycamore (left of middle, upper portion of image). Trautwein. January 30, 2022

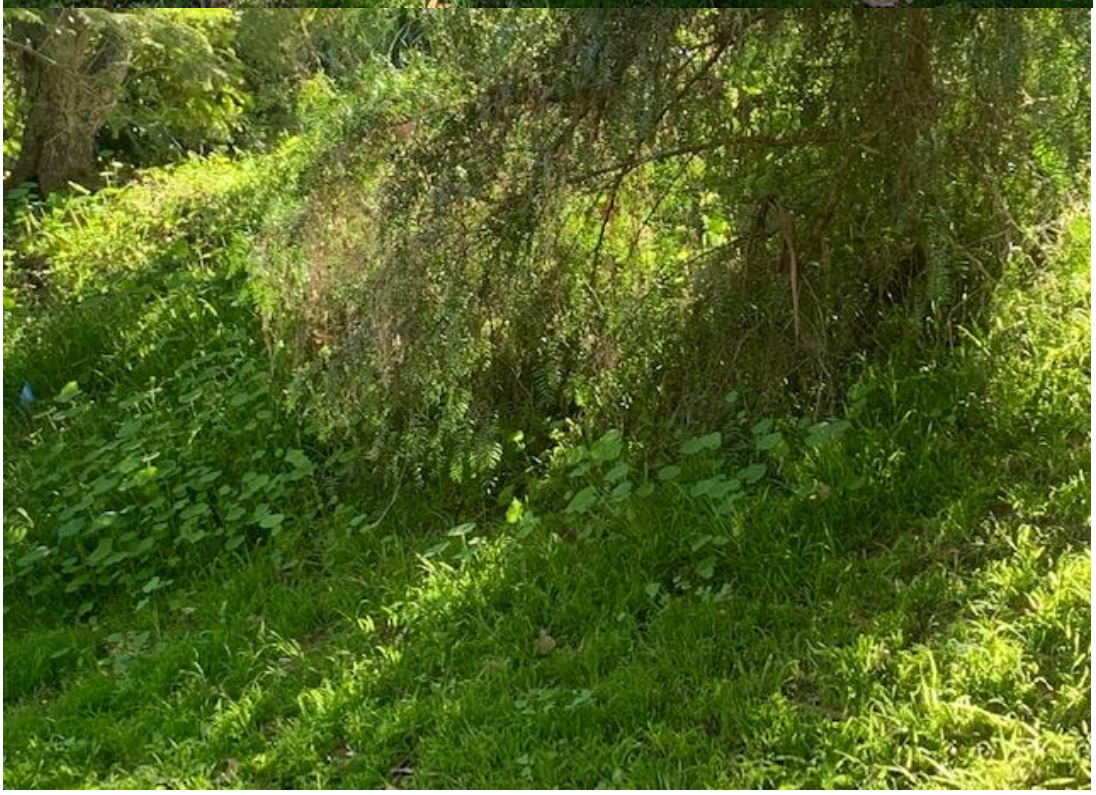


Figure 52. COVA Site #3. Understory in southern portion of site comprised of nasturtium and other aggressive nonnative herbaceous species such as exotic grasses. Trautwein. January 30, 2022.

Figure 53. COVA Site #3. Site is upland plant community which is not in-kind mitigation for loss of riparian vegetation. Trautwein. January 30, 2022.

COVA Site #4

This is the fourth site planted by SBCFCWCD with approval by the landowner, COVA.[125] It is adjacent to the area of riparian habitat that COVA cleared including a large field and approximately one hundred linear feet of the east bank of San Jose Creek. (Figures 54 – 58)

Area: 3,000 square feet[126]
Year Planted: 2019[127]
Site Visits: January 27, 2022 and January 30, 2022

Plant Table

Species Planted	# Planted[128]	# Observed	Avg. Height or Spread	General Condition	Estimated % Survival
Elderberry	Unknown	10	7’ – 12’h	Good	Unknown
Blackberry	Unknown	1,400 sq ft	1,400 sq ft	Good	Unknown
Coyote brush	Unknown	2	8’h	Good	Unknown

[125] Raaf (2022).
[126] SBCFCWCD *Annual Maintenance and Revegetation Report* at 50 (2020-2021).
[127] *Id*.
[128] Two-hundred and fifty plants were installed at COVA Site #4 but there is no information on how many plants of each species were planted. SBCFCWCD *Annual Maintenance and Revegetation Report* at 50 (2020-2021).

Mulefat	Unknown	1 patch	10’ X 7’s	Good	Unknown
Willow	Unknown	1	5’ – 10’	Poor	Unknown

Estimated Percent Cover: 75 – 80%

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Yucca tree
- Nasturtium
- Oxalis
- Italian thistle
- Mallow
- Shamel ash and castorbean along San Jose Creek adjoining COVA Site #4

COVA Site #4 Highlights:

- The elderberries and blackberries planted at this site are performing very well.

COVA Site #4 Recommendations:

- Remove or control oxalis, nasturtium, Italian thistle, mallow, plumbago, and yucca tree.
- Remove Shamel ash on east Creek bank located adjacent to site.
- Remove castor bean (*Ricinus communis*) from Creek area.
- Replace nonnative plants with native coast live oak woodland species from local genotypes to ensure >80% cover within five years pursuant to CDFW SAA success criteria.
- Remove and control weeds to ensure < 5% invasive herbaceous ground cover pursuant to CDFW SAA success criteria.
- Remove exotic vegetation including nonnative grasses and replant adjacent cleared riparian habitat (now a grassy field ~1,200 square feet) and eastern bank of San Jose Creek (~100 linear feet) with native riparian species including arroyo willow (*Salix lasiolepis*), black cottonwood (*Populus trichocarpas*), and wild blackberry (*Rubus ursinus*) as mitigation for COVA’s clearing of this area between 2013 and 2015. (See above.)

Figure 54. COVA Site #4 (upper left quadrant of image). Note large area (approximately 90’ by 30’) of once dense willow riparian woodland cleared by COVA circa 2015 now covered by 100% invasive nonnative grasses. See Figure 66. Trautwein. January 30, 2022.

Figure 55. COVA Site #4 (Upper left quadrant of image) Note large, cleared area approximately 90’ by 30’ covered by exotic grasses. This area was a dense riparian woodland prior to clearing by COVA in 2015. This revegetation site supports ten healthy elderberry plants and an established stand of blackberries mixed with native wild cucumber and nonnative nasturtium at the south end of the Site. COVA Site #4 has achieved an estimated cover of 75-80% of native species. Trautwein. January 30, 2022.

Figure 56. COVA Site #4 with healthy elderberries at north end of site. Note exotic invasive herbaceous species on slope below elderberries. Italian thistle, nasturtium, mallow, and oxalis dominate site’s understory. The area in the foreground / lower portion of image was cleared of high-quality riparian habitat. Trautwein. January 30, 2022.

Figure 57. COVA Site #4. A large yucca was retained within this revegetation site detracting from its success. COVA cleared riparian habitat in lower right half of this image. Trautwein. January 30, 2022.

Figure 58. COVA Site #4. South end of Site supports large stand of wild blackberry mixed with native wild cucumber and aggressive, exotic nasturtium. Note the grassy area in the lower portion of Figure 58 is where COVA cleared extensive riparian habitat. Trautwein. January 30, 2022.

1. COVA Cleared Substantial Areas of Riparian Habitat and Was Required by CDFW to Undertake Revegetation to Mitigate the Impacts, However SBCFCWCD Improperly Claimed COVA's Revegetation Sites as Mitigation for SBCFCWCD's Annual Maintenance Program.

During 2007 through 2018, COVA removed extensive areas of high-quality, dense willow riparian woodland with a thick understory of native riparian plants dominated by wild blackberry adjacent to COVA Site #1 as shown below. (Figures 59-66; *See also* Figures 45, 48-51, and 54-58) The clearings took place on COVA and Santa Barbara County properties, including within Santa Barbara Urban Creeks Council's ("UCC") County-approved San Jose Creek Restoration Site #1 south of Cathedral Oaks Road and east of San Jose Creek.[129]

EDC reported the clearing of riparian habitat to CDFW as a potential Fish and Game Code violation circa 2010. (Figure 60) CDFW issued SAA No. 1600-2012-0132-R5. COVA agreed to plant native vegetation in two locations on an embankment (COVA Sites #1 and #2) to mitigate COVA's removal of riparian habitat near COVA Site #1.[130] Instead, SBCFCWCD undertook revegetation at COVA Sites #1 and #2 with COVA's approval to mitigate the impacts of the Annual Maintenance Program.[131] Therefore COVA never undertook revegetation required to mitigate the impacts of COVA's clearing of riparian habitat pursuant to CDFW SAA No. 1600-2012-0132-R5.

Between 2013 and 2018, COVA cleared additional high-quality riparian habitat adjacent to COVA Sites #2 - #4, including an estimated one hundred linear feet of Creek bank and constructed an access route for trucks. (Figures 64 – 66; *See also* Figures 54 – 58, 72 – 74, and 76 - 83) EDC reported these clearings to CDFW in 2022.[132]

a. COVA Sites #1 and COVA #2 Were Planted to Mitigate the Impacts of SBCFCWCD's Annual Maintenance Program Therefore COVA Must be Required to Revegetate Additional Areas to Mitigate the Impacts of COVA's Extensive Clearing of Riparian Habitat.

The San Jose Creek riparian habitat cleared by COVA immediately south of Cathedral Oaks Road exhibited one hundred percent cover of riparian trees (willows, black cottonwoods,

[129] The UCC's San Jose Creek Restoration Project is a voluntary restoration project approved by the County, including Santa Barbara County Fire Chief Jim Thomas, Santa Barbara County Public Works Department and SBCFCWCD Director Phil Demery, Santa Barbara County Parks Department Director Jennifer Briggs, Santa Barbara County Counsel Steven Shane Stark, and Santa Barbara Risk Manager Charles Mitchell.[129] The Project received support from numerous other agencies including CDFW. The Project was funded with a State Department of Water Resources Urban Streams Restoration Program Grant of $41,000 issued to SBCFCWCD on behalf of UCC and SBCFCWCD.
[130] Lohmus (2022).
[131] *Id.; See also* Raaf (2022).
[132] Email from Brian Trautwein, Senior Analyst/Watershed Program Director, to Warden Joseph Gonzales, CDFW (April 22, 2022).

and western sycamores) and understory plants (wild blackberry, etc.) in 2006. (Figure 59) However, much of this native riparian vegetation was sequentially removed between 2007 and 2018 by COVA which was issued SAA No. 1600-2012-0132-R5 in 2012 after COVA's clearing project was reported to CDFW. COVA never implemented revegetation required by that SAA.[133] (Figures 59 - 63)

As discussed above, SBCFCWCD obtained COVA's approval to revegetate COVA Sites #1[134] and #2 and claimed mitigation credit for both Sites.[135] (Figure 43) However, COVA was required by CDFW to mitigate for COVA's clearing of riparian habitat within San Jose Creek. [136] Therefore, COVA must be required to revegetate other areas to mitigate the impacts of COVA's riparian vegetation clearing program.

Figure 59. UCC San Jose Creek Restoration Project Site #1 (green polygon in middle and right side of image) covered with native riparian vegetation installed by UCC and established through natural recolonization processes. Google Earth. 2006.

[133] COVA claimed a portion of the UCC's San Jose Creek Restoration Project was on COVA property. Clearing riparian habitat on private property requires a Streambed Alteration Agreement; See also CDFW SAA No. 1600-2012-0132-R5 at 4 requiring 5:1 replacement of willow trees and "90% cover after 5 years for the life of the project."
[134] COVA Site #1 does not appear to have been successfully revegetated as described herein.
[135] SBCFCWCD *Maintenance and Revegetation Report 2020-2021 Maintenance Season* at 49-50 (July 2021); *See also* Raaf (2022)
[136] Lohmus (2022).

Figure 60. Riparian habitat in UCC's Site #1 cleared by COVA (red polygons) in 2007-2010. Google Earth. 2010.

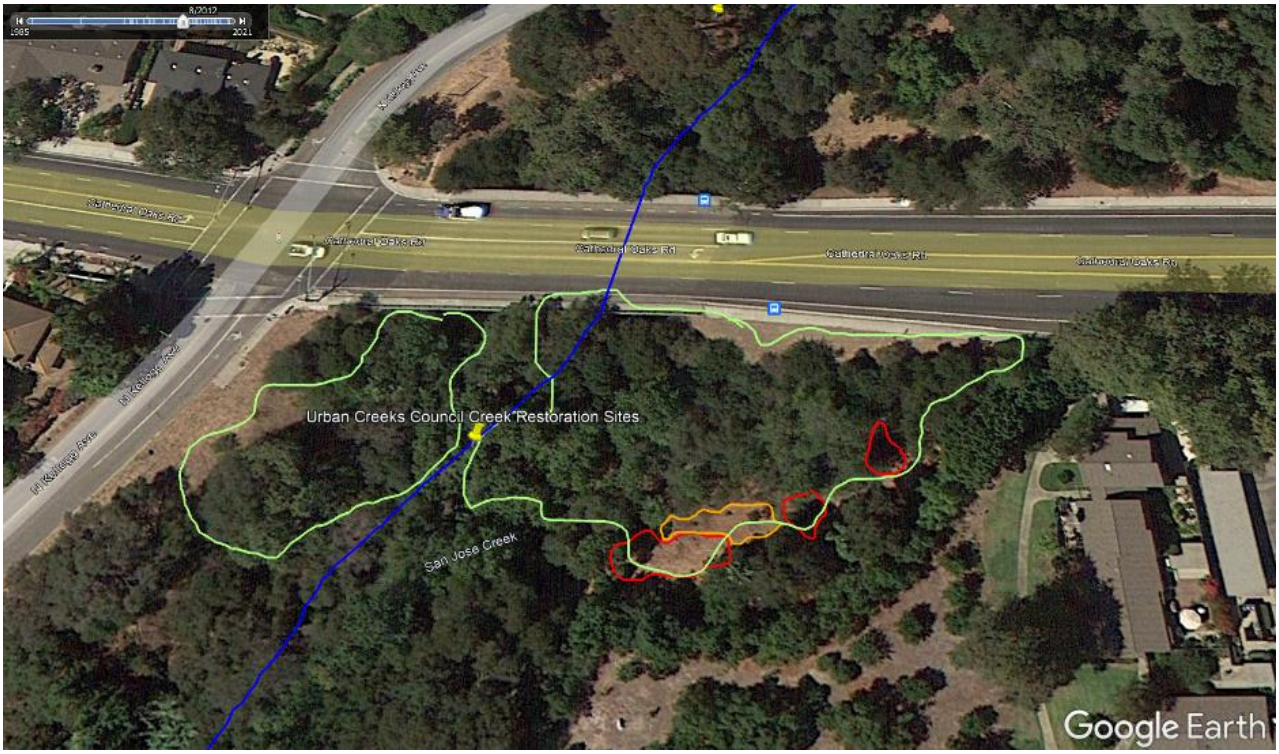


Figure 61. Additionally riparian habitat cleared by COVA (orange polygon) in 2010-2012. Google Earth. 2012.

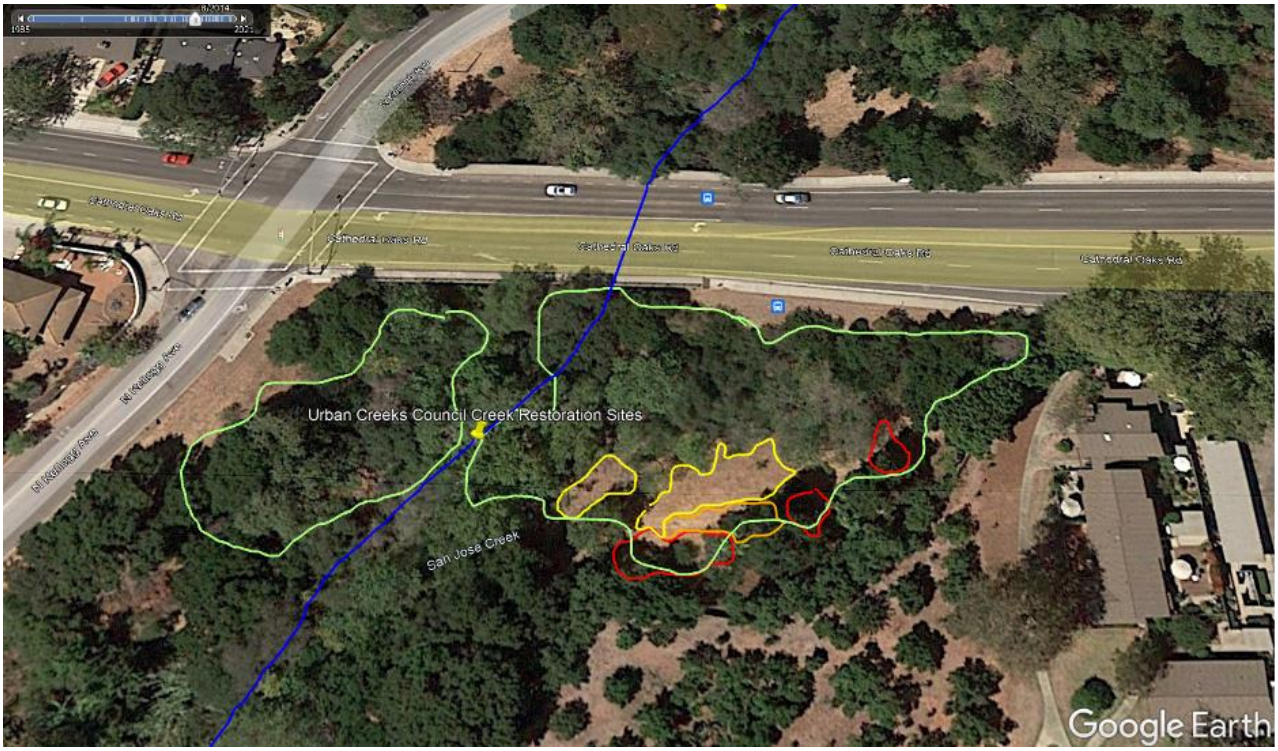


Figure 62. More riparian habitat cleared by COVA (yellow polygons) in 2013-2014. Google Earth. 2014.

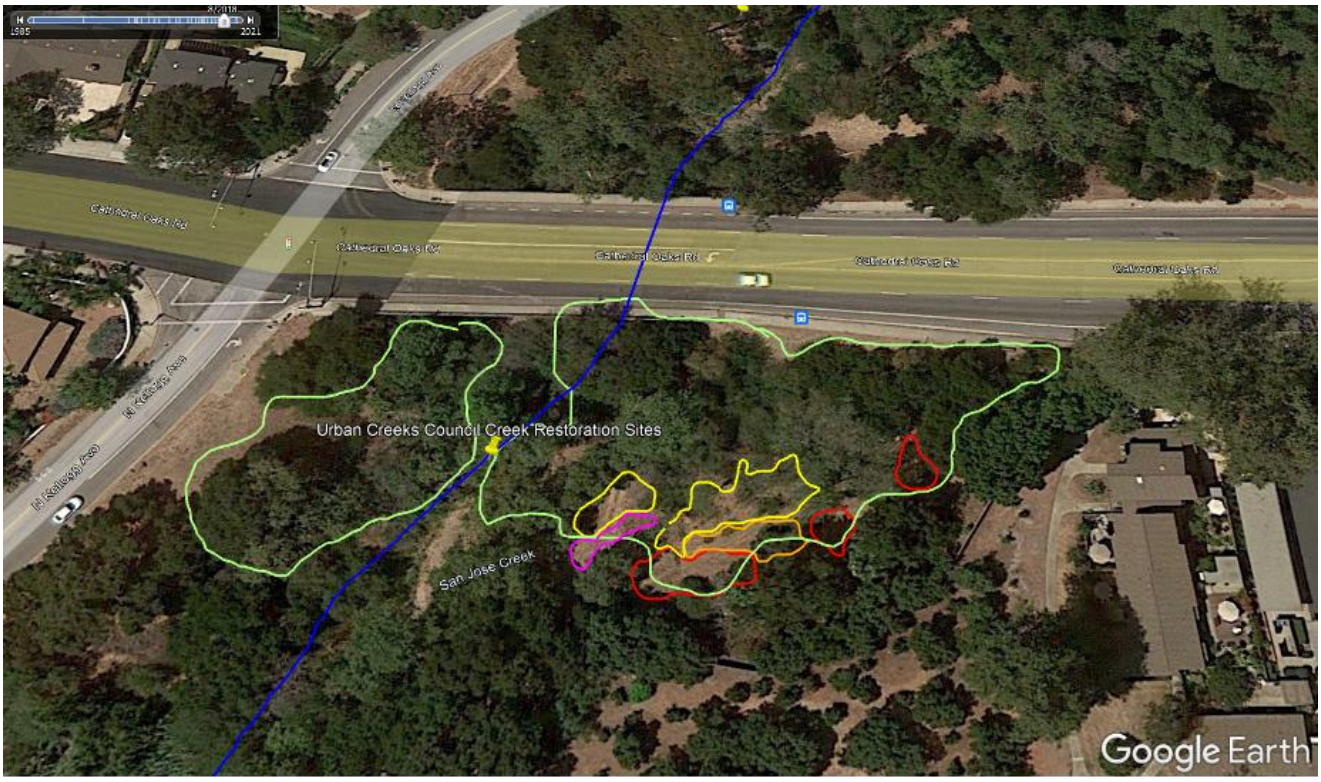


Figure 63. Further clearing of riparian habitat by COVA (purple polygon) in 2018. Google Earth. 2018.

b. SBCFCWCD Credits COVA's Upland Revegetation Sites #3 and #4 as Mitigation for the Annual Maintenance Plan Therefore COVA cannot also Claim Sites #3 and #4 as Mitigation for COVA's Removal of Riparian Habitat.

COVA cleared additional dense riparian habitat along the east side of San Jose Creek between 2013 and 2015 adjacent to COVA Sites #2, #3, and #4, including approximately one hundred linear feet of riparian woodland from the east bank of San Jose Creek. (Figures 64 – 66, 71 – 74, and 76 - 83) Based on aerial photos, EDC estimates the riparian clearings measure a minimum of 8,100 square feet, plus additional areas of oak riparian understory vegetation not visible in aerial photos. EDC's surveys did not detect any revegetation sites planted by COVA as mitigation for its riparian habitat clearing program pursuant to CDFW SAA No. 1600-2012-0132-R5. [137] COVA should be required to provide onsite replacement of the riparian habitat removed south of Cathedral Oaks Road extending to the southwest corner of COVA's property west of COVA Site #4 and adjoining County property which was also cleared.

SBCFCWCD planted native upland vegetation at COVA sites #3 - #4 in 2017-2019.[138] SBCFCWCD credits COVA Sites #3 and #4 as mitigation for its Annual Maintenance Program. Given that COVA Sites #3 - #4 are claimed by SBCFCWCD as mitigation, there has been no mitigation for COVA's riparian habitat clearings as required by CDFW.[139] COVA Sites #3 - #4 cannot be considered mitigation for both COVA's and SBCFCWCD's riparian habitat removal projects.

COVA should be required to replant COVA Site #1, complete restoration of COVA Sites #2 - #4, and restore riparian habitat within all of the cleared locations to mitigate the impacts caused by COVA's clearing of riparian habitat. EDC recommends that riparian habitat removed by COVA be replaced at a minimum 3:1 ratio onsite. If necessary, offsite within nearby portions of San Jose Creek should be restored to ensure a minimum 3:1 replacement.

[137] CDFW directed COVA to restore riparian habitat to mitigate the impacts of COVA's clearing near Cathedral Oaks Road. Lohmus (2022); *See also* CDFW SAA No. 1600-2012-0132-R5.
[138] Raaf (2022); *See also* SBCFCWCD Maintenance and Revegetation Report 2020/2021 Maintenance Season at 49-50. See COVA Site #3 and COVA Site #4 Plant Tables below which demonstrate that these sites are upland plantings containing native and nonnative chaparral and coastal sage scrub species, including nonnative ceanothus, coyote brush, white sage, black sage, and California sage. Several willows planted on these upland slopes are struggling to survive despite irrigation.
[139] Lohmus (2022); *See also* CDFW SAA No. 1600-2012-0132-R5.

Figure 64. COVA cleared additional natural riparian habitat in 2014 (lower orange polygon in center of image). Google Earth. August 2014.

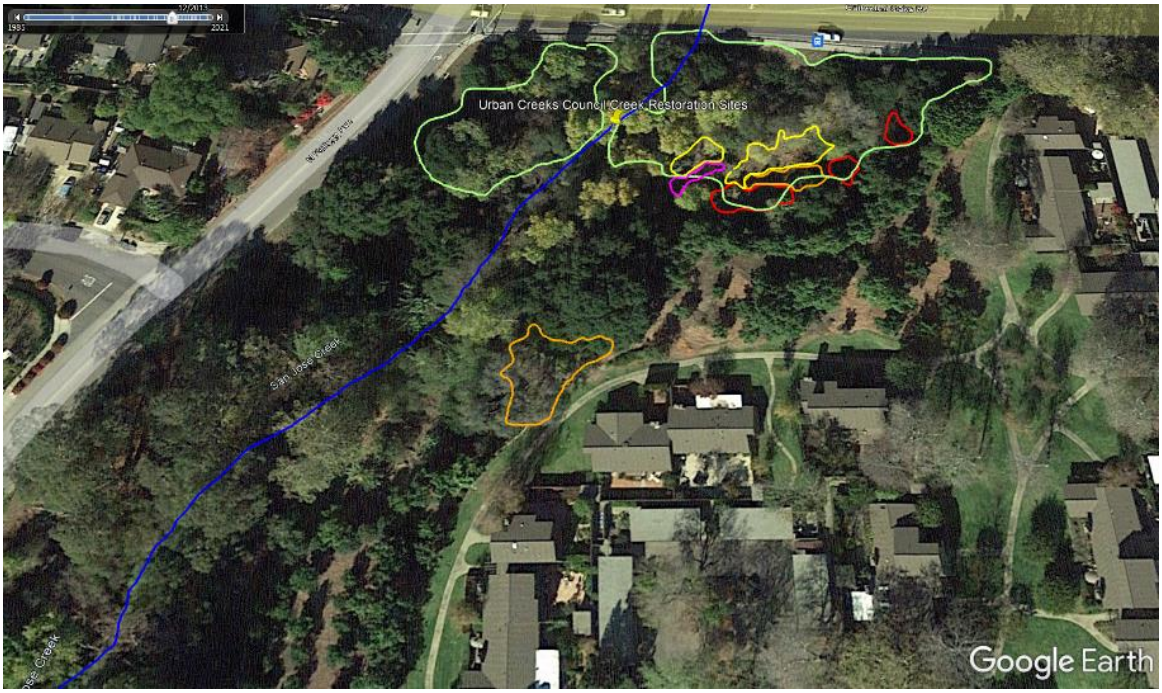


Figure 65. Prior to COVA clearing of riparian habitat in 2014. Note lower orange polygon in center of image contained dense riparian vegetation including willow trees in December 2013, which were removed in 2014 as shown in Figure 64 above. Google Earth. December 2013.

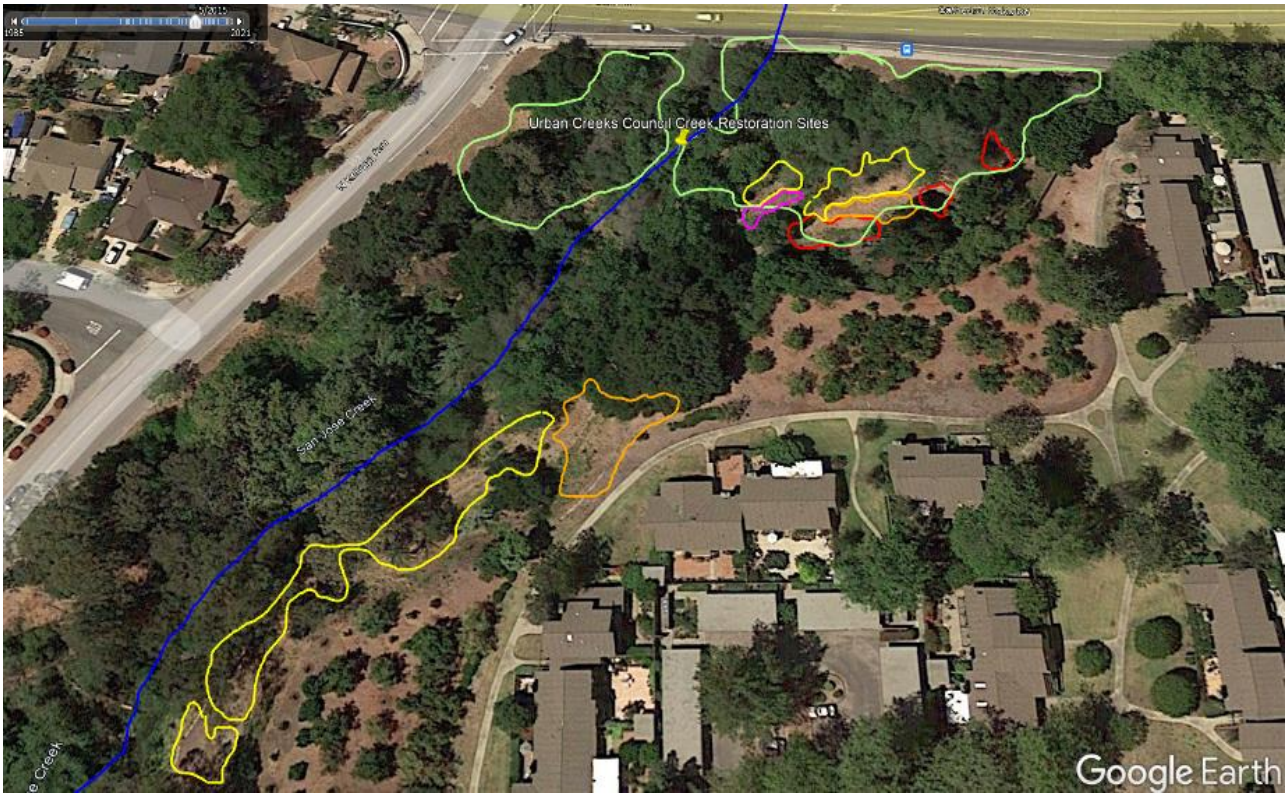


Figure 66. Riparian tree and understory vegetation appears to have been removed from additional areas east of the Creek adjacent to COVA between 2013 and 2015 (yellow polygons in center to lower left section of image). As shown in Figure 67 below, substantial portions of the two lower yellow polygons are located on Santa Barbara County property. Google Earth. 2015.

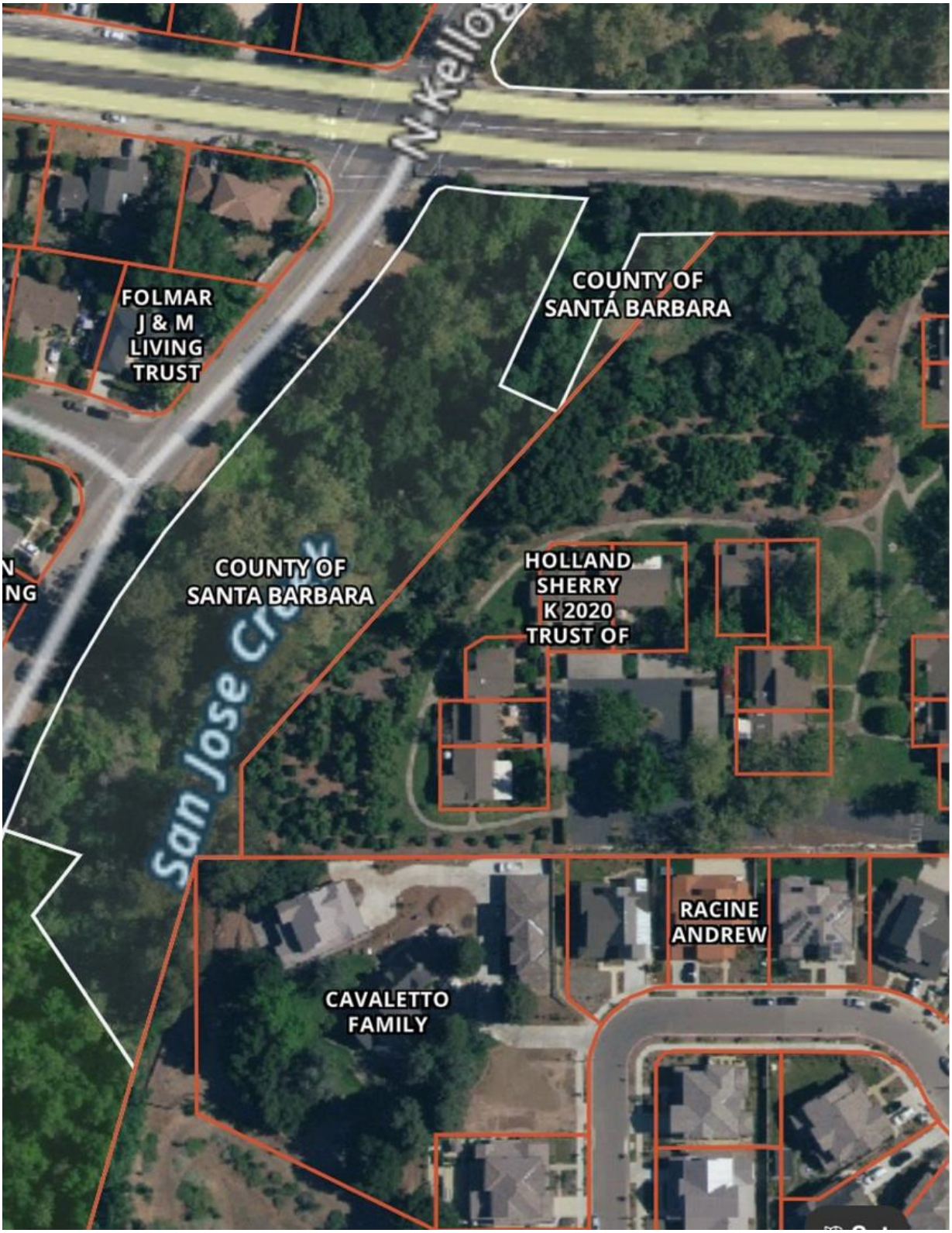


Figure 67. Parcel Map showing a portion of the cleared habitat was located on County property. On-X. January 29, 2022.

Figure 68. The western portion of Urban Creeks Council's San Jose Creek Restoration Project Site #1 located on County property was cleared by COVA. CDFW directed COVA to undertake revegetation to mitigate the impacts of the unpermitted removal of riparian habitat but this revegetation never occurred. Trautwein. January 2022.

Figure 69. Southern portion of Urban Creeks Council's County-approved San Jose Creek Restoration Site #1 was cleared by COVA. CDFW subsequently required COVA to revegetate COVA Sites #1 and #2 as mitigation for the unpermitted habitat removal, but these sites were revegetated by SBCFCWCD as part of its Annual Maintenance Plan. Trautwein. January 30, 2022.

Figure 70. COVA also cleared the native understory from the entirety of Urban Creeks Council's San Jose Creek Restoration Project Site #1. Note the black cottonwood and arroyo willow trees in Urban Creek's Council's County-approved San Jose Creek Restoration Project Site #1 are underlain by a 100% nonnative understory. The understory was 100% native cover consisting primarily of wild blackberries prior to COVA's clearing of the Site. Trautwein. January 30, 2022.

Figure 71. COVA cleared oak riparian woodland understory on City property south of the Cathedral Oaks Road Bridge over San Jose Creek. Trautwein. January 30, 2022.

Figure 72. Oak riparian woodland understory was cleared and oak trees were pruned along east side of San Jose Creek west of COVA between 2009 and 2015 providing vehicle access along the Creek bank. Trautwein. January 23, 2022.

Figure 73. Cleared riparian habitat now provides vehicle access along Creek bank near COVA Sites #2 and #3. Trautwein. January 23, 2022.

Figure 74. COVA Site #2 with cleared riparian habitat in foreground. Wild blackberry (right side) and California sage (center) present. COVA required SBCFCWD to retain nonnative trees in the revegetation sites. Large yucca tree (upper left) was retained in revegetation site. Trautwein. January 23, 2022.

Figure 75. COVA Site #2 showing California sage on left, small white sage in center, and mulefat on right. Understory is dominated by invasive nonnative oxalis. Trautwein. January 23, 2022.

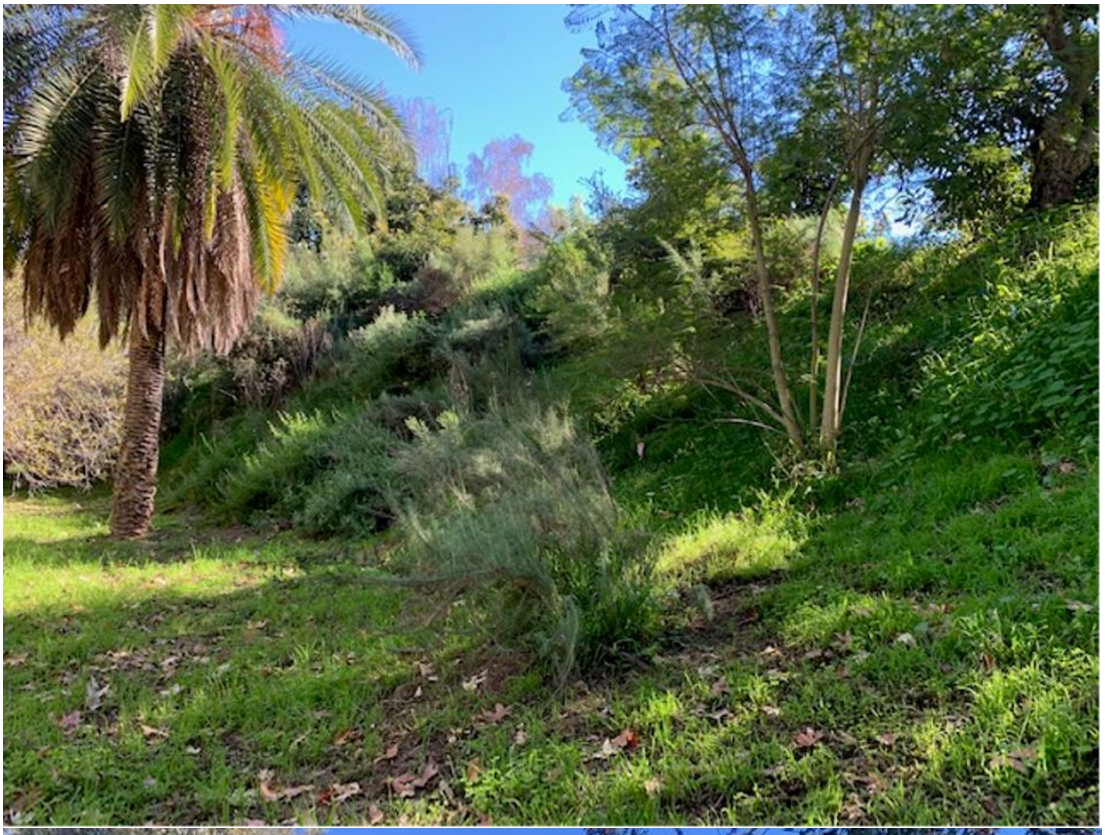


Figure 76. COVA Site #2 with California sage. COVA directed SBCFCWCD to retain nonnative trees in the revegetation sites. Note palm tree and jacaranda tree were inappropriately retained in and adjacent to restoration site. Trautwein. January 23, 2022.

Figure 77. COVA cleared a dense willow riparian habitat including mature willow trees and native understory plants creating a large field of nonnative grasses and forbs approximately ninety feet by thirty feet immediately west of COVA Site #4. Trautwein. January 30, 2022.

Figure 78. COVA cleared riparian woodland from approximately one hundred linear feet of the east bank of San Jose Creek on City property west of COVA Site #4. Looking downstream, south by southwest. Trautwein. January 30, 2022.

Figure 79. COVA cleared riparian woodland from approximately one hundred linear feet of the east bank of San Jose Creek on City property west of COVA Site #4. Looking upstream, north by northeast. Trautwein. January 30, 2022.

Figure 80. COVA cleared riparian habitat near COVA Site #4. Looking north by northeast to south by southeast. San Jose Creek is located on left side of image. Trautwein. January 30, 2022.

Figure 81. COVA's large riparian habitat removal site (grassy area) west of COVA #4 (upper center portion of image). Trautwein. January 30, 2022.

Figure 82. Dense, high-quality riparian habitat was cleared from County property near COVA Site #4. COVA Site #4 is visible in upper right portion of image. Trautwein. January 23, 2022.

Figure 83. COVA Site #4 with native plants covering 75% of embankment. Note grassy area is where COVA cleared riparian habitat. Trautwein. January 23, 2022.

c. *Recommendations to Mitigate the Impacts of COVA's Riparian Habitat Clearing Projects.*

- CDFW should require COVA to replant all areas COVA cleared of riparian habitat and achieve one hundred percent (100%) cover of native overstory and understory species to replace habitat removed between 2007 and 2018.[140] (Figures 59 – 66)

- CDFW should require COVA to revegetate additional riparian areas near COVA Sites #1 - #4 to mitigate the temporal impacts of removing high-quality riparian habitat at minimum three-to-one (3:1) ratio. Revegetation should achieve ninety percent (90%) total cover within five years and exhibit less than five percent (5%) cover by nonnative herbaceous vegetation as required by CDFW SAA No. 1600-2012-0132-R5.

- CDFW should determine whether SAA No. 1600-2012-0132-R5 authorized all of COVA's riparian habitat removal projects. If not, CDFW should issue a Notice of Violation of the California Fish and Game Code for COVA's removal of high-quality riparian habitat.

- CDFW should require COVA to remove nonnative and non-local varieties of native vegetation in the cleared areas.

- CDFW should require COVA to allow SBCFCWCD to remove nonnative and non-local native plants from Sites #1 - #4, including:

    - Nonnative varieties of native species such as ceanothus and coyote brush (*Baccharis pilularis*) & replant COVA Sites #3 and #4 with local genotype native riparian and upland;[141]
    - Palm, eucalyptus, yucca, and jacaranda trees; and
    - Invasive and aggressive weedy herbaceous species including oxalis, nasturtium, Italian thistle, mallow, and nonnative grasses, including kikuyu grass present in all four COVA Sites and all areas cleared by COVA.

- Mitigation requirements for COVA and SBCFCWCD should be clarified to ensure each entity's mitigation requirement is fulfilled.

- CDFW should require COVA to (1) preserve native vegetation along the creek and revegetation areas, and (2) place all riparian and upland revegetation and restoration sites in a permanent conservation easement or deed restriction to prevent future removal of this sensitive habitat.

[140] COVA continues to maintain the cleared areas preventing regrowth of native riparian vegetation.
[141] *See e.g.*, City of Goleta (2020) CWMP Strategy 11.1.2.

F. Old Footbridge in University Circle Park (Site 4)

SBCFCWCD installed rip rap bank protection on the west bank following storms in 1995 which caused bank erosion.[142] Willows were planted within the rip rap as wattling.

*Year Planted:*1995
Size:

- Reported: 50 feet x 10 feet = 500 square feet as measured by SBCFCWCD in 1995.[143]
- Observed: 64 feet x 8 feet = 512 ft^2 as measured by EDC in 2022.

Site Visit: February 25, 2022

Plant Table: n/a[144]

Estimated Percent Cover:

- 50-75% native tree canopy
- 50-80% cover by nonnative understory species

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Cape ivy (Figures 84 and 86)
- Kikuyu grass (Figure 86)
- Oxalis (Figure 86)

Old Footbridge Site Highlights:

- This site was described as a "textbook site to view successful willow wattling" in 1998.[145] However, twenty-seven years after installation, only two willows remain. They are in fair condition with multiple trunks. Each is approximately 30' tall and about 6-8" DBH.
- One black cottonwood is present in fair to good condition. It is approximately thirty-five feet tall with an eight-inch DBH.[146]
- The rip rap remains in good condition however, concrete with rebar and asphalt blocks were mixed in with boulders. (Figure 88)

[142] SBCFCWCD *Annual Maintenance and Revegetation Report 1997/1998 Maintenance Season* (December 1998) ("SBCFCWCD (1998)").
[143] SBCFCWCD (1998)
[144] Willow wattling was installed but the number of willows installed was not provided. No other species were planted at this location.
[145] SBCFCWCD (1998).
[146] This tree appears to be naturally occurring.

Old Footbridge Site Recommendations:

- Remove and replace nonnative understory, including Cape ivy, oxalis, and Kikuyu grass with natives, including mugwort, wild blackberry, giant wild ryegrass.
- Remove Shamel ash trees and Arundo donax on east bank opposite rip rap.
- Do not use concrete or asphalt in rip rap. Use naturally occurring rocks.
- Plant willow and black cottonwood trees around the rip rap.

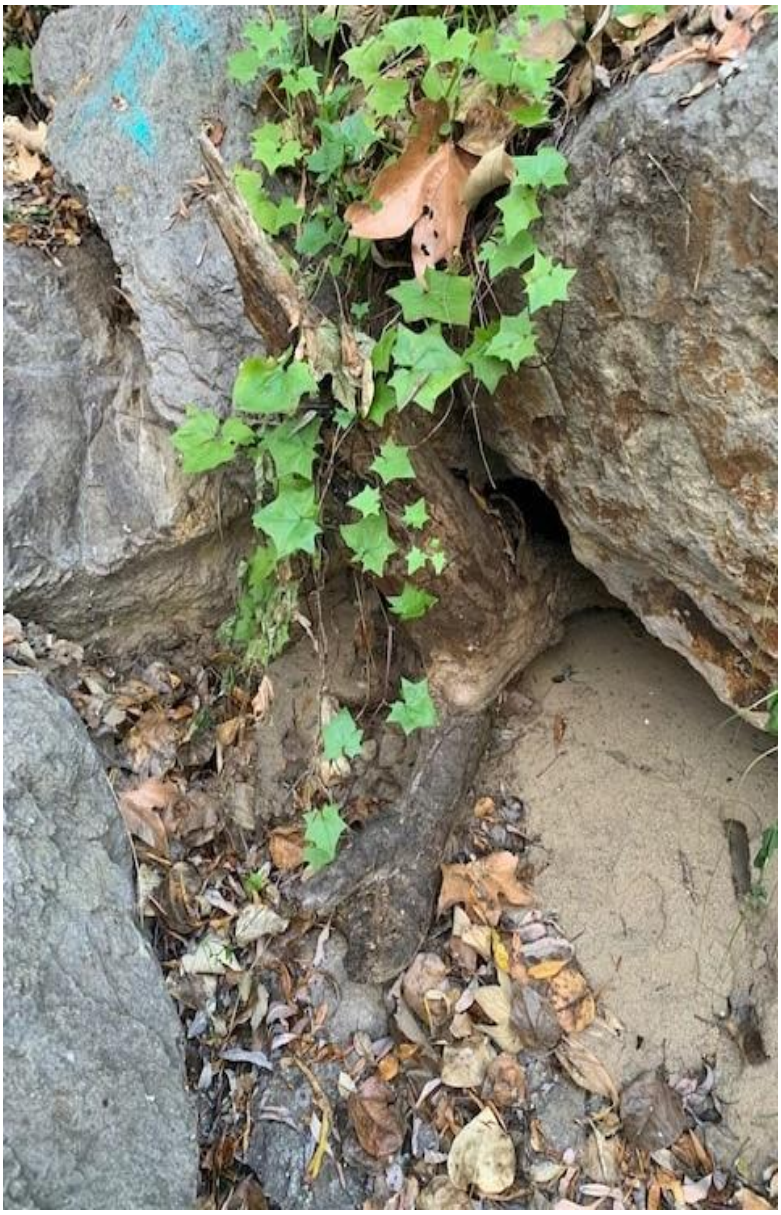


Figure 84. Nonnative, invasive Cape Ivy growing over installed rip rap. Trautwein. February 25, 2022.

Figure 85. University Circle Open Space. Many large willows, sycamores and cottonwoods grow along San Jose Creek. Trautwein near the Old Footbridge Site. February 25, 2022.

Figure 86. Nonnative, invasive grasses, oxalis, and cape ivy growing over rip rap that was installed as bank stabilization. Trautwein. February 25, 2022.

Figure 87. Looking up San Jose Creek at the Old Footbridge Site near University Circle Open Space. Rip rap was installed and is now overgrown with nonnative grasses, oxalis, and invasive Cape ivy. Woody tree in the foreground is one of two surviving willows believed to be installed as wattling in the rip rap in 1995.
Trautwein. February 25, 2022.

Figure 88. Rip rap includes and asphalt and concrete with rebar used as bank stabilization. Potential for concrete to alter pH of Creek water. Rebar also poses a potential safety hazard. Trautwein. February 25, 2022.

Figure 89. Rip rap covered with native poison oak and nonnative oxalis, kikuyu grass, and cape ivy. One of two remaining willow trees (left side of image) and one naturally-occurring black cottonwood tree is present on upper bank (center of image). Trautwein. February 25, 2022.

Figure 90. Rip rap with one of two surviving willow trees installed in 1995. February 25, 2022.

Figure 91. Black cottonwood on creek bank growing above rip rap at Old Footbridge Site. This is believed to be a naturally-occurring tree because only willows were planted in the rip rap. Trautwein. February 25, 2022.

G. Seventy-five Feet Upstream of Berkeley Footbridge (Site 5)

SBCFCWCD installed rip rap with willow wattling in this location where high flows caused bank erosion at the outside of a sharp bend in the southern end of the University Circle Open Space.[147] SBCFCWCD installed the willow wattling 1995.

Year Planted: 1995[148]
Area: 25 feet x 10 feet = 250 square feet
Date of Site Visit: February 25, 2022

Plant Table: n/a[149]

Estimated Percent Cover:

- 50% - 60%

Native Species Present:

- Willows
- Cottonwood
- Creek clematis

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Periwinkle
- Nasturtium
- Cape ivy
- Algerian ivy

Seventy-five Feet Upstream of Berkeley Bridge Site Highlights:

- Rip rap installed by Flood Control District is creating roughness and helping establish a pool at this location.

Seventy-five Feet Upstream of Berkeley Bridge Site Recommendations:

- Remove residential shed located on public property. (Figure 92)
- Plant native trees and understory around the rip rap to achieve a higher percent cover at this site.

[147] SBCFCWCD (1998).
[148] *Id*.
[149] Willow wattling was planted underneath the rip rap but the number of willow branches planted was not disclosed and no other plants were installed.

Figure 92. Site known as Seventy-five Feet Upstream from the Berkeley Footbridge. Installed rip rap is supporting native black cottonwood tree. Bank downstream from rip rap lacks native riparian vegetation. Trautwein. February 2022.

Figure 93. View of rip rap, looking upstream of San Jose Creek. Willows growing out of the rocks and bank. Trautwein. February 2022.

H. Berkeley Footbridge East of Goleta Water District Well Building (Site 6) [150]

SBCFCWCD planted this small patch of native plants next to the Berkely Footbridge in 1995.[151]

Year Planted: 1995[152]
Area:

- Reported: 180 feet x 15 feet = 2,700 square feet as reported by SBCFCWCD.[153]
- Observed: 800 square feet (elderberries and willow trees) plus 200 square feet (sycamore trees) = 1,000 square feet observed by EDC in 2022.

Date of Site Visit: January 27, 2022

Description: This site contains several willow and sycamore trees, elderberries, and wild rose west of the west bank of San Jose Creek south of the Berkely Footbridge. The sycamore trees were planted along the Creek's west bank east of the footpath.

Plant Table

Species Planted	# Planted	# Observed	Avg. Height	General Condition	Estimated % Survival
Sycamore	Unknown	2	20' - 25'h	Good	Unknown
Willow	Unknown	1	15'h	Fair to Good	Unknown
Elderberry	Unknown	4	15"h	Fair to Good	Unknown
Wild rose	Unknown	2	3'h	Fair	Unknown
Coyote Brush	Unknown[154]	2	6'h	Fair	Unknown

Estimated Total Percent Cover:

- Overstory: Greater than eighty percent (80%) native species within the eight hundred (800) square foot revegetation area.
- Understory: One hundred percent (100%) nonnative invasive herbaceous species.

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nonnative grasses.

Berkeley Road Footbridge Site Highlights:

[150] Uncertain if this is part of Site 6; the site numbering system from report to report is inconsistent and unclear.
[151] SBCFCWCD (1998).
[152] Uncertain if this is part of Site 6; the site numbering system from report to report is inconsistent and unclear.
[153] SBCFCWCD (1998).
[154] Uncertain if planted, might be from natural recruitment.

- The two sycamore trees are growing strong and large, indicating great success in their establishment.

Berkeley Footbridge Site Recommendations:

- Manually remove all nonnative understory plants under willows, sycamores, wild rose, and elderberries and within 20 feet of driplines.
- Plant twenty-five wild blackberry plants on six-foot centers.
- Control weeds until blackberries establish a minimum ninety-five percent cover.

Figure 94. Berkeley Footbridge Site East of Goleta Water District Well Building. Willows, elderberries, and wild rose present by understory is 100% exotic invasive herbaceous plants. Trautwein. January 23, 2022.

Figure 95. One of two healthy sycamore trees SBCFCWCD planted at the Berkeley Footbridge Site. Trautwein. January 23, 2022.

I. Three Hundred Feet Downstream from Berkeley Road Footbridge East Bank Repair (Site 23)

East bank repair: installation of rock rip rap and willow brush layering; east and west bank revegetation.[155]

Years Planted: 2006-2007
Area:

- East bank: 80 feet x 15 feet = 1,200 square feet
- West bank: 12 feet x 6 feet = 72 square feet

Date of Site Visits: January 22, 2022, January 27, 2022, and February 18, 2022

Plant Table

Species Planted	**# Planted**	**# Observed**	**Avg Height or Spread**	**General Condition**	**% Survival**
East bank	----------	----------	----------	----------	----------
Mugwort (*Artemesia*)	25	0	-	-	0
Sunflower (*Venegasia*) [156]	10	1	-	-	10
Elderberry (*Sambucus*)	2	1	8’ h	Good	50
Sycamore (*Platanus racemosa*)	1	0	-	-	0
Blackberry (*Rubus ursinus*)	15	2	2x2’ s and 10x4’ s	Fair	13.3
Lemonade berry (*Rhus integrifolia*)	3	0	-	-	0
Brush layering with Willow branches	n/a	3	5-15’ h	Fair	-
West Bank	----------	----------	----------	----------	----------
Willow (*Salix*)	10	7 (3 dead[157])	10’ to 20’ h	Fair to Good	70
Wild blackberry (*Rubus ursinus*)	8	0	-	-	0
Clematis	10	0	-	-	0

[155] SBCFCWCD *Maintenance and Revegetation Report 2006/2007 Maintenance Season* (2007).
[156] Might have seen one canyon sunflower but were unable to conclusively identify species.
[157] Not sure if these were planted by SBCFCWCD or if they are natural recruits that died.

Estimated Total Percent Cover:

- East Bank: Understory 10-40%
  Overstory 50%
- West Bank: Understory 10%
  Overstory 60-70%

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Oxalis
- Shamel ash
- Nonnative grasses
- Nasturtium

Three Hundred Feet South of Berkeley Road East Bank Repair Site Highlights:

- SBCFCWCD retained a pool at this site below the rock rip rap.
- One large willow appears to have grown from the brush layering within the rock rip rap.

Three Hundred Feet South of Berkeley Road East Bank Repair Site Recommendations:

- Eradicate nonnative invasive species from east bank above rock rip rap
- Plant additional willow and/or cottonwood poles into the rip rap.
- Eradicate the Shamel ash tree growing in the rip rap.

Figure 96. Bank repair. East bank of San Jose Creek approximately three hundred feet south of Berkeley Footbridge. Note invasive Shamel ash (green and yellow compound leaves) established at bank repair site. East bank above rip rap bank armoring supports nonnative invasive species. One single large willow appears to remain (behind ash tree) in upper right quadrant of image. Trautwein. January 27, 2022.

Figure 97. Site 23, approximately 300’ downstream of Berkeley Footbridge on the east bank of San Jose Creek. Note: the white PVC pipe coming out of the foliage was installed to irrigate the layered willows that were placed between rip rap layers. Trautwein. March 7, 2022.

Figure 98. Riprap located on the east bank of Site 23. Young willows are growing out of the rocks are a result of willow brush layering at the time of mitigation. Understory is about 50% nonnative grasses. Trautwein. March 7, 2022.

Figure 99. Rip rap and exposed willow layering. Note the up-shoots of new willow growth. Trautwein. March 7, 2022.

Figure 100. Site 23, about three hundred feet downstream of the Berkeley Footbridge, on the west bank. The understory is primarily nonnative grasses and nasturtium. The overstory is primarily willow, sycamore, and black cottonwood. Trautwein. March 7, 2022.

Figure 101. West bank of San Jose Creek at Site 23. Large sycamore in the background from natural recruitment. Understory is primarily nonnative grasses. Willow saplings present on lower bank of Creek. Trautwein. March 7, 2022.

Figure 102. Young willow growing out of a poison oak. Note the nonnative grasses in the foreground. Trautwein. March 7, 2022.

Figure 103. Site 23, approximately three hundred feet downstream of Berkeley Footbridge on the west bank. Note the nonnative, naturalized bottlebrush bush that is growing in the center of the photo. There are also nonnative grasses and nasturtium in the foreground, and willow and oak trees behind the bottlebrush.
Trautwein. March 7, 2022.

J. Berkeley Road Downstream from Berkeley Footbridge, West Side of Creek near Access Road (Site 13)

SBCFCWCD installed rip rap, rebuilt the bank, and planted this site with willows, cottonwoods, sycamores, and elderberries in 2000 after storms eroded the Creek's west bank and adjacent flood control access road which serves as a neighborhood trail.[158] The only plants to survive are located adjacent to the bank top.

Year Planted: 2000[159]
Area: 1,307 square feet[160]
Dates of Site Visits: January 22, 2022, January 27, 2022, and February 18, 2022

Plant Table

Species	**# Planted[161]**	**# Observed[162]**	**Avg Height or Spread**	**General Condition**	**% Survival**
Willow	5	1-2	10' - 20' h	Fair	20 – 40%
Cottonwood	2	2	10' h	Fair	100%
Elderberry	2	2	15' – 20' h	Fair	100%
California wild rose	5	0	-	-	0%
Sycamore	1	1	20' h	Fair	100%
Wild blackberry	20	0	-	-	0%

Estimated Cover:

- Fifty Percent (50%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Oxalis
- Nonnative grasses

Site Highlights:

- The elderberries on the bank-top have grown exceptionally large and likely produce numerous berries to nurture birds and wildlife.

[158] SBCFCWCD *Annual Maintenance and Revegetation Report* (2000) ("SBCFCWCD (2020)").
[159] *Id*.
[160] *Id*. stating site is .03 acres in size.
[161] *Id*.
[162] The only remaining plants are located adjacent to the west creek bank. All plants installed beyond 10 feet from the bank to the access road are gone with only invasive herbaceous plants growing there now.

Three Hundred Feet Downstream from Berkeley Road West Side of Creek by Access Road Site Recommendations:

- Remove all herbaceous plants between access road and creek bank.
- Replant area with blackberries, elderberries, coast live oaks, and coast live oak and riparian understory species to ensure >80% cover within 5 years pursuant to CDFW performance standards. Cage plants to prevent vandalism.
- Control weeds to ensure <5% cover pursuant to CDFW performance criteria.
- Confirm coast live oak planted as mitigation for Somerset Road oak pruning.

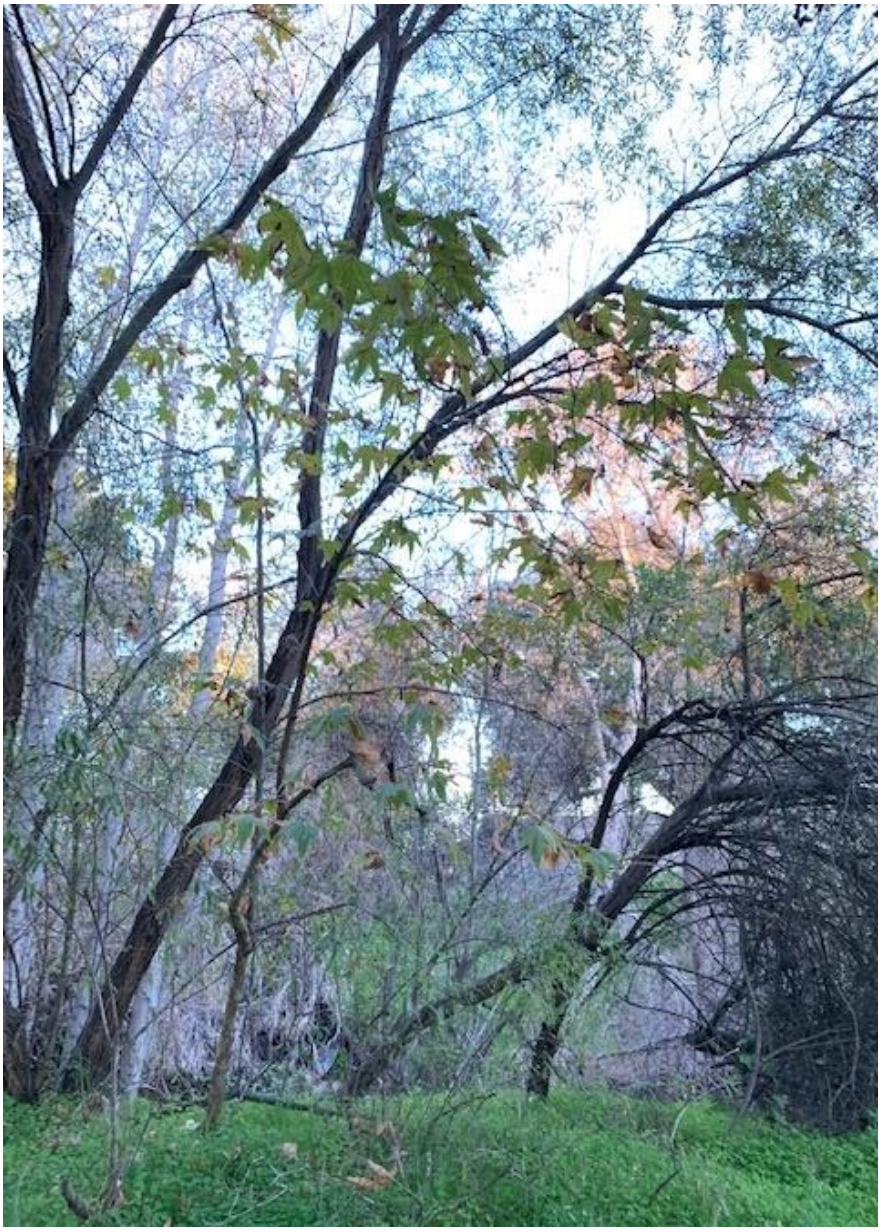


Figure 104. Site 13. Sycamore tree on west bank of San Jose Creek approximately 300 feet south of Berkeley Footbridge. Trautwein. January 27, 2022.

Figure 105. Site 13. Large elderberry on west bank of San Jose Creek approximately three hundred feet downstream from Berkeley Footbridge. Trautwein. January 27, 2022.

Figure 106. Site 13. Looking south. Approximately three hundred feet south of Berkeley Footbridge on west bank. Note lack of native plants and 100% cover by invasive exotic herbaceous plants except for the immediate bank top. Note sole oak tree in center of image planted in SBCFCWCD's Site 13. It is EDC's understanding that this oak tree was required as mitigation for oak pruning by a Somerset Avenue resident which EDC reported to the City of Goleta. If so, this oak tree cannot be double-counted count as mitigation for SBCFCWCD. Trautwein. January 27, 2022.

Figure 107. Site 13 looking north toward Berkeley Road. Note sole oak tree believed to be planted as a result of City of Goleta enforcement regarding neighbor oak pruning reported by EDC northeast of Somerset Avenue Accessway. Note absence of native understory plants. Trautwein. January 27, 2022.

Figure 108. Site #13 in July 2000. Looking north towards Berkeley Road (same perspective as Figure 107 above). Note plants extended west (left) from top of west bank (right side of image) to almost access road/trail. As shown in Figure 107 above, only plants planted immediately atop the Creek bank survived. The remainder of the planted area is dominated by non-native invasive herbaceous plants including oxalis and exotic grasses. Image from SBCFCWCD Annual Maintenace and Revegetation Report. 2000.

K. Somerset Road Access Ramp

SBCFCWCD decommissioned an access ramp on the west bank, stabilized the west bank using rock rip rap, and revegetated it with willows, mulefat, giant wild ryegrass, elderberry cuttings, and other species.[163]

Year Planted: 2010-2012
Area: 1,000 square feet
Date of Site Visits: January 23, 2022 and January 27, 2022.

Plant Table

Species	# Planted[164]	# Observed	Avg Height or Spread	General Condition	% Survival
Willows	Unknown	1	~12' h[165]	Fair	Unknown
Oak Trees	Unknown	0	-	-	0
Blackberry	Unknown	0	-	-	0
Mulefat	Unknown	1	-	-	Unknown
Coyote brush	Unknown	0	-	-	0
Ryegrass	Unknown	7-8	60-100 sq ft total	Fair to Good	Unknown
Elderberry	Unknown	4	5'-8' h	Fair	Unknown

Estimated Percent Total Cover:

- Fifty to seventy percent (50-70%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Oxalis
- Nonnative grasses

[163] SBCFCWCD *Annual Maintenance and Revegetation Report 2011/2012 Maintenance Season* (2012).
[164] The number planted was not found in any of the Annual Plans or Maintenance and Revegetation Reports, so it is impossible to calculate percent survival.
[165] These plantings were reported to have reached over 14' tall in 2015 in the 2015-2016 Annual Maintenance and Revegetation Report at 82 however EDC did not find photographs in subsequent Maintenance and Revegetation Reports showing plants. The 2015-16 Report shows one photograph from 2015 but the plants appear to be approximately five feet tall with the exception of one taller willow or mulefat plant. Currently, the tallest plant is the lone willow which is 12 feet tall and does not appear to have ever exceeded 12 feet in height.

Figure 109. Somerset Access Ramp Site showing giant wild ryegrass (lower portion of mage), mulefat (center of image), lone willow (left side of image), and herbaceous nonnative understory vegetation. Trautwein. January 27, 2022.

Somerset Access Ramp Site Highlights:

- The giant wildrye grass is well established in this location.
- The District successfully established elderberries from cuttings demonstrating a potentially more efficient way to propagate elderberries than growing plants from seeds.

Somerset Access Ramp Site Recommendations:

- Remove oxalis and nonnative grasses for two consecutive years.
- Remove Shamel ash sapling at base of rock rip rap bank repair site
- Plant two coast live oak trees.
- Replant twenty wild blackberry and 10 giant wild ryegrass plants at 5-ft centers after oxalis and nonnative grasses are eradicated.
- Plant one hundred mugwort plants on one-foot centers.
- Water and weed until established, percent cover of invasive herbaceous plants is <5%, and percent cover of native plants increases to at least 80% pursuant to CDFW SAA success criteria.

Figure 110. Looking downstream San Jose Creek at the Somerset Access Ramp Site. The west bank hosts a large sycamore, some oaks, nonnative grasses, elderberry, wild giant rye grass, and mulefat. Trautwein. February 2022.

Figure 111. West bank of San Jose Creek at Somerset Access Ramp Site. Riprap in the foreground along the bottom edge of the image with oxalis and nonnative grasses, such as kikuyu. Large sycamore in the background center. SBCFCWCD installed willows, mulefat, several elderberries, and giant wild ryegrass at this Site. Trautwein. February 2022.

Figure 112. Nonnative Shamel ash sapling in the center foreground growing out of rock riprap along with nonnative grasses. Trautwein. February 2022.

L. One-hundred Feet Downstream from Former Somerset Access Ramp, West Bank Repair (Site 10)[166]

SBCFCWCD reconstructed the eroding west bank, replaced a corroded metal stormwater culvert which was contributing to erosion with a plastic culvert, replaced failing pipe and wire revetment with rock rip rap (retaining one or two pipe revetment poles to support a large sycamore tree), installed willow wattling in the rip rap, and then planted the bank approximately two hundred feet downstream from the decommissioned Somerset Drive access ramp. Currently, the west bank which is located along a sharp curve upstream from the Elks Club is experiencing significant erosion which is threatening the back yard of a home located on Somerset Drive. Large patches of Arundo are present and native vegetation is lacking on the west bank.

Years Planted: 1996, 1997, and 1998
Area: 50 feet x 10 feet = 500 square feet
Date of Site Visits: January 27 and February 4, 2022.

Plant Table: n/a[167]

Natives Observed:

- Willow
- Elderberry
- Wild Cucumber

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Arundo *donax* (two large patches)

Downstream from Somerset Access Ramp Site Highlights:

- Most of the rip rap is intact.

Downstream from Somerset Access Ramp Recommendations:

- Conduct an engineering feasibility analysis. If feasible, engineer and install a live willow crib wall in base of the eroding bank. Use rip rap with willow and/or cottonwood wattling at the foot of slope in front of the crib wall if engineering analysis determines a crib wall alone would be insufficient to protect and stabilize the bank.
- Remove Arundo and other nonnative species and revegetate bank with sycamores, willows, blackberry, mugwort, and giant wild ryegrass.

[166] Uncertain whether this is the correct site number. Site numbering is very confusing and inconsistent throughout the Flood Control Maintenance and Revegetation Reports.
[167] No plant table is included because EDC was not able to find a list of the species other than the willow wattling or number of plants planted.

Figure 113. About one hundred to two hundred feet downstream the site of the decommissioned Somerset Drive Access Ramp on the west bank. Note the chain-link fence at the top of this slope delineates a backyard. This slope has eroded severely at the upstream end of SBCFCWCD's 1996 bank repair project. Consideration should be given to engineering and installing a live willow crib wall. Trautwein. February 2022.

Figure 114. Looking down stream of San Jose Creek at the erosion site show above (Figure 113). A large sycamore stretches over the Creek bed providing shade. Nonnative Arundo is abundant on either side of the sycamore. Kikuyu grass is present in the bottom left corner. Trautwein. February 2022.

Figure 115. Eroded west bank of San Jose Creek one to two hundred feet downstream of the site of the decommissioned Somerset Drive Access Ramp. Displaced rip rap in the bottom right corner. Young willows grow out of the remaining riprap in the center of the photo. Trautwein. February 2022.

M. Downstream from Highway 101 West Bank (Site 7)

This Site included a large patch of castor bean which SBCFCWCD eradicated before planting willow trees in 1996 to try to screen the sand and gravel operation to the west of the Site.[168] The Site contains several remaining willows trees but the understory is almost entirely nonnative species. Records of the numbers of plants installed were not kept. The location near Highway 101 places this Site near a well-known homeless encampment.

Date Planted: 1996[169]
Area: 100 feet by 15 feet = 1,500 square feet[170]
Site Visit: February 18, 2022

Plant Table

Species	# Planted	# Observed	Avg Height or Spread	General Condition	% Survival
Willows	Unknown	6	~6-8" DBH	Good	Unknown
Mugwort	Unknown	Few	-	-	0
Blackberry	Unknown	Few	-	-	0

Estimated Percent Total Cover:

- Canopy: Sixty percent (60%)
- Groundcover: Less than ten percent (10%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nasturtium
- Oxalis
- Palm Tree
- Eucalyptus
- Castor
- Cape Ivy
- Nonnative Grasses
- Tree Tobacco

Site-specific Recommendations:

[168] SBCFCWCD *Maintenance and Revegetation Report, 2017-2018 Maintenance Season* (December 1998).
[169] SBCFCWCD *Maintenance and Revegetation Report* (2000).
[170] *Id*.

- Remove the nonnative plants listed above and increase the groundcover with native understory species, including wild blackberry, hummingbird sage, poison oak, and mugwort.
- Plant native shrubs including gooseberry, toyon, coffeeberry, lemonade berry, and wild rose.
- Plant native trees including black cottonwood and sycamore to increase the canopy cover.

Figure 116. Nonnative understory of primarily nasturtium. Nonnative palm tree in background and eucalyptus canopy (upper portion of photo). Trautwein. February 18, 2022.

Figure 117. San Jose Creek Highway 101 Revegetation Site on west bank looking east across Creek. Several remaining willows from the 1996 revegetation project. Trautwein. February 18, 2022.

Figure 118. View from west bank looking northeast showing several remaining willows from 1996 revegetation project. Ground cover is nonnative grasses and nasturtium. Trautwein. February 18, 2022.

N. Hansen Aggregate Site

A portion of this Site was planted in 2003 when SBCFCWCD regraded the west bank where it had experienced erosion. [171] Other sections of the bank were planted along a two-hundred-and-fifty-foot reach.[172] Coconut fiber was laid down on the bank.[173] An adjacent property had added a large amount of impervious surface and not properly addressed runoff threatening to exacerbate erosion.[174] The operation eventually punched a hole in the bank to allow water to drain into the creek so it would not pond within the sand and gravel facility.[175] Subsequently, the sand and gravel operation installed a storm drain after working with regulatory agencies.[176] Currently, the west bank adjacent to the aggregate operation supports several large sycamore trees. There is a concrete block wall adjacent to the top of the bank installed in approximately 2000-2005. It is unclear if this block wall received permits from the City of Goleta or CDFW. Encampments have left significant amounts of trash on the west bank and Creek bed. Several willow and cottonwoods occur below the sycamore canopy and two spreading patches of wild rose are present on the bank. However, the vast majority of the bank is covered by nonnative groundcover plants.

Year Planted: 2003[177]
Area: 2,500 square feet[178]
Date of Site Visit: February 18, 2022

Plant Table

Species	# Planted	# Observed	Avg Height or Spread	General Condition	Estimated % Survival
Willows	30	14	Variable	Fair to Good	<50%
Cottonwood	5	2	>15’ h	Good	40%
Wildrose	10	At least 2 patches	Patches ranged from 8’ by 25’ and 8’ by 20’	Good	at least 20%
Sycamore	2	0	-	-	0%

Estimated Percent Cover:

- Groundcover: Ten percent (10%)
- Canopy: Forty to sixty percent (40%-60%)

[171] SBCFCWCD *Maintenance and Revegetation Report* (December 2003).
[172] *Id.*
[173] *Id.*
[174] *Id.*
[175] *Id.*
[176] *Id.*
[177] *Id.*
[178] *Id.*

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Arundo *donax*
- Oxalis
- Nonnative Grasses
- Shamel ash tree

Hanson Aggregate Site Highlights:

- The south-facing bank adjacent to the aggregate facility makes it an ideal site for revegetation which once complete will help shield the creek from the noise and lights associated with the facility.

Hanson Aggregate Site Recommendations:

- Remove the nonnative species present and replace with native understory, including blackberry, native shrubs, including wild rose, toyon, and lemonade berry, as well as native trees, such as willows, sycamores, California bay laurels and/or cottonwoods.
- Report the block wall to the City and CDFW to ascertain permit status.

Figure 119. This is the West bank of the Hansen Aggregate site, located just downstream from the train tracks and along Hansen Aggregate company grounds. This site hosts a robust homeless population which collectively produces a lot of trash and subsequent creek pollution. Trautwein. February 18, 2022.

Figure 120. West bank of San Jose Creek at the Hansen Aggregate site. Slope is covered in nonnative grasses and fallen sycamore leaves from the large sycamore in the upper right corner of the photo. One of several remaining willow trees is shown in the upper left corner of the photo. Trautwein. February 18, 2022.

Figure 121. Several remaining willow trees are present at the Hanson Aggregate Site on the west bank of San Jose Creek beneath large sycamores. The bank is covered by nonnative plants such as oxalis and kikuyu grass. Note the concrete block wall at the top of the bank. Trautwein. February 18, 2022.

Figure 122. Looking downstream along the west bank of San Jose Creek at the Hansen Aggregate Site. One of remaining willow trees from 2003 revegetation is present in the foreground and several large sycamores in background. Willows. Trautwein. February 18, 2022.

Figure 123. Looking downstream along San Jose Creek at the Hansen Aggregate site. There are wild roses surviving from the 2022 revegetation project and these are spreading underneath the canopy of sycamores and willows. Trautwein. February 18, 2022.

O. La Goleta Condominiums Site[179]

The La Goleta Revegetation Site is located on the south/south-east bank of San Jose Creek behind the La Goleta Condominium complex located at Armitos Avenue and Dearborn Place. Approximately 600 plants were installed at this Site in 2018 through a cooperative effort between SBCFCWCD and the La Goleta Homeowners Association ("HOA").[180] EDC divided the Site into six sections for the purpose of evaluating success of revegetation efforts. Several of the subsections are performing well. The HOA planted a pollinator garden, including nonnative species, which should not be credited toward SBCFCWCD's revegetation program, as discussed below.

[179] EDC segmented the La Goleta Site into six sections (not including the pollinator garden) for the purpose of tallying plants and estimating percent cover.
[180] SBCFCWCD *Maintenance and Revegetation Report 2020/2021 Maintenance Season* (July 2021) at 58.

Year Planted: 2018[181]
Size: 6,500 square feet[182]
Dates of Site Visits: January 24, 2022, January 31, 2022, and February 18, 2022.

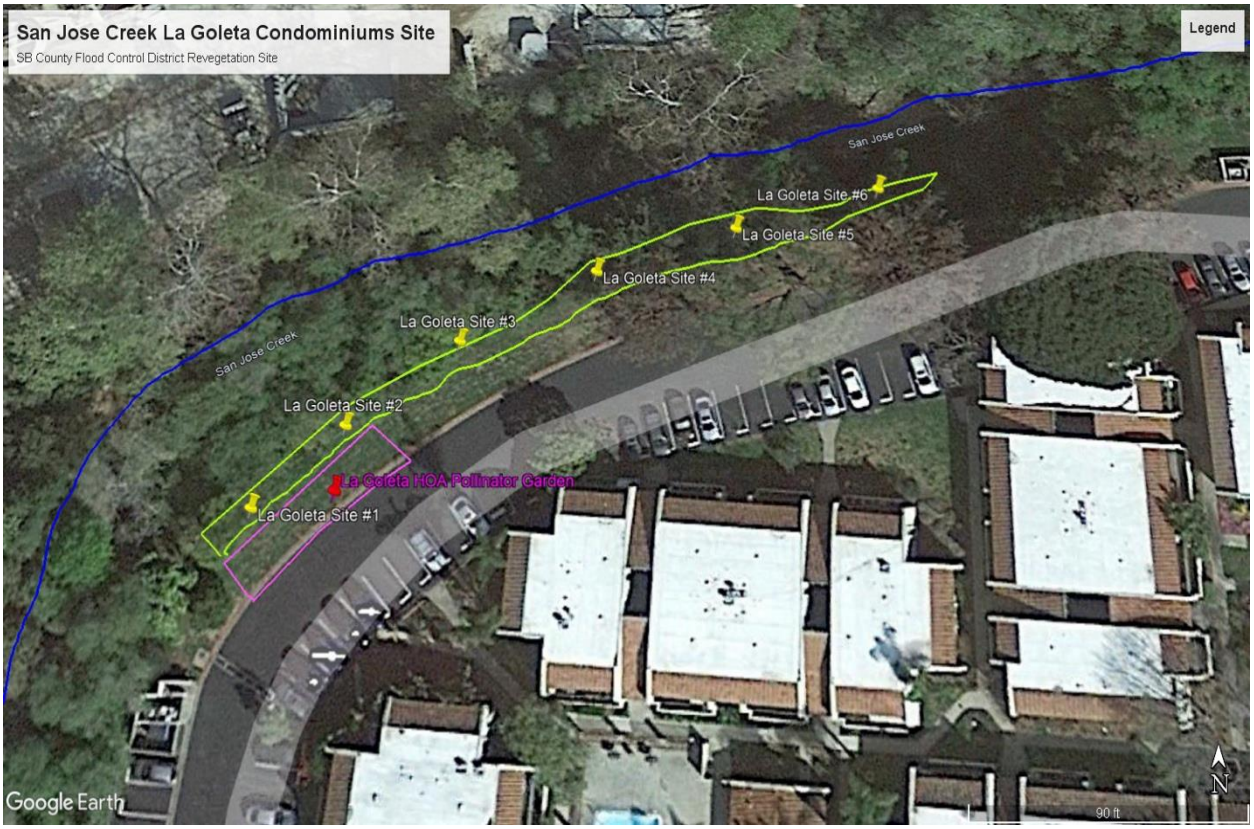


Figure 124. La Goleta Condominiums Revegetation Site and La Goleta Homeowners Association Pollinator Garden. Google Earth. 2021.

i. La Goleta Condominiums Site Section #1

Section 1 is 450 square feet and is located at the west end of the La Goleta Revegetation Site northwest of the La Goleta Pollinator Garden discussed below and is directly behind 5514 Armitos Avenue.

Year Planted: 2018
Size: 15 feet x 30 feet = 450 square feet
Date of Site Visits: January 24, 2022, January 31, 2022, and February 18, 2022.

[181] *Id.*
[182] *Id.*

Plant Table

Species	**# Planted[183]**	**# Observed**	**Avg Height or Spread**	**General Condition**	**Estimated % Survival**
Willows	Unknown	5	~8.5’ h	Good	Unknown
Sycamore	Unknown	1	15’ h	Good	Unknown
Black Sage	Unknown	3	3’ – 4’ h, 5’ – 6’ s	Good	Unknown
Mulefat	Unknown	1	3 - 4’ h	Good	Unknown
Coyote brush	Unknown	1	4’ h	Good	Unknown

Figure 125. La Goleta Site Section #1. Healthy black sage (lower third of image) and sycamore sapling middle center. Trautwein. January 31, 2022.

[183] The SBCFCWCD Maintenance and Revegetation Report for Maintenance Season 2020-2021 states at 58 that “~600 native plants” were installed in an area “over 6500 square feet” at the La Goleta Condo Site but does not provide the number of plants planted by species. Given the relatively recent planting date, EDC was generally able to discern planted plants from naturally occurring plants to populate the Plant table for the La Goleta Condo Site.

Estimated Percent Total Cover:

- Seventy-five to eighty percent (75 - 80%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nonnative grasses (i.e., kikuyu grass)
- Sow thistle
- Shamel ash tree
- Yucca
- Mallow
- Evening primrose
- Jacaranda tree
- Carolina cherry[184]

La Goleta Condo Site Section #1 Highlights:

- This site includes greater plant species diversity than many of the other revegetation sites evaluated.
- The plants are generally healthy, especially the black sage. (Figure 125)
- The location of Section 1 provides a good buffer between the condominiums, parking lot, and Creek.

La Goleta Condo. Site #1 Recommendations:

- Do not count the pollinator garden toward SBCFCWCD mitigation requirements.
- Replace nonnative, invasive plants and horticultural variants of local native plants in the pollinator garden with local native varieties.
- Remove the large jacaranda, yucca and Shamel ash trees which shade the site and pose a threat of spreading in the riparian habitat. (The jacaranda tree is spreading and EDC considers Shamel ash invasive due to the extensive spread in Goleta's creeks.)
- Increase percent cover of native riparian vegetation by about 10% or more.

ii. La Goleta Condominiums Site Section #2

Section 2 is located on the south/south-east bank of San Jose Creek behind the La Goleta Condominium complex. This Section begins at the east end of Section 1 behind the pollinator garden and continues northeast along the creek bank.

Year Planted: 2018

[184] EDC used the Seek app for preliminary identify of this plant as Carolina cherry. However, the plant appeared similar to coffeeberry, a native shrub found in riparian areas, and may be reclassified upon further evaluation. The plant was growing under the riparian canopy and measured 11-12 feet tall. It was in good condition.

Size: 10 feet x 70 feet = 700 square feet
Date of Site Visits: January 24, 2022, January 31, 2022, and February 18.

Plant Table

Species	**# Planted**	**# Observed**	**Avg Height or Spread**	**General Condition**	**Estimated % Survival**
Coast Live Oak	Unknown	1	10-15' h	Fair	Unknown
Black sage	Unknown	4	3' h	Good	Unknown
Purple sage	Unknown	1	5' h	Good	Unknown
Coyote brush	Unknown	4	6' h	Good	Unknown
Lemonade berry	Unknown	1	7' h	Good	Unknown
Mugwort	Unknown	3	3' h	Good	Unknown
Seacliff wild buckwheat	Unknown	3	2' h	Fair	Unknown

Estimated Cover: 75% - 85%

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nonnative grasses (e.g., kikuyu grass)
- Jacaranda tree

La Goleta Condo Site Section 2 Highlights:

- This site includes greater plant species diversity than many of the other revegetation sites evaluated.
- The plants are generally healthy.
- The location of Section 2 provides a good buffer between the condominiums, parking lot, and Creek

La Goleta Condo Site Section 2 Recommendations:

- Remove nonnative plants including jacaranda.
- Add understory species to increase understory percent cover.

iii. La Goleta Condominiums Site Section #3

Section #3 begins at the east end of Section #2 and continues northeast along the Creek's east bank.

Year Planted: 2018
Size: 100 feet x 20 feet = 2,000 square feet
Date of Site Visits: January 24, 2022, January 31, 2022, and February 18, 2022.

Plant Table

Species	**# Planted**	**# Observed**	**Avg Height or Spread**	**General Condition**	**Estimated % Survival**
Willows	Unknown	15	6' h	Fair	Unknown
Black sage	Unknown	5	2'- 4' h	Fair to Good[185]	Unknown
Mugwort	Unknown	2	2' h	Good	Unknown
Lemonade berry	Unknown	4	3' h	Fair	Unknown
Holly leaf cherry	Unknown	2	5' h	Good	Unknown
Purple sage	Unknown	4	4' h	Poor to Good[186]	Unknown
Wild blackberry	Unknown	2	5' s	Good	Unknown
Coast live oak	Unknown	10	6-18' h	Poor to Fair to Good[187]	Unknown
Coyote brush	Unknown	8	5' h	Fair to Good	Unknown
Seacliff wild buckwheat	Unknown	1	2' h	Poor	Unknown

[185] Sage planted under nonnative jacaranda trees received too little sunlight and some plants were in poor condition.
[186] Sage planted under nonnative jacaranda trees received too little sunlight and some plants were in poor condition.
[187] Oaks were either planted to close together or represent natural recruitment.

Estimated Percent Total Cover:

- Seventy-five to eighty-five percent (75-80%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Jacaranda (3)
- *Eucalyptus citriodora*
- Pines (2)

La Goleta Condo Site Section #3 Highlights:

- This site includes greater plant species diversity than many of the other revegetation sites evaluated.
- The plants are generally healthy.
- The location of Section 3 provides a good buffer between the condominiums, parking lot, and Creek.

La Goleta Condo Site Section #3 Recommendations:

- Remove the jacarandas, eucalyptus, and pine trees.
- Control exotic invasive species such as nonnative grasses.
- Plant additional riparian plants to increase percent cover of native species.

iv. La Goleta Condominiums Site Section #4

Section 4 begins at the east end of Section 3 and continues northeast along the east bank of San Jose Creek.

Year Planted: 2018
Size: 85 feet x 15 feet = 1,275 square feet
Dates of Site Visits: January 24, 2022 and January 31, 2022.

Plant Table

Species	**# Planted**	**# Observed**	**Avg Height or Spread**	**General Condition**	**Estimated % Survival**
Willows	Unknown	5	1' h	Poor to Dead[188]	0
Sycamore	Unknown	2	3' h	Fair[189]	Unknown
Black sage	Unknown	1	5' h	Fair	Unknown
Mulefat	Unknown	1	6' h	Fair	Unknown
Deadly nightshade	Unknown	1	1' h	Good	Unknown
Holly leaf cherry[190]	Unknown	1	5' h	Fair	Unknown
Purple sage	Unknown	1	3' h	Fair	Unknown
Wild blackberry	Unknown	2	5' s	Poor to Fair	Unknown
Coast live oak	Unknown	2	8' h	Fair to Good[191]	Unknown
Coyote brush	Unknown	3	4' h	Fair	Unknown

Estimated Cover:

- Thirty-five to forty-five percent (35-40%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nonnative grasses (i.e., Kikuyu Grass)
- Lemon-scented gum (*Eucalyptus citriodora*) (3)
- Arundo donax (appears to have been cut back)
- English/Algerian Ivy

[188] The planting location appears to be too dry to support willows without substantial irrigation.
[189] Sycamores planted under mature eucalyptus received too little sun.
[190] The Seek app identified this as holly leaf cherry however it appeared to be a Catalina island cherry. A definitive identification should be made and only holly leaf cherries retained.
[191] Some oaks were either planted too close together or represent natural recruitment at the site.

La Goleta Condo Site Section #4 Highlights:

- This site includes greater plant species diversity than many of the other revegetation sites evaluated.
- The plants are generally healthy.
- The location of Section #4 provides a good buffer between the condominiums, parking lot, and Creek.

La Goleta Condo Site Section #4 Recommendations:

- A willow snag was cut out – this should have remained as habitat for resident species.
- Remove English/Algerian ivy to protect sycamore and other native species in the area. (Figure 127)
- Remove Eucalyptus – they are shading out native plants.
- Remove *Arundo donax*.
- Increase percent cover of natives to 80% - 90% to ensure CDFW cover-based performance criterion is met or exceeded.
- Ensure future planting of oaks, willows, and sycamores are planted with ample room to grow (not too close to each other).
- Install drip irrigation or plant willows and sycamores closer to the Creek in more mesic conditions.

v. La Goleta Condominiums Site Section #5

La Goleta Condominium Site Section #5 begins at the east end of Section #4 and continues northeast along the east Creek bank.

Year Planted: 2018
Size: 85 feet x 17 feet = 1.445 square feet
Dates of Site Visits: January 24, 2022, January 31, 2022, and February 18, 2022.

Plant Table

Species	# Planted	# Observed	Avg Height or Spread	General Condition	Estimated % Survival
Willows	Unknown	10	6-10' h	Fair[192]	Unknown
Sycamore	Unknown	4	4-20' h	Fair	Unknown
Black sage	Unknown	4	5' h	Good	Unknown
Lemonade berry	Unknown	6	4' h	Fair to Good	Unknown
Mugwort	Unknown	2	5' s	Good	Unknown
Black cottonwood	Unknown	2	10' h	Fair	Unknown
Purple sage	Unknown	1	4' h	Good	Unknown
Wild blackberry	Unknown	3	4'-10' s	Good	Unknown
Coast live oak	Unknown	1	22' h	Good	Unknown
Coyote brush[193]	Unknown	10	4' h	Poor	Unknown
Seacliff wild buckwheat	Unknown	2	6' s	Good	Unknown

Estimated Percent Total Cover:

- Seventy-five percent (75%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nonnative grasses (i.e., kikuyu grass)

La Goleta Condominium Site Section #5 Highlights:

- This site includes greater plant species diversity than many of the other revegetation sites evaluated.
- The plants are generally healthy.
- The location of Section #5 provides a good buffer between the condominiums, parking lot, and Creek.

[192] Willows planted too far from the creek received too little water and were in poor to fair condition.
[193] Numerous coyote brush throughout the site were severely pruned adversely affecting their general condition and contribution to the restored habitat. (Figure 128)

La Goleta Condominium Site Section #5 Recommendations:

- Do not prune or trim the coyote brush – these plants have been unnecessarily cut back. (Figure 128)
- Remove the nonnative kikuyu grass.
- Increase percent cover of natives to 80% or 90% to ensure CDFW cover-based performance criterion is met or exceeded.
- Future planting of willows should be placed closer to the creek bed where water access is more available.

vi. La Goleta Condominiums Site Section #6

Section #6 of the La Goleta Condominium Site begins at the east end of Section #5 and continues northeast along the Creek bank for one hundred feet.

Year Planted: 2018
Size: 100 feet x 5 – 10 feet = 500 – 1,000 square feet
Date of Site Visits: January 24, 2022, January 31, 2022, and February 18, 2022.

Plant Table:

Species	**# Planted**	**# Observed**	**Avg Height or Spread**	**General Condition**	**Estimated % Survival**
Willows	Unknown	4	3-12’ h	Dead to Fair *2 dead, 1 good	Unknown
Sycamore	Unknown	1	4’ h	Fair	Unknown
Purple sage	Unknown	1	-	Dead	Unknown
Seacliff wild buckwheat	Unknown	3	3’-10’ s	Good	Unknown
Mugwort	Unknown	3	2’-8’ s	Fair	Unknown
Lemonade berry	Unknown	4	6’-9’ h	Poor	Unknown
Wild blackberry	Unknown	2	15’ s	Good	Unknown
Coyote brush	Unknown	3	6’ h	Good	Unknown

Estimated Percent Total Cover:

- Seventy-five percent (≈75%)

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Nonnative grasses (i.e., kikuyu grass)
- Oxalis
- Myoporum (within and adjacent to Site #6)
- Bird of paradise
- Castor bean (Figure 126)

La Goleta Condominium Site Section #6 Highlights:

- This site includes greater plant species diversity than many of the other revegetation sites evaluated.
- The plants are generally healthy.
- The location of Section #6 provides a good buffer between the condominiums, parking lot, and Creek.

La Goleta Condominium Site Section #6 Recommendations:

- Remove the nonnative and invasive species listed above.
- Increase percent cover of natives to 80% - 90% to ensure CDFW cover-based performance criterion is met or exceeded.
- Plant more willows, closer to the creek bed, and if water levels are low, install drip irrigation.

La Goleta Site Overall Plant Table

Species	**# Planted**	**# Observed**	**Estimated % Survival**
Willow	Unknown	39	Unknown
Sycamore	Unknown	8	Unknown
Black cottonwood	Unknown	2	Unknown
Coast live oak	Unknown	14	Unknown
Lemonade berry	Unknown	15	Unknown
Holly leaf cherry	Unknown	3	Unknown
Black sage	Unknown	17	Unknown
Purple sage	Unknown	8	Unknown
Mulefat	Unknown	2	Unknown
Coyote brush	Unknown	29	Unknown
Seacliff wild buckwheat	Unknown	9	Unknown
Nightshade	Unknown	1	Unknown
Mugwort[194]	Unknown	10	Unknown
Wild blackberry[195]	Unknown	9	Unknown
Total	**~600**	**166**	**26.7%**

[194] Number observed includes individual plants believed to be planted, however mugwort plants are actively spreading indicating successful establishment.
[195] Number observed includes individual plants believed to be planted, however wild blackberry plants are actively spreading indicating successful establishment.

Figure 126. Castor bean at La Goleta Revegetation was flagged and retained. Trautwein. January 2022.

Figure 127. Algerian ivy at the La Goleta Site Section #4 is smothering this native tree. Trautwein. January 2022.

Figure 128. Coyote brush, purple sage, black sage, lemonade berry, and sycamore at La Goleta Site Section 5. Coyote brush was pruned heavily. Trautwein. February 2022.

vii. La Goleta Condominium Pollinator Garden

Kitson Nursery planted a pollinator garden for the HOA east of Section #1. SBCFCWCD references a "pollinator" garden of "native" plants which "will supplement the riparian plantings."[196] This garden is location directly behind 5514 Armitos Avenue in the La Goleta Condominium complex. This garden appears to have been installed using wildflower seed packets. It contains non-local, horticultural varieties of native species which could escape into the riparian habitat or hybridize with local varieties of these species. There are several nonnative invasive species populating the area. The pollinator garden contains non-riparian species. The pollinator garden was not counted towards SBCFCWCD's mitigation requirements. However, inclusion in the Annual Maintenance and Monitoring Reports may create the appearance that it was counted as mitigation by SBCFCWCD.

Date Planted: 2018 or later
Size: 82 feet x 18 feet = 1,476 square feet
Date of Site Visits: January 24, 2022, January 31, 2022, and February 18, 2022.

Horticultural variates of native species present:[197]

- California poppy
- Elegant clarkia
- Lupine
- Matilija poppy
- Coyote brush
- Goldenrod
- Vervain
- Encelia[198]

Invasive and Naturalized Nonnative Plants Present in and Near Revegetation Site:

- Mallow
- Kikuyu grass
- Sow thistle
- Jacaranda (seedling)

La Goleta Condominium Pollinator Garden Recommendations:

- The HOA should replace plants with local varieties of native flowering plants to prevent spread of non-local varieties and non-native plants in riparian corridor.
- Clarify in future reports that the pollinator garden does not count towards SBCFCWCD mitigation credits.

[196] SBCFCWCD Maintenance and Revegetation Report (2020-2021) at 58.
[197] Some of these species are not native to Goleta watersheds e.g., Matilija poppy.
[198] Two Encelia shrubs appeared to have been planted as container plants rather than from seed packets.

Figure 129. The La Goleta Condominium Pollinator Garden. The seed mix planted here contains California natives and non-local horticultural varieties of local native species, such as the elegant clarkia above. It is not habitat restoration and not riparian habitat. It was not counted toward SBCFCWCD's mitigation requirements. Trautwein. January 31, 2022.

P. Armitos Road Arundo Removal (Site 8)

SBCFCWCD removed *Arundo donax* from this site, installed rock rip rap, and planted native vegetation in the early to mid-1990s.[199] Vandalism occurred requiring replanting several times. This was one of SBCFCWCD's first Arundo removal sites. After first replanting in 1993, storms, vandalism and unsuccessful planting required the Flood Control District to replant several more times in 1995, 1997 and lastly in 1998. The 1997-1998 Maintenance and Revegetation Report says that the Creek bank was destroyed and had to be "rebuilt."[200] We assumed this to mean that riprap was installed at the Armitos Road Site. The Report is vague in its location description so we cannot be one hundred percent confident that we analyzed the exact Site. However, we assume the Site we analyzed is the correct location given the description of being adjacent to the La Goleta Condominiums and Armitos Road and the presence of rip rap.

Years Planted: 1991, 1995, 1997, and 1998
Size:

- Reported: 219 feet x 20 feet = 4,380 square feet[201]
- Observed: 171 feet x 20 feet = 3,420 square feet recorded during field survey

Date of Site Visit: February 28, 2022.

Estimated Percent Total Cover:

- Understory ~50%
- Canopy ~ 90%

Plant Table

Species[202]	**# Planted**	**# Observed**	**Avg Height or Spread**	**General Condition**	**Estimated % Survival**
Willows	Unknown	Above riprap: 7 In riprap: 3	20-30' h	Good	Unknown
Sycamore	Unknown	2	35-45' h	Good	Unknown
Cottonwood	Unknown	6	45-50' h	Good	Unknown
Coast Live Oak	Unknown	1	25' h	Good	Unknown
Mulefat	Unknown	-	6' h	Good	Unknown
Blackberry	Unknown	1	-	Good	Unknown
Wild Cucumber	Unknown	-	-	Good	Unknown

[199] SBCFCWCD *Maintenance and Revegetation Report 1995/1996 Maintenance Season* (December 1, 1996).
[200] SBCFCWCD *Maintenance and Revegetation Report, 1997-1998 Maintenance Season* (December 1998) ("SBCFCWCD (1998)")).
[201] SBCFCWCD (1998).
[202] The species included in the Armitos Road Site Plant Table are based on species observed at the Site because we found no list of species planted in the Maintenance and Revegetation Report for the 1997-1998 Maintenance Season.

Invasive and Aggressive Nonnative Plants Present in and Near Revegetation Site:

- Shamel ash (2) – 12" DBH
- Eucalyptus (2) – 45-50' tall
- Nonnative grasses
- Oxalis
- Umbrella plant
- Castor bean
- Bottlebrush
- Yucca tree

Armitos Road (Site 8) Highlights:

- Overall, the site looks particularly good and healthy. The trees are well-established and the understory includes dense patches of native plants, including poison oak and wild blackberry.

Armitos Road (Site 8) Recommendations:

- Remove nonnative species from understory and replace with native mug wort, blackberry, and giant rye grass.
- Remove Shamel ash, castor bean, bottlebrush, and Eucalyptus trees. Replace with native woody species like cottonwood, sycamore, and willow and oak trees farther away from the Creek.

Figure 130. Four native tree species including black cottonwood, sycamore, willow, and coast live oak are present at the Armitos Road Site. Blackwelder. February 28, 2022.

Figure 131. Looking upstream at the Armitos Site. Several young willow and cottonwood trees populating the east bank of San Jose Creek. Blackwelder. February 28, 2022.

Figure 132. Rip rap at the Armitos Road Site. Horizontal willow with several new up shoots. In the back left corner is a nonnative, invasive Shamel ash tree. Middle left is a nonnative eucalyptus tree. Upper right corner is a nonnative Yucca tree. The vines growing over the riprap are native wild cucumber. Blackwelder. February 28, 2022.

Figure 133. Native wild cucumber within native willow branches. Two large nonnative, invasive eucalyptus trees in the background. Blackwelder. February 28, 2022.

Figure 134. Looking upstream at the Armitos Site on San Jose Creek. The Creek bed is clear of obstructive vegetation although a small cottonwood sucker is sprouting up in the creek bed. Blackwelder. February 28, 2022.

V. LAKE LOS CARNEROS MITIGATION BANK

EDC also reviewed the success of the Lake Los Carneros Mitigation Bank. As discussed above on page 13, there are pros and cons with mitigation banks. The Lake Los Carneros Mitigation Bank, although an offsite mitigation location, nonetheless appears to be successful by creating a large continuous habitat with value for birds and wildlife.

Site A:
Site A appears to be well-established although drought-stressed. It contains a mix of upland and riparian species. The 2020 Annual Report found that upland areas were performing well with riparian species becoming established.[203] Without sufficient rainfall or supplemental watering, this site may transition from containing riparian species such as willows to upland species dominated by coyote brush and/or exotic species.

Highlight:

- Two fifteen-foot-high bay laurel trees have become established in Site A and are flowering despite cessation of irrigation and despite the climate change-induced drought.

Recommendations:

- Continue to monitor Site A. If it currently considered all or part riparian habitat and it transitions into upland habitat due to the ongoing drought, consider tracking it at a .75:1 credit for mitigation.[204]
- Control nonnative weeds in the understory of riparian trees and around and between upland shrubs.
- Plant additional native species in open area between shrubs near the western side of Lake Los Carneros Dam.

Site D
Site D is one of the moister polygons and the largest polygon in the bank. It currently supports willows, sycamores, coast live oaks, cottonwoods, and at least one small bay sapling and an understory consisting almost entirely of wild blackberry in the southern portion of the Site. The cottonwoods approach 10" DBH and appear to be spreading by root suckers. The willows and sycamores appear healthy although some may be drought-stressed. Some willows have succumbed to the drought in drier portions of Site D. (Figure 135) Overall the southern portion of Site D is in good condition while the northern portion is in fair to good condition.

[203] SBCFCWCD, *Los Carneros Mitigation Bank Progress Report* at 2 (Summer 2021).
[204] *Id*.; *See also* CDFW SAA at 16.

Figure 135. Some willows have not survived the climate change-induced drought in Site D, but overall, the Site is in fair to good condition despite the climate change drought. Trautwein. February 7, 2022.

Highlights:

- Eradication of pampas grass in the southwest portion of Site D was remarkably successful and no pampas grass plants were observed during surveys.
- This site contains healthy and well-established riparian woodland vegetation, including canopy trees and understory, especially in the moister southern portion of Site D.
- Natural recruitment of coast live oaks is occurring.
- An exceptionally large greenback ceanothus shrub at least twenty feet high is present and likely predated revegetation efforts by several decades.

Recommendations:

- Continue to monitor Site D annually or every other year using aerial photographs and ground surveys.
- Document and contain invasions of nonnative plants.

- Leave trees that perish as snags.
- If riparian vegetation transitions to upland vegetation, ensure nonnative plants do not invade, consider planting upland species in such areas to facilitate the transition, and apply the .75:1 credit ratio for upland areas.
- The understory consists of almost entirely blackberry, although mugwort is also present. The understory should be diversified through planting additional understory species including wild giant ryegrass, gooseberry, hummingbird sage, snowberry, and mugwort.
- Remove Shamel ash trees located in this Site close to Calle Real. This species is known to outcompete willows in riparian areas and could significantly displace the riparian vegetation installed in Site D. Monitor for invasion by Shamel ash trees.

Sites E, F, and G

The three southeastern sites contain cottonwood, sycamore, willows, and bay laurel trees and these trees generally appear to be in good condition. The northern part of Site E contains open areas lacking tree cover. EDC's surveys viewed these Sites from a nearby trail so we did not get close enough to examine the understory.

Highlights:

- Site contains diversity of habitats and tree species.
- Location near grasslands to northeast may support white-tailed kite and raptor nesting, roosts, or perches.

Recommendations:

- Continue to monitor Sites E, F, and G annually or every other year.
- If riparian vegetation transitions to upland vegetation due to drought, retain snags, plant upland species, control nonnative weeds, and apply the .75:1 credit ratio for upland areas.

Sites H and I

Sites H and I are located closest to Calle Real which appears to pond water or slow the flow of groundwater south due to soil compaction associated with the road, resulting in moist conditions conducive to riparian plant establishment. These sites appear to be in good condition. They support willows, sycamores, and oak trees, including natural recruitment of oak trees. The understory is primarily native vegetation including blackberries, wild giant ryegrass, and snowberries.

Highlights:

- Good moisture retention benefits riparian species.
- Presence of snowberries.
- Natural oak recruitment.

Recommendations:

- Continue to monitor Sites H and I annually or every other year using aerial photos and ground surveys.
- Search for pampas grass and other nonnatives and remove within one year of detection.
- If riparian vegetation transitions to upland vegetation, plant upland species to facilitate transition, control nonnative weeds which might colonize during the transition, and apply the .75:1 credit ratio for upland areas.
- Eradicate castorbean located along Calle Real.

Site J

Site J contains large cottonwood trees approaching forty feet tall and eight-inch DBH. It contains at least one large gooseberry, as well as mugwort and naturally occurring oak saplings.

Highlights:

- The large cottonwoods are phenomenally successful.

Recommendations:

- Continue to monitor Site J annually or every other year using a combination of aerial photographs and field surveys.
- If riparian vegetation transitions to upland vegetation, plant upland species, control nonnative weeds they may colonize during transition, and apply the .75:1 credit ratio for upland areas.
- Monitor and control invasive species to prevent significant infestations.
- Plant native plants around the perimeter of the woodland where native plants are absent.

Site K

Site K is located toward the southern end of the Lake Los Carneros Mitigation Bank. It is a moist area suitable for riparian species. Willows and wild blackberries installed by SBCFCWCD thrive here. Rushes were noted in or near Site K. (Figure 136)

Figure 136. Rushes in or near Site K. Trautwein. February 7, 2022.

Highlights:

- Moist area supports healthy riparian vegetation installed by SBCFCWCD.

Recommendations:

- Continue to monitor Site K annually or every other year.

Site L

This site contains coast live oak trees, cottonwood trees, wild giant ryegrass, and coyote brush. This site appears to be transitional between riparian and upland. Given the drought, this site could transition to upland and become dominated by coyote brush and/or nonnative weeds such as mustard.

Recommendations:

- Continue to monitor Site L annually or every other year using aerial photos and field surveys.
- If riparian vegetation transitions to upland vegetation, plant upland species, control nonnatives that may colonize the area, and apply the .75:1 credit ratio for upland areas.
- Eradicate Cape ivy in this section and monitor for reinfestations.
- Eradicate exotic Cape smilax denoted by pink flags underneath large coast live oak tree on west wide of Site along main trail.[205] (Figures 137 a and b)

[205] The Seek App identified this species as Cape smilax.



Figure 137 a. and b. Nonnative Cape smilax under oak in Site L. Trautwein. February 7, 2022.

Sites M and N

These Sites are on the far west side of the bank. They support dense willow thickets with wild blackberry understory. They are well established but in fair condition given the drought.

Highlights:

- Wood rat nests were observed in this area indicating wildlife use in restored areas.

Recommendations:

- Continue to monitor Sites M and N annually or every other year using both aerial photographs and field surveys.
- If willows succumb to the drought, retain snags.
- If riparian vegetation transitions to upland vegetation, monitor to ensure native upland species colonize the area, plant upland species if necessary to maintain native plant cover and diversity native upland plant community, control nonnative weeds which may colonize the area, and apply the .75:1 credit ratio for upland areas.

Site O

Site O located south of the Dam is one of the largest sites in the Lake Los Carneros Mitigation Bank and also the most upland sites. It contains upland species, including sumac, blackberry, oak, , lemonade berry coyote brush, buckwheat (Figure 138), Encelia, Santa Barbara honeysuckle, coffeeberry, purple sage, and California sage, as well as riparian species including

sycamore. (Figure 139) Providing upland plant communities enhances the functionality of the adjoining riparian woodlands by allowing for use by a greater number of wildlife species.[206] Overall plant health ranges from poor to good with riparian species closest to the Dam (northern portion of Site O) generally in the poor to fair range with some dead willows. (Figure 140) Some sycamores in this area are in good condition.

The western portion is almost solid coyote brush, which may not meet the CDFW success criteria related to percent cover by diverse native species.[207]

Aerial photos from as recently as 2019 showed good percent cover of natives e.g., 75-80%, however, it appears that since watering ceased during the current megadrought, some native plants have not fared well. The percent cover still appears to be in the range of 70-80% but lower in the northern portion of Site O. (Figures 141 and 145) Nonnative herbaceous plant communities are present in the northern portion of Site O and dominate the understory. Overall, Site O may be the least successful polygon in the Lake Los Carneros Mitigation Bank.

Highlights:

- Large number of upland species established.
- Presence of Santa Barbara honeysuckle, a California Rare Native Plant species.

Recommendations:

- Continue to monitor annually or every other year using aerial photos and field surveys to ensure riparian sites remain riparian and do not transition to native or nonnative upland plant communities because such a transition would signal long-term failure of mitigation.
- If riparian vegetation transitions to upland vegetation, monitor to ensure nonnative plants do not colonize the area, control nonnative species which may colonize the area, plant native upland plants to ensure species diversity, apply the .75:1 credit ratio for upland areas.
- Control invasive herbaceous understory species especially in northern portion of Site O.
- Replant upland species in open northern portions of Site O dominated by nonnative species.
- Increase upland plant diversity in western portion of Site O currently dominated by coyote brush.

[206] SBCFCWCD, *Los Carneros Mitigation Bank Progress Report* at 2 (Summer 2021).
[207] CDFW SAA Success Criterion 3.9(b) at 17.

Figure 138. Buckwheat in northern portion of Site O. Trautwein. February 7, 2022.

Figure 139. Upland plant community in northern portion of Site O including coyote brush, lemonade berry, and buckwheat, with nonnative mustard growing between native plants. Note dam in background. Trautwein. February 7, 2022.

Figure 140. Some willows have died due to apparent lack of water in the northern portion of Site O, including this one which grew around an irrigation line. Trautwein. February 7, 2022.

Figure 141. Northern portion of Site O closest to the dam contains open areas dominated by nonnative plants. Trautwein. February 7, 2022.

Lake Los Carneros Mitigation Bank Overall Highlights:

- Eradication of large number of large pampas grass and German ivy plants with no young pampas grasses or German ivy apparent.
- Large contiguous area of habitat created.
- Success of riparian trees and understory species, especially in southern polygons (Sites K, J, I, H, and D).
- Co-location of upland and riparian areas to increase habitat diversity and benefit birds and wildlife.

Lake Los Carneros Mitigation Bank Overall Recommendations:

- Continue to monitor annually or every other year using aerial photos and field surveys to ensure riparian sites remain riparian and do not transition to native or nonnative upland plant communities because such a transition would signal long-term failure of mitigation.
- If riparian vegetation transitions to upland vegetation, apply the .75:1 credit ratio for upland areas.
- Control invasive species including Shamel ash and Cape ivy.
- Monitor for other invasive species and control to prevent significant infestations, e.g., castorbean, pampas grass, and mustard.
- Retain Monterey cypress snags.
- Remove all irrigation lines once sites are established. Reinstall only if needed to prevent loss of riparian vegetation due to the megadrought. (Figure 142)

Figure 142. Irrigation lines are broken in some areas and should be removed to prevent plastic pollution. Trautwein. February 7, 2022.

Figure 143. Los Carneros Mitigation Banks site prior to removal of pampas grass. Google Earth. November 10, 2003.

Figure 144. Lake Los Carneros Mitigation Bank Polygon Map. Safter pampas grass removal and before maturation of plantings. SBCFCWCD. Circa 2009.

Figure 145. Los Carneros Mitigation Bank after maturation of plantings. Google Earth. August 2019.

VI. GLOBAL RECOMMENDATIONS FOR SBCFCWCD REVEGETATION

The following revegetation recommendations for SBCFCWCD and permitting agencies such as CDFW are designed to (1) ensure impacts to the quality and quantity of riparian vegetation are mitigated over the long-term through successful establishment of permanent riparian habitat by revegetation projects, (2) improve the success of riparian revegetation projects, and (3) enable more effective and quantitative monitoring and tracking of revegetation sites by providing measurable data relevant to CDFW's SAA success criteria, such as percent cover, plant survival rates, plant growth rates, and presence and percent cover of invasive species.[208]

A. **Mitigation Ratio**. Discussion: Observations indicate that 2015 SAA success criteria are not always met in the short term and long term and that compensatory mitigation is inadequate to offset or substantially lessen impacts.[209] Specifically, observations documented herein demonstrate that a number of revegetation projects do not meet success criteria related percent cover, percent cover of herbaceous invasive understory, tree growth rates, and presence of woody nonnative vegetation over the short and long term. Success criteria also indicate that ratios should be greater than 1:1 for impacts which are not mitigated by implementing revegetation within a year.[210] Observations and review of SBCFCWCD Maintenance and Revegetation Reports indicate that mitigation for temporary impacts is not always implemented with a year, and/or is not successful the first year and requires replanting. Despite this, the SBCFCWCD appears to only credit mitigation for temporary impacts at 1:1. Furthermore, revegetation sites typically contain lower species diversity compared to adjacent natural habitats.

Recommendation: Given the failure of some revegetation sites to meet and maintain success with respect to the measurable criteria, the mitigation ratio for temporary impacts must be increased to ensure adequate mitigation. The ratio should also be increased because despite the requirement of Criterion 3.1 SBCFCWCD does not undertake mitigation at a ratio greater than 1:1 for revegetation projects occurring after the first growing season following impacts. Therefore, EDC recommends that CDFW and other agencies amend the SAA and other permits to increase mitigation ratio for temporary impacts (a) from 1:1 to 2:1 to account for failure to achieve and maintain success pursuant to the criteria, and (b) from 1:1 to 3:1 for revegetation projects successfully initiated later than the first growing season after the impact occurs.

B. **One-time Mitigation of Temporary Impacts Within Ten Years**. Discussion: Instream riparian habitat that is cleared typically recovers and creates important habitat within five years if not re-cleared. Currently the trigger for mitigating

[208] CDFW SAA at 17.
[209] Success Criterion 3.9(f) notably involves attainment "for the life of the project." CDFW (2015) at 17.
[210] Criterion 3.1 requires, "a 1:1 acreage replacement ration *if habitat is replaced the following growing season*." (*Emphasis added*.) CDFW (2015) Criterion 3.1 at 15.

temporary impacts is ten years. However, when riparian habitat in the same location is re-cleared after a five-year period, new temporary vegetation and habitat impacts result, triggering the need for new mitigation in the form of revegetation.
Recommendation: Amend the SAA and other permits to require revegetation each time a temporary impact occurs in the same location after five years (i.e., reduce the permit trigger from ten years to five years).[211] Keep the permit term at ten years unless it must match the permit trigger, in which case reduce the permit term to five years to match the mitigation trigger.

C. **In-kind Mitigation**. Discussion: Revegetation sites such as COVA are upland plant communities (e.g., Ceanothus, California sage, coyote brush, white sage, black sage, etc.) which do not mitigate loss of riparian habitat. Recommendation: Amend the SAA and other permits to not count upland revegetation sites as mitigation for loss of riparian species or to count upland revegetation sites at lower credit ratio, i.e., 50%.[212]

D. **In-watershed Mitigation and Use of Lake Los Carneros Mitigation Bank**.
Discussion: SBCFCWCD appropriately attempts to mitigate within the site of disturbance or within the same watershed whenever possible, but there is no decision tree or process for determining when onsite or in-watershed mitigation is infeasible.
Recommendation: Amend the SAA and other permits to include a decision tree or enforceable process to ensure revegetation occurs in the watershed where impact occurs to the maximum extent possible.[213] Permitting agencies should develop an objective, quantitative method for determining when the Lake Los Carneros Mitigation Bank must be used. For example, a decision tree which includes mapping and assessing the feasibility of available onsite public and private revegetation locations, including landowner cooperation, could be used to determine when onsite or in-watershed revegetation is infeasible thereby triggering the use of the Lake Los Carneros Mitigation Bank.

E. **Increase Species Diversity**. Discussion: Revegetation projects often include a low species diversity compared to the adjacent native riparian habitats.
Recommendation: Amend the SAA and other permits to increase diversity of species planted at revegetation sites.

F. **Credit Eradication of Invasive Nonnative Plant Species as Mitigation.**
Discussion: Invasive plant species are spreading in San Jose Creek and other

[211] CDFW (2015) Criterion 3.2 at 15.
[212] The Lake Los Carneros Mitigation Bank only credits upland vegetation at a .75:1 ratio.
[213] Santa Barbara County (2008); *See e.g.*, 2020-2021 Maintenance and Revegetation Report at 37 stating that SBCFCWCD "may draw from the surplus restoration for the other watersheds in the Goleta Slough system."

riparian habitats which are maintained by SBCFCWCD.[214] As discussed above, revegetation projects do not always successfully mitigate the impacts of the SBCFCWCD Annual Maintenance Program over the long term. Therefore, there should be a requirement for SBCFCWCD to eradicate or control specific invasive species, including but not limited to Shamel ash, castorbean, tamarix, and Arundo donax, to prevent their spread in areas subject to maintenance in a given year's Annual Plan. We acknowledge SBCFCWCD's statement that it is not funded specifically to restore habitat. However, successful restoration is required by resource agency permits and CEQA. Effective removal of invasive species would create additional areas for onsite revegetation and would help ensure successful mitigation to fulfill permit requirements.

Recommendation F1: Regulatory agencies should require SBCFCWCD to remove specified invasive species, including seedlings, saplings, and plants from the riparian corridor to the maximum extent feasible within areas subject to maintenance in each Annual Maintenance Plan to mitigate the effects of the Annual Maintenance Program.

In the absence of a requirement to remove invasive species as part of the Annual Maintenance Plan, there should be an effective incentive for SBCFCWCD to remove these species.

Recommendation F2: Regulatory agencies should credit effective eradication of exotic invasive species to SBCFCWCD's mitigation program when SBCFCWCD (1) documents removal of such species from sections of creek subject to maintenance, (2) successfully revegetates areas over one hundred square feet where invasive species are effectively removed, and (3) continues to remove and document removal of invasive species seedlings, saplings, and plants for five years following initial eradication. If invasive species are successfully eradicated over five years in a given area and the area is successfully revegetated pursuant to success criteria, the areas should count as 100% mitigation credit (i.e., one hundred square feet of eradication and revegetation should count as one hundred square feet of mitigation). Areas where over one hundred square feet of invasive plants are successfully eradicated must be revegetated. If areas where invasive species are successfully eradicated are less than one hundred square feet and not revegetated, the areas of eradication should count as 50% mitigation. For Recommendation F2 to be effective at improving the success of mitigation, long-term monitoring by SBCFCWCD and regulatory agencies must demonstrate that the targeted invasives are being effectively minimized and replaced with native species.

G. Increase Weed Control Efforts and Ensure Removal of Nonnative Trees in Revegetation Sites. Discussion: EDC observed significant levels of nonnative invasive woody vegetation and nonnative invasive herbaceous plants often over

[214] EDC, *Goleta Watersheds and Wildland Urban Interfaces: Enhancing Fire Safety and Riparian Forest Health* at 178-187 (November 2021)

50-90% at revegetation sites even though Success Criterion 3.9(c) states, "no woody invasive species shall be present, and herbaceous invasive species shall not exceed five percent."[215] SBCFCWCD stated that when it obtains approval for revegetation projects on private land, such as at COVA, landowners sometimes request them to preserve nonnative trees within the revegetation area, and SBCFCWCD has no option but to comply if it wants to plant on private land. EDC observed nonnative trees, including eucalyptus, yucca, and jacaranda retained in several revegetation sites located on private property, such as the COVA and La Goleta sites. This is problematic because these tree species shade revegetation sites and were observed spreading near the riparian habitat revegetation sites.

The SAA requires that invasive herbaceous species cover no more than five percent of revegetation sites. SBCFCWD stated that invasive herbaceous species like oxalis are widespread in local watersheds and it would take significant resources to try to control them within revegetation sites, so SBCFCWCD tolerates these species and does not expend the resources necessary to remove these species to try to meet the success criterion for invasive herbaceous species.[216]

Permitting agencies generally do not hold SBCFCWCD to the quantitative success criteria.[217] According to SBCFCWCD, it is better to track density and presence of multilayered canopies than percent survival when monitoring success of revegetation sites.[218] Part of the reason for this is because it is hard to count the number of surviving plants for species which grow by rhizome such as California rose and wild blackberry. SBCFCWCD would prefer to have Success Criterion 3(g) (percent survival) removed from the permits but the permitting agencies prefer to retain the criteria.[219]
Recommendation G1: Retain all success criteria in the SAA.
Recommendation G2: Require increased weed control efforts at revegetation sites to fulfill CDFW Success Criterion 3.9(g) to achieve zero percent presence of invasive woody species and less than five percent cover of invasive herbaceous vegetation at revegetation sites as required under Success Criterion 3.9(g).
Recommendation G3: Permitting agencies should require SBCFCWCD to collaborate with landowners to ensure that nonnative and especially invasive woody species are removed from SBCFCWCD revegetation sites to the maximum extent possible before mitigation is accepted as successful. Retaining invasive or nonnative woody plants in revegetation sites should be prohibited to the maximum extent possible and accepted only as a last result when necessary to

[215] CDFW (2015) at 17.
[216] Raaf (2022).
[217] *Id.*
[218] *Id.*
[219] *Id.*

obtain landowner approval to conduct revegetation. The landowner's requirement to retain nonnative plants must be demonstrated in writing to the permitting agencies in such situations, and SBCFCWCD must be required to prevent the spread of such plants

Recommendation G4: Track success pursuant to established success criteria in CDFW SAA and also track density and presence of multilayered canopies (i.e., groundcover, shrub layer, and tree canopy) as an additional measure of success.

Recommendation G5: Track success of plants which spread by rhizomes e.g., California rose and wild blackberry by percent cover rather than percent survival.

H. Improve Tracking and Reporting in Annual Maintenance and Revegetation Reports: Discussion: The following recommendations are intended to ensure that the success of revegetation projects can be tracked pursuant to the CDFW SAA, which requires that, "each chapter includes a detailed discussion of data collection, ability to meet success criteria, monitoring activities… species used, and so forth." The Maintenance and Revegetation Reports do not contain an assessment of specific success criteria used in the SAA, including percent survival,[220] percent cover,[221] tree heights,[222] percent cover of invasive herbaceous vegetation,[223] or presence of woody invasive nonnative species.[224] Annual Maintenance and Revegetation Reports do not consistently set forth the species planted or the number of plants installed.[225] SBCFCWCD assesses success qualitatively.[226] SBCFCWCD can do a better job of counting the number of plants planted and surviving.[227]

Recommendations: The following recommendations are necessary for SBCFCWCD and CDFW and other permitting agencies to accurately measure success pursuant to permits including the CDFW SAA's Success Criteria.

1. Map revegetation site boundaries using GPS coordinates at site boundaries to document precise locations. Include maps in each year's Maintenance and Revegetation Report.
2. Demarcate boundaries of revegetation sites in the field using durable markers and replace markers if removed.
3. Consistently name or number each revegetation site.
4. Number all figures in Maintenance and Revegetation Reports.

[220] The CDFW SAA requires "80% survival, by species, the first year and 100% survival thereafter and/or shall retain 75% cover after 3 years and 90% cover after 5 years for the life of the project." Success Criterion 3.9(f) (Emphasis added.)
[221] *Id*.
[222] CDFW SAA Section 3.8 Criteria for Tree Replacement at 16 and Success Criterion 3.9(e) at 17.
[223] CDFW SAA Success Criteria 3.9(c) at 17.
[224] *Id*.
[225] SBCFCWCD, *Maintenance and Revegetation Reports* (1993-1994 – 2020-21); *See also* Annual Plans (1993-94 – 2021-22).
[226] Maureen Spencer, Operations Manager, SBCFCWCD, personal communication with Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (January 2022.)
[227] Raaf (2022).

5. Add photos of each site from set reference point locations in annual Maintenance and Revegetation Reports.
6. Document all species planted at each site.
7. Document number of plants of each species planted at each site for tracking pursuant to SAA Success Criterion 3.9(f).
8. Document and track survival rates annually (i.e., number and percent of installed plants surviving) pursuant to SAA Success Criterion 3.9(f).
9. Annually track year-to-year plant height and growth pursuant to SAA Section 3.8 Criterion for Tree Replacement.
10. Annually track percent cover of native species pursuant to SAA Success Criterion 3.9(f).
11. Annually track percent cover of herbaceous nonnative species present pursuant to SAA Success Criterion 3.9(c).
12. Annually track presence of woody invasive species pursuant to SAA Success Criterion 3.9(c).
13. Annually track general health and condition of plants installed.

I. SBCFCWCD Should Encourage Restoration Projects by Nonprofits. Discussion: SBCFCWCD has an informal policy to prohibit nonprofit groups from conducting creek revegetation projects on County owned land or easements in order to preserve these areas for SBCFCWCD future revegetation projects.[228] This precludes enhancement of the region's riparian habitat and habitat for listed species such as steelhead. There are many locations where nonprofits could enhance riparian vegetation if this policy were lifted. Moreover, such areas are not being used by the SBCFCWCD for revegetation.
Recommendation: Encourage and support nonprofit efforts to conduct voluntary habitat restoration projects along County-owned properties and easements. Consider allowing SBCFCWCD to credit a percentage of this restoration as mitigation, for example, if SBCFCWCD provides half the plants, labor, and maintenance then 50% of the revegetation area could be credited as mitigation.

J. Exclude Voluntary Community Restoration Projects. Discussion: The potential exists for SBCFCWCD to claim mitigation credit for a nonprofit group's creek revegetation projects when done in tandem with SBCFCWCD.
Recommendation: SBCFCWCD and permitting agencies should ensure that SBCFCWCD does not count voluntary restoration projects undertaken by nonprofit groups, Homeowners Associations, and community groups as mitigation for SBCFCWCD maintenance projects.[229]

[228] Personal communication, Tom Fayram, former Deputy Director, SBCFCWCD (circa 1997).
[229] Urban Creeks Council's joint project with SBCFCWCD at Las Vegas Creek counted as 50% mitigation for SBCFCWCD maintenance activities. Join revegetation projects such as this must be tracked carefully to ensure the correct acreage is attributed to SBCFCWCD's revegetation program.

K. **No Double-counting Mitigation Projects**. Discussion: SBCFCWCD has revegetated areas where a private entity (COVA) was required to undertake revegetation to mitigate the impacts of COVA's clearing of riparian habitat. Recommendation: SBCFCWCD and permitting agencies must develop a method to ensure that revegetation projects are not double-counted as mitigation for both SBCFCWCD maintenance projects and private projects.[230]

L. **Annual Maintenance and Revegetation Reports Should Clearly Exclude Community Landscaping Projects**. Discussion: SBCFCWCD must clarify that SBCFWCD does not take mitigation credit for community landscaping projects such as the La Goleta Condominiums Pollinator Garden which includes nonnative and non-local plant species) as mitigation for SBCFCWCD's maintenance program. (See pages 131 - 132 above.) Recommendation: SBCFCWCD and permitting agencies should ensure that non-restoration community landscaping projects such as pollinator gardens are not credited as mitigation.[231]

M. **Require Local Genotype Plants**. Discussion: In at least one instance, horticultural, non-local varieties of native plants were apparently used in a revegetation project credited as SBCFCWCD mitigation. Restoration practitioners and agencies generally require local genotype plants to protect the genetic integrity of local native plant populations.[232]

Recommendation: CDFW and other permitting agencies permits should require plants installed to be from local genotypes grown from seeds or cuttings collected along the creek where the impact occurs whenever feasible, or within proximity (e.g., the Goleta Watershed) to protect the genetic integrity of local native plant populations.

N. **Increase the Monitoring and Maintenance Period to Ten Years.** Discussion: The current program's use of a five-year maintenance and monitoring period has resulted in unsuccessful revegetation projects as documented in this report. Revegetation projects may initially succeed when watered and weeded but often become overrun with exotics and thwarted by mortality (note percent covers and survival rates in plant tables above). The problem is likely to worsen given climate change-induced droughts.

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[230] See e.g., discussion of COVA mitigation projects being counted as SBCFCWCD mitigation projects.
[231] The pollinator garden planted by Kitson Nursery with the la Goleta Condominium residents includes a mixture of native and non-native flowering plants which appears to be a commercial seed mix rather than local native species.
[232] See e.g., City of Goleta, *Creek and Watershed Management Plan* Strategy 11.1 and Action 11.1.2 at 258 – 259 (November 2020); *See also* Belnap, Jayne, *Genetic Integrity: Why Do We Care? An Overview of the Issues* https://www.fs.fed.us/rm/pubs/int_gtr315/5_belnap.pdf (December 26, 2021); Ken Owens, Executive Director, Channel Islands Restoration, personal communication to Watershed Alliance of South Coast Organizations stating that most sycamore seedlings found in local creeks are hybrids with London plane trees, and to ensure local sycamore population's genetic integrity is maintained, propagation must occur using cuttings from heritage trees which predate importation of London plane trees to this region. (April 14, 2022).

Recommendation: The SAA and other permits should require maintenance and monitoring for a minimum of ten years and longer if needed to achieve the measurable success criteria in the SAA and other permits and to increase long-term success and effectively mitigate impacts.

O. CDFW Inspections of Revegetation Sites. Discussion: CDFW does not inspect all of the many revegetation sites and instead relies on SBCFCWCD's Maintenance and Revegetation Reports.[233]
Recommendation: CDFW and all permitting agencies should visit each revegetation site and measure success pursuant to the measurable success criteria before signing off on revegetation sites as successful.

P. Plant a More Upland Plant Palette for Climate Change Resiliency.
Discussion: EDC has observed many local creeks that used to flow year-round have become intermittent due to the climate change-induced drought. Projections indicate our region will have a warmer climate with less frequent winter storms, a diminished water supply, and increasing reliance on groundwater, SBCFCWCD should consider planting oak riparian woodland plant communities where willow woodland and other riparian communities once thrived.

Appendix I

ACRONYMS

CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
COVA	Cathedral Oaks Village Association
DBH	Diameter at Breast Height
EDC	Environmental Defense Center
EIR	Environmental Impact Report
HOA	Homeowners Association
SAA	Streambed Alteration Agreement
SBCFCWCD	Santa Barbara County Flood Control and Water Conservation District
ROW	Right of Way
UCC	Urban Creeks Council

[233] Rains (2021).