



GOLETA WATERSHEDS AND WILDLAND-URBAN INTERFACES:
ENHANCING FIRE SAFETY AND RIPARIAN FOREST HEALTH



GOLETA WATERSHED PROTECTION AND EDUCATION PROGRAM

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EDC's Cosponsors, Partners, and Resources

- Goleta City Council
- City of Goleta Public Works Department
- City of Goleta Parks and Open Space Division
- City of Goleta Planning and Environmental Review Department
- Santa Barbara County Project Clean Water
- Santa Barbara County Flood Control District
- Santa Barbara County Fire Department
- City of Santa Barbara Creeks Division
- National Marine Fisheries Service
- California Coastal Conservancy
- California Department of Fish and Wildlife
- Cachuma Resource Conservation District
- Santa Barbara Urban Creeks Council
- Santa Barbara Audubon
- Santa Barbara Channelkeeper
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Cover Photo: Arroyo Hondo Creek acts as firebreak stopping the Gaviota Fire's spread. Google Earth. 2004.



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Note regarding numbering of recommendations and figures: This report is a compilation of excerpts from EDC's 2021 *Goleta Creeks and Watersheds: Opportunities for Restoration and Enhancement*, therefore the recommendations and figures in this report skip numbers.

I. EXECUTIVE SUMMARY AND INTRODUCTION

A. Executive Summary

This report identifies recommendations to local, state, and federal agencies, land managers, landowners, and nonprofit organizations regarding actions to reduce the growing wildfire threats caused by climate change and other human activities while enhancing creeks, watersheds, native forests, and fish and wildlife habitats in the Goleta Valley in Santa Barbara County, California. Fire protection and land management agencies are faced with increasingly dangerous conditions because of more frequent, faster-spreading, and more intense wildfires due to climate change, droughts, desiccated woodlands, chaparral, and riparian forests, increased public access to wildlands, and increasing camping in wildlands and Wildland-Urban Interfaces (“WUI”), including people currently experiencing homelessness in the region. These challenges are most evident in the Santa Ynez Mountains and peripheries of urban areas adjacent to natural habitats such as the National Forest LPNF (“LPNF”), Gaviota Coast, and in riparian habitats located along twenty-two named creeks in the City of Goleta, western portions of the City of Santa Barbara, and unincorporated areas in the eastern Goleta Valley. Recommended actions will mitigate the growing fire threat and enhance natural habitats and watershed values during the twenty- to fifty-year implementation horizon and beyond.

1. Values and Benefits of Healthy Watersheds

Goleta’s watersheds provide important uses, benefits, and values treasured by residents and visitors to the Goleta Valley. Our watersheds collect, direct, and filter stormwater runoff to recharge Goleta’s parched groundwater basins with clean drinking water to serve a growing population during frequent droughts intensified by climate change. When protected from urban development, watersheds and streams act as flood control channels to safely convey floodwaters to the ocean. Goleta’s creeks and watersheds offer exceptional recreational opportunities, including parks and open spaces connected by a network of trails and bike paths. Goleta’s creeks and watersheds harbor tremendous biodiversity, including rare species, such as federally threatened California red-legged frogs and federally endangered southern California steelhead. Students and teachers utilize Goleta’s creeks as natural outdoor laboratories to study earth sciences. Local streams provide scenic backdrops to Goleta Valley neighborhoods, increase property values, offer quiet places to reflect and appreciate nature, and improve the quality of life in our community. This report identifies opportunities to preserve and enhance these values through actions which reduce fire, flood, and debris flow hazards, thereby protecting life, property, habitats, and wildlife.

2. Climate Change: A Growing Existential Threat to People, Communities, and Watersheds

The report describes numerous threats to Goleta Valley watersheds. The interrelated effects of climate change, higher temperatures, more frequent fires, longer and more severe droughts, increased surface water and groundwater extractions, declining live fuel moisture levels, increased spread of flammable nonnative plants, and the growing number of encampments along Goleta creeks synergistically degrade natural resources within Goleta Valley



watersheds and decrease public safety. Climate change and increased fire frequency threatens to replace protective chaparral within watersheds with nonnative annual weeds which heighten wildlife ignition risks. Chaparral conversion opens formerly impenetrable areas to human access and camping. The recent increase in people experiencing homelessness camping along creeks, woodlands, and wildlands adds to the growing sources of ignition in an increasingly arid landscape.

Increased storm severity accompanying climate change poses a related set of safety concerns: flooding, erosion, landslides, and debris flows. Increasing droughts, hotter temperatures, and increasing human access and camping result in increased fire hazards. When followed by increasingly severe storms, neighborhoods near creeks and floodplains are at risk. More frequently denuded hillsides caused by fires, erosion, and debris flows are subject to increased type-conversion of chaparral, which consequently increases fire ignition threats, resulting in shorter fire frequencies, creating a feedback loop which increases fire, flood, and debris flow threats, and denigrates the habitat values of streams, chaparral, oak, and riparian forests in Goleta Valley watersheds.

In addition, measures taken to reduce fire, flood, and debris flow impacts result in incidental impacts to watersheds and special-status species present in the Goleta Valley. Climate change, type-conversion, increased access, camping, fires, floods, and debris flows are growing ever-present threats in the Goleta Valley. This report sets forth recommendations to minimize wildfires, floods, and debris flows, and protect and enhance the natural qualities of creeks and watersheds in the Goleta Valley.

3. Purpose, Approach, and Expected Outcome

EDC annually surveys Goleta valley creeks and watersheds to identify environmental problems and develops solutions. The report summarizes the results of EDC's 2013 - 2020 watershed surveys and EDC's findings regarding the existing values, uses, and conditions of each of the twenty-two named Goleta Valley creeks. It describes the closely linked worsening threats to fire safety and watershed health. The report sets forth thirty-nine site specific recommendations and five global recommendations to improve fire safety in the WUI and enhance native forest health. The report suggests programmatic solutions that would lessen these broad-based problems, identifies prospective partners, funding sources, and next steps to advance conceptual actions into on-the-ground projects. EDC believes that these extremely difficult issues and interrelated threats can be mollified through collaboration by non-traditional partners to protect life, property, watersheds, natural habitats, and the many functions and values of creeks and riparian forests enjoyed by residents, businesses, and visitors in the Goleta Valley. By working together, local, state, and federal agencies, nonprofits, academic organizations such as the University of California, Santa Barbara ("UCSB"), private businesses, landowners, and citizens can protect, preserve, and restore public safety, natural resources, creeks, and watersheds.

4. Key Findings and Recommendations

The report's key findings include:

- I. Feasible measures to minimize the threat of fires, floods, and debris flows to public safety and private property also protect watersheds and habitats. For example, replacing invasive, flammable, nonnative plant species with native plants minimizes fire, flood, and debris flow threats and enhances native plant communities and fish and wildlife habitats.
- II. Our community can reduce fire threats and impacts to watersheds and riparian forests by protecting, respecting, and uplifting people experiencing homelessness. Providing unhoused community members currently living along creeks assistance transitioning to permanent housing promotes public safety and watershed health while advancing social justice and equity.
- III. Protecting and restoring the hydrology of natural watersheds, creeks, landscapes, and groundwater basins can lessen fire hazards and enhance streams, riparian and oak forests, and fish and wildlife.

The report's site-specific and global recommendations fall into eight general categories:

1. Replace invasive flammable nonnative plants with native plants.
2. Reduce water extractions and increase groundwater recharge and infiltration.
3. Restore degraded habitats and protect natural habitats.
4. Transition unhoused community members to permanent housing.
5. Modify fuel break management.
6. Increase funding, equipment, and staff resources for defensible space inspections and wildfire response.
7. Acquire land and conservation easements in WUIs and wildlands.
8. Downzone properties in WUIs and wildlands.

B. Vision Statement for Enhancing Fire Safety, Protecting Watersheds, and Restoring Riparian Forest Health in the Goleta Valley's Wildland-Urban Interfaces

This report is guided by the EDC's vision of restored, functioning watersheds, streams, and riparian corridors which (1) support healthy ecosystems, (2) minimize the threat of wildfires, and (3) promote community well-being by providing clean water, opportunities for nature study, passive recreation, public access, and enhanced public safety. EDC's vision is informed by the local communities' interest in watersheds, creeks, wildlands, and WUI and by the community's desire for a firesafe environment and protection of natural resources. The Goleta Valley faces increased droughts and temperatures,¹ a year-round fire season, and growing threats to public safety, watersheds, and streams. This report serves as a blueprint for increasing public safety and creating healthier watersheds, streams, and native forests in the Goleta Valley.

The following vision statement is shaped by EDC's and partner organizations' missions,² cooperating agencies' goals and objectives, concern over the increasing threat of wildfires and the deterioration of local creeks and watersheds, and a unifying goal of reducing the effects of climate change on society and the natural environment. The underlying vision of this report is:

Goleta's watersheds and creeks should be ecologically healthy to reduce the threat of wildfires and provide multiple community benefits such as passive recreation, habitat for wildlife and fish, clean water, neighborhood aesthetics, protection from flooding, and economic vitality. Goleta's watersheds should be protected from environmental harms which increase wildfire threats, pollute streams, harm fish or wildlife, reduce groundwater levels, impair flows, accelerate runoff, erosion, debris flows, and flooding, and degrade scenic views. Ecosystems should be preserved and restored as valuable community assets, and to minimize fire threats. Creeks should be quiet, undisturbed, natural areas where community members and visitors can feel safe and enjoy quiet time away from urban disturbances, for learning, contemplation, and reflection. Goleta's streams and watersheds should be used as outdoor classrooms to educate and inspire people of all ages and from all walks of life about the natural world, and to reconnect residents and visitors to nature.

¹ Santa Barbara County's temperatures have increased by 2.3 degrees Fahrenheit which is faster than almost every County in the lower forty-eight states other than Ventura County. Santa Barbara County Sustainability Division Staff, *Climate Action Plan Workshop* (March 25, 2021).

² EDC's Mission Statement is: "The Environmental Defense Center works to protect and enhance the local environment through education, advocacy, and legal action." EDC Website available at <https://www.environmentaldefensecenter.org/mission/> (August 11, 2021).

C. Geographic Coverage of Goleta Watersheds and Wildland-Urban Interfaces: Enhancing Fire Safety and Riparian Forest Health

This report includes twenty-two named watersheds. This includes all twelve creeks in the City of Goleta, each of which traverses Santa Barbara County, City of Santa Barbara, United States Forest Service (“USFS”), and State of California lands. The Goleta Slough Watershed includes fourteen named streams from east to west: Atascadero Creek and its tributaries Cieneguitas Creek³ and Hospital Creek, San Antonio Creek, Maria Ygnacio Creek, and its tributary Maria Ygnacio East Fork,⁴ San Jose Creek and its tributary Fremont Creek,⁵ Las Vegas Creek, San Pedro Creek, Los Carneros Creek, and Glen Annie Creek / Tecolotito Creek⁶ including Glen Annie West Fork and McCoy Canyon Creek tributaries. The Devereux Slough Watershed is west of the Goleta Slough Watershed. Devereux Creek and its tributaries El Encanto Creek, Phelps Creek, and Bella Vista Creek flow from County jurisdiction in the foothills north of the westerly portion of the City of Goleta to the Devereux Slough, an important estuary owned, managed, and being restored by the University of California Natural Reserve System and UCSB. This report also covers the Tecolote Creek Watershed,⁷ and Bell Canyon Creek Watershed, including the Winchester Canyon Creek and Ellwood Canyon Creek Watersheds.

Goleta’s streams and watersheds span various jurisdictions, including the City of Goleta, the County of Santa Barbara, the USFS, and the City of Santa Barbara. The City of Goleta has direct land use authority over most of the developed land within the Bell, Devereux, Glen Annie / Tecolotito, Los Carneros, San Pedro, Las Vegas, and San Jose Creek watersheds, and a considerable portion of the Maria Ygnacio Creek watershed. The County maintains land use authority over the unincorporated areas such as the foothills north of the City of Goleta, and the unincorporated land between the City of Goleta and the City of Santa Barbara. Most developed land within the Atascadero Creek, Cieneguitas Creek, Hospital Creek, and San Antonio Creek watersheds, along with portions of the Maria Ygnacio Creek and San Jose Creek watersheds, is in the County east of the City of Goleta.

The City of Santa Barbara owns and has jurisdiction over Goleta-area creeks which occur within the Santa Barbara Airport and the adjacent area roughly between Hollister Avenue on the south, Fairview Avenue on the east, La Patera Avenue on the west, and the Union Pacific

³ Cieneguitas is Spanish for small springs or marshes.

⁴ Maria Ygnacio Creek is named after a Chumash woman, Maria Ygnacia, with a colorful history from being baptized at the Mission, to surviving the 1812 earthquake, to escaping during the 1824 Chumash revolt against the Spanish, and finally settling down on a land grant her family received along what has become known as Maria Ygnacio Creek in the Goleta area. *Goleta History Website* available at <https://goletahistory.com/maria-ygnacia/> (March 5, 2021).

⁵ Fremont Creek is named after explorer Col. John Fremont who in 1846 led armed forces over the Santa Ynez Mountains through San Marcos Pass near Fremont Creek north of Patterson Avenue. *Santa Barbara Outdoors Website*, <https://www.sboutdoors.com/san-marcos-pass.html> (March 5, 2021).

⁶ Tecolotito is Spanish for little owl. Glen Annie Creek becomes Tecolotito Creek south of Highway 101.

⁷ Tecolote is Spanish for owl. *Goleta History Website, Haskell’s Beach* webpage available at <https://goletahistory.com/haskells-beach/> (March 5, 2021).



Railroad (“UPRR”) tracks on the north. Atascadero Creek and Cieneguitas Creek pass through the eastern portion of the City of Santa Barbara proper between Highway 154 and La Cumbre Road, south of Foothill Road.

North of the foothills, in the Santa Ynez Mountains, the USFS is the primary landowner and the agency which regulates land uses on public properties located within the LPNF, including lands from the top of the subject watersheds from approximately West and East Camino Cielo Roads south to the Santa Barbara County jurisdiction in the lower Santa Ynez Mountains. Santa Barbara County regulates land use on all private parcels within the LPNF. These lands are classified as State Responsibility Area and fall under the California Environmental Quality Act (“CEQA”). The USFS regulates land use on all public lands in the National Forest subject to federal environmental laws such as the National Environmental Policy Act (“NEPA”). The County’s jurisdiction extends from the National Forest boundary south to the City of Goleta’s northern and eastern boundaries. The State of California owns and manages land along Glen Annie Creek at the Dos Pueblos High School campus. The California Department of Fish and Wildlife (“CDFW”) owns and manages a portion of the Goleta Slough Ecological Reserve.⁸ (See Appendix III, Watershed Maps.)

This report identifies projects to reduce fire hazards and enhance riparian forests and watershed health in these jurisdictions. The report identifies site-specific and watershed-wide problems and opportunities spanning city, county, state, and federal jurisdictional boundaries. Given the diversity within Goleta-area watersheds, and the mix of public and private land, interagency and public-private collaborations will be important strategies to plan and implement fire safety and watershed improvement projects in the WUI.

D. Community and Ecological Values of Creeks and Watersheds

Creeks offer many benefits to people. Slow-moving surface water flowing over natural, porous creek beds provides significant groundwater recharge to Goleta’s aquifers.⁹ Vegetated creeks and natural buffer areas along streams filter pollutants such as oil and grease from runoff of roadways, sediment from construction sites, and fertilizers and pesticides from landscaped areas and farms and keep them out of streams, groundwater basins, and the ocean.¹⁰ The values of a creek lie not only in the ecosystem services it provides our community, but in the intrinsically valuable natural qualities of a riparian habitat.¹¹ They are valuable habitats for fish

⁸ CDFW, *Lands Viewer*, available at <https://apps.wildlife.ca.gov/lands/> (February 11, 2021).

⁹ Goleta Water District, *Stormwater Resources Plan* at 32 available at <https://www.goletawater.com/assets/uploads/Stormwater%20Resources%20Plan%20FINAL.pdf> (2017) (“Goleta Water District (2017)”; See also David Keith Todd Consulting Engineers, *Goleta Artificial Recharge Study* (1982); See also Flowers and Associates, *Project Development Study for Goleta Water District’s Stream Bed Percolation Project* (1988).

¹⁰ Darcy Aston, Santa Barbara County Water Agency, Bob Theil, Community Environmental Council, and Maureen Spencer Santa Barbara County Flood Control District, *Creek Care Guide* at 5 available at <https://www.countyofsb.org/uploadedFiles/pwd/content/Water/Environmental/Creekcare%20Web%20version.pdf> (June 2003).

¹¹ Riparian habitats are habitats that occur along creeks.

and wildlife, and serve as movement and migratory corridors to enable fish and wildlife to complete their lifecycles, access feeding and foraging habitats, intersperse to reduce inbreeding and increase genetic diversity, and repopulate areas after local extirpations.

Goleta's creeks offer countless services to residents and tourists. Riparian corridors that are not over-drafted by wells or stream diversions retain high live fuel moisture levels and can act as natural fuel breaks. (Figure 24) When protected, creeks, floodplains, and buffers serve as natural flood control channels, safely conveying floodwaters to the ocean. Many trails, bike paths, open spaces, and parks are located along Goleta's creeks, highlighting the importance of Goleta's creeks for public recreation and as biking and pedestrian transportation corridors. Parks and open spaces within the riparian areas along Goleta's creeks provide opportunities for exercise, relaxation, social gathering, walking, hiking, picnics, birdwatching, photography, art, and general nature appreciation. Creeks are also wonderful areas to study the natural world and are used by Goleta-area students from elementary school to college when studying natural sciences, including ecology, botany, environmental studies, zoology, water quality, geology, and hydrology. Creeks allow people to seek solitude and escape from the active happenings in the surrounding urban landscapes and find a quiet spot for contemplation and relaxation.



Figure 1. A resident steelhead (*Oncorhynchus mykiss*) in an undisclosed local creek. Brian Trautwein. 2004.



Figure 2. A 22-inch female steelhead in Maria Ygnacio Creek in 2017 and her mate, a roughly 10" resident steelhead (rainbow trout). The cleared area in the stream bed is the redd - the nest where the steelhead laid eggs which were fertilized by the smaller male. Brian Trautwein. 2017.

Riparian and stream ecosystems, creek buffer areas, and watersheds are necessary to support native species that contribute to the health of the creek, the local environment, and community wellbeing. Goleta's creeks and riparian corridors harbor great biodiversity and are protected as significant habitats by the City of Goleta, by Santa Barbara County in unincorporated areas of the Goleta Valley, the State of California, and as critical habitat for threatened and endangered species by the United States Fish and Wildlife Service and National Marine Fisheries Service ("NMFS"). Creeks provide a disproportionately higher concentration of rare and endangered species, including vertebrates, invertebrates, and plants. Notable rare species along Goleta's creek include the federally endangered southern California steelhead (*Oncorhynchus mykiss*) (Figure 2) and the federally threatened California red-legged frog (*Rana aurora*) (Figure 3).



Figure 3. California red-legged frog in an undisclosed Goleta creek within the LPNF.

Other special-status species found in Goleta’s creeks include the southwestern pond turtle (*Emys marmorata pallida*) (Figure 4), California newt (*Taricha torosa*) (Figures 5a and 5b), and the two-striped garter snake (*Thamnophis hammondi*). (Figures 6a and 6b) The California newt is extremely poisonous.¹² Pond turtles live over forty years and often return to the same pools to breed.¹³ These species still breed in a handful of Goleta’s creeks, in habitat areas that have been protected. These creeks and their associated riparian forests should be preserved.



Figure 4. Western pond turtle in an undisclosed Goleta creek. Note: Wildlife should not be handled.

¹² Wikipedia, *California newt*, secretes “the potent neurotoxin tetrodotoxin, which is hundreds of times more toxic than cyanide. ...strong enough to kill most vertebrates, including humans. However, it is dangerous only if ingested.” Available at https://www.google.com/search?q=california+newt+taricha+torosa+poisonous&rlz=1C1CHBF_enUS906US906&q=california+newt+taricha+torosa+poisonous&aqs=chrome..69i57.8494j0j15&sourceid=chrome&ie=UTF-8 (April 7, 2021).

¹³ Center for Biological Diversity, *Pond Turtle* webpage available at https://www.biologicaldiversity.org/species/reptiles/western_pond_turtles/natural_history.html (February 19, 2021).



Figures 5a and 5b.
California newt in San
Antonio Creek. Brian
Trautwein. 2016.



Creeks are critical wildlife movement corridors, allowing native animals to move from upland areas such as chaparral habitats to coastal environments, ensuring wildlife populations do not become isolated.¹⁴ This connectivity helps maintain the genetic diversity within species, allowing for their long-term survival, while also enabling recolonization of areas after local extirpations caused by natural and anthropogenic disasters such as fires and floods. Goleta's creeks provide important wildlife movement and migratory corridors connecting the LPNF to the Goleta and Devereux Sloughs and Pacific Ocean.¹⁵

¹⁴ City of Goleta, *Creek and Watershed Management Plan* at 34 available at <https://www.cityofgoleta.org/home/showpublisheddocument?id=24655> (November 2020) ("City of Goleta (2020)").

¹⁵ *Id.*

Native riparian plants stabilize creek banks, preventing erosion and loss of private and public property.¹⁶ The plants hold the soil in place and thereby protect creeks from excessive sedimentation. By holding the soil in place and protecting streambeds from sediment deposition, the riparian plants help slow the water down and facilitate groundwater recharge.¹⁷ Recharged groundwater basins along streams help to ensure creeks flow longer into the dry season, or year-round, supporting a multitude of birds, fish, amphibian, reptile, and mammal species. Most of Goleta's larger creeks flow year-round in the LPNF, even during droughts.¹⁸ Streams with unimpaired flows and high groundwater tables support lush vegetation including sycamore (*Platanus racemosa*), white alder (*Alnus rhombifolia*), willow (*Salix* spp), and black cottonwood trees (*Populus trichocarpa*), which forms valuable riparian forests lining Goleta Valley creeks. Riparian forests are protected as environmentally sensitive habitat areas ("ESHA").¹⁹ The shade provided by riparian trees maintains a cool microclimate required for riparian species, and cool water needed to support steelhead. Riparian trees and snags provide food, such as insects, and nutrients for aquatic species such as steelhead in the stream below.



Figures 6a and 6b. California Species of Concern two-striped garter snake, San Antonio Creek. Brian Trautwein.

Due to the high water content of riparian plants lining streams with unimpaired flows, riparian corridors can act as fuel breaks and slow or halt the spread of wildfire, such as the 2004 Gaviota Fire which was halted at Arroyo Hondo Creek. (Figure 24)

¹⁶ King County, Washington, *The Value of Riparian Vegetation* available at <https://www.kingcounty.gov/services/environment/watersheds/general-information/riparian-vegetation.aspx> (February 16, 2021).

¹⁷ Russell Cohen, Rivers Advocate, Division of Ecological Restoration, Massachusetts Department of Fish and Game, *Fact Sheet #6: Functions of Riparian Areas for Groundwater Protection* available at <https://archives.lib.state.ma.us/bitstream/handle/2452/617356/ocn971134494.pdf?sequence=1&isAllowed=y> (June 12, 2014).

¹⁸ United States Geologic Survey, Topographic Map, Goleta and Santa Barbara Quadrangles.

¹⁹ City of Goleta *General Plan / CLUP* Policy 1-2 at 4-8 (September 2006) ("City of Goleta (2006)"); *See also* Santa Barbara County, *Eastern Goleta Valley Community Plan* Policy ECO-EGV-3.1 at 141 available at https://www.countyofsb.org/uploadedFiles/plndev/Content/Code_and_Policy/EGVCP%20Adopted%20w%20CCC%20Modifications%20FINAL%20Online%20Version.pdf (December 14, 2017) ("Santa Barbara County (2017a)").

Healthy creeks contribute to the overall aesthetic quality of our community, maintain biodiversity, increase property values,²⁰ enhance recreational opportunities, provide opportunities for environmental education and scientific research, improve the quality of life, increase local tourism and business revenues, recharge groundwater basins, and reduce wildfire threats. The intrinsic natural values and public benefits local creeks yield are unique, unparalleled, and irreplaceable.

E. The Increasing Threat of Climate Change: Wildfires in Goleta's Watersheds, Riparian Forests, and Wildland-Urban Interfaces.

The many community and ecological values provided by creeks and watersheds are increasingly threatened by a combination of climate change and resulting fires and debris flows, nonnative species, development, hydromodification, water supply projects, encampments created by homeless community members, and other factors. EDC's 2013 – 2021 *Goleta Creeks and Watersheds: Opportunities for Restoration and Enhancement Master Report* describes these threats, identifies specific examples, and recommends site-specific and global projects to abate these threats and protect, preserve, and remediate environmental problems in creeks and watersheds.²¹ These threats are also addressed by the City of Goleta in the *Creek and Watershed Management Plan* ("CWMP") which includes implementation goals, strategies, and actions designed to advance cooperative interagency programs and projects to improve Goleta Valley creeks and the natural and community values they harbor.²²

This report, *Goleta Watersheds and Wildland-Urban Interfaces: Enhancing Fire Safety and Riparian Forest Health* focuses on ecological threats to the health of Goleta's watersheds, streams, and riparian woodlands related to fire hazards, with a focus primarily on WUI areas. Identification of specific environmental problems in Goleta-area watersheds during annual surveys from 2013 through 2020 has enabled EDC to develop conceptual on-the-ground projects and programs to abate wildfire threats and enhance Goleta's creeks, riparian forests, and watersheds in and near the WUI. Environmental problems in Goleta Valley watersheds which degrade local creeks and riparian forests and exacerbate wildfire, flooding, and debris flows include climate change and the resulting desiccation of creeks and riparian woodlands, over-drafting of creeks by wells and diversions, the spread of invasive, nonnative, flammable vegetation, and the increasing number of homeless encampments along Goleta's creeks. These impacts and mitigation actions for them are summarized below.

²⁰ John B. Loomis and Carol F. Steiner, *Estimating the Benefits of Urban Stream Restoration Using the Hedonic Method* (1996); See also Maya Jarrad, et al, *Urban Stream Restoration Projects: Do Project Phase, Distance, and Type Affect Nearby Property Sale Prices?* Land Economics • 94 (3): 368–385 ISSN 0023-7639; E-ISSN 1543-8325 (August 2018) ("Loomis and Steiner (2018)").

²¹ Environmental Defense Center, *Goleta's Creeks and Watersheds: Opportunities for Enhancement and Restoration* (April 2021 Unpublished Draft) ("EDC (2021)").

²² City of Goleta (2020).

1. Hotter Temperatures and Longer Droughts Associated with Climate Change Increase Fire Frequency.

Climate change is increasing the average temperature, resulting in more hot days and heat spells even in winter, with Southern California experiencing the greatest increases in the continental United States.²³ (Figure 7) Santa Barbara County is one of the fastest warming counties in the lower forty-eight states and has already increased by 2.3 degrees Fahrenheit.²⁴ Droughts are predicted to become more common in the southwestern United States, including Santa Barbara County.²⁵ The last decade has been the driest in Santa Barbara County's history.²⁶

As temperatures rise, wildfires are also projected to increase in frequency and severity.²⁷ “Global warming has occurred rapidly over the past half-century. In the arid U.S. Southwest, this will mean that future droughts will likely be more severe, and it will mean a change in the timing and type of precipitation. In California, less precipitation will occur as snow, meaning that less water can be stored in the snowpack, and that dry summers could see even less water availability. Summertime peak temperatures will increase in many places. Fire “seasons” may become even longer.”²⁸

As a result of increasing temperatures in Santa Barbara County, and worsening droughts such as the 2011-2018 drought considered the worst drought in 500 years, fire threats are increasing.²⁹ The County and Goleta Valley have experienced an increasing frequency and severity of fires. The 1990 Painted Cave Fire burned 423 structures. In the last twelve years, an increasing number of fires burned in the County. The 2007 Zaca Fire is the largest fire in the County's history and at the time was the second largest fire in California's history.³⁰ Since 2007,

²³ Washington Post. *2°C: Beyond the Limit: Fires, floods and free parking: California's unending fight against climate change* available at <https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-california/> (December 5, 2019).

²⁴ Santa Barbara County Sustainability Division, *Climate Action Plan Webinar* (March 25, 2021).

²⁵ Climate Reality Project, 2016.

²⁶ Nick Welsh, Santa Barbara County's 10-Year Rainfall Average at 'All-Time Low' Santa Barbara Independent available at <https://www.independent.com/2021/04/08/santa-barbara-countys-10-year-rainfall-average-at-all-time-low/> (April 8, 2021).

²⁷ Kendra Pierre-Louis, and Nadja Popovich, *Climate Change Is Fueling Wildfires Nationwide, New Report Warns*, New York Times available at <https://www.nytimes.com/interactive/2018/11/27/climate/wildfire-global-warming.html> (November 27, 2018).

²⁸ University of California Cooperative Extension (“UC Coop”), *Climate, Fire, and Habitat in Southern California* Website available at https://ucanr.edu/sites/SAFELandscapes/Fire_in_Southern_California_Ecosystems/ (February 21, 2021); See also Williams, A. P., Abatzoglou, J. T., Gershunov, A., Guzman-Morales, J., Bishop, D. A., Balch, J. K., & Lettenmaier, D. P. *Observed impacts of anthropogenic climate change on wildfire in California*. *Earth's Future*, 7, 892–910. <https://doi.org/10.1029/2019EF001210> (2019).

²⁹ Valerie Trouet, Associate Professor, University of Arizona, *Study says California drought is worst in 500 years California is in a fourth year of a severe drought* available at <https://www.tradeonlytoday.com/industry-news/study-says-california-drought-is-worst-in-500-years> (July 28, 2017).

³⁰ Bryan Walton, Lompoc Record, *\$17 million Zaca Fire costs repaid* available at https://lompocrecord.com/news/local/million-zaca-fire-costs-repaid/article_42dde75a-0ff6-11e1-80a3-001cc4c002e0.html#:~:text=The%20Zaca%20Fire%20burned%20228%2C000,in%20Santa%20Barbara%20County%20history. (November 15, 2011).

the south County has experienced the 2008 Gap Fire, the 2008 Tea Fire, the 2009 Jesusita Fire, the 2016 Sherpa Fire³¹, the 2017 Whittier Fire, the 2017-18 Thomas Fire, which consumed 281,893 acres and which at the time was the largest in California's history, the 2018 Holiday Fire, and the 2019 Cave Fire.³²

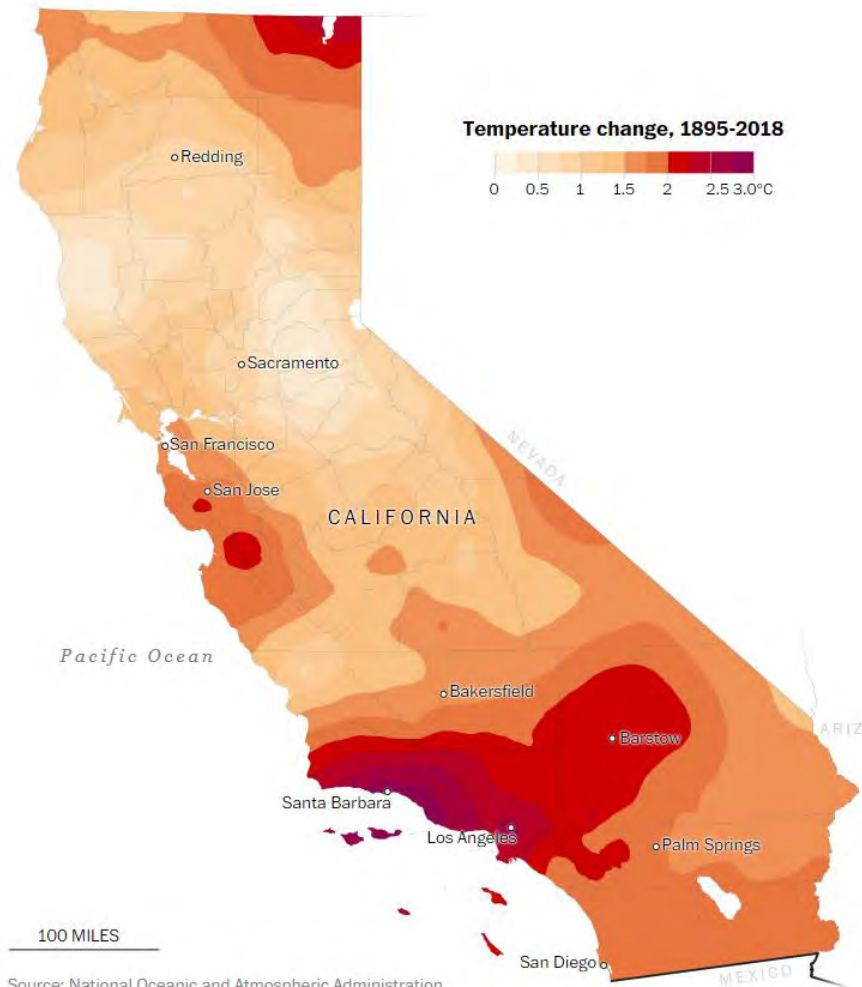


Figure 7. Santa Barbara is warming more rapidly than the rest of California and the continental United States. Washington Post. 2°C: *Beyond the Limit: Fires, floods and free parking: California's unending fight against climate change.* <https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-california/> December 5, 2019.

³¹ Santa Barbara County, *Sherpa Fire Information and Updates* Webpage available at <https://www.countyofsb.org/scherpa-fire.sbc> (Updated July 12, 2016).

³² Judith Dale, *Wildfires in Santa Barbara County, 2008 to 2015* available at https://lompocrecord.com/lifestyles/columnist/judith-dale-wildfires-in-santa-barbara-county-2008-to-2015/article_c082070f-7f7a-5a87-b8ff-ceb4357c21e5.html (October 24, 2020); See also Wikipedia, *Thomas Fire* available at https://en.wikipedia.org/wiki/Thomas_Fire#:~:text=It%20burned%20approximately%20281%2C893%20acres,California%20history%20at%20the%20time.&text=By%20January%202%2C%202018%2C%20the,over%20104%2C607%20residents%20to%20evacuate (April 7, 2021).

2. Hotter Temperatures and Longer, More Severe Droughts Increase Water Demand, Lower Groundwater Tables, and Diminish Creek Flows and Riparian Woodland Moisture Levels.

Higher temperatures and longer, more severe droughts such as the 2011 – 2018 California Drought reduce the frequency and amount of rainfall, runoff into local creeks, and groundwater recharge, causing creek and riparian areas to become increasingly desiccated.³³ Droughts and warmer temperatures increase water demand for agriculture and landscapes.³⁴ Increased groundwater extraction and creek and spring diversions can negatively affect creek baseflows and biological resources.³⁵ The Goleta Water District (“GWD”) relies on groundwater during droughts.³⁶ Increased groundwater extraction, coupled with reduced rain and runoff, reduces groundwater levels and prevents groundwater basin recovery following droughts. Groundwater depletion causes “reduction of water in streams and lakes.”³⁷ Thus, during droughts, more water is extracted from groundwater basins due to increased water demand and reduced surface flows, and less water recharges the basins, resulting in net decrease of groundwater, which reduces water available for riparian habitats and aquatic stream habitats, desiccating creeks and riparian forests.

Many Goleta Valley creeks in the LPNF and County jurisdictions, such as San Jose Creek, Glen Annie Creek’s tributaries, Maria Ygnacio Creek, and San Antonio Creek flow perennially due to high groundwater levels.³⁸ (See e.g., Figure 12). Other creeks located near the coast, such as Atascadero Creek, continue to flow due to the presence of high groundwater levels, and “urban seepage.”³⁹ However, Goleta’s creeks are routinely dewatered by upstream

³³ University of Merced Newsroom, *Scientists Explain Mechanisms Affecting Runoff Levels During Drought*, available at <https://news.ucmerced.edu/news/2018/scientists-explain-mechanisms-affecting-runoff-levels-during-drought> (April 7, 2021).

³⁴ Pena-Guerrero, A. Nauditt, C. Munoz-Robles, L. Ribbe, and F. Meza, *Drought impacts on water quality and potential implications for agricultural production in the Maipo River Basin, Central Chile* available at <https://www.tandfonline.com/doi/full/10.1080/02626667.2020.1711911> (February 21, 2020).

³⁵ Santa Barbara County, *Environmental Thresholds and Guidelines Manual Groundwater Resources Section* at 69 available at <http://santabarbaracounty.ca.gov/ceo/asset.c/479> (2008) (“Santa Barbara County (2008)”).

³⁶ Goleta Water District, *Water Quality Issues* Webpage available at <http://www.goletawater.com/water-quality/water-quality-issues> (March 29, 2021).

³⁷ USGS, *Groundwater Decline and Depletion* Webpage available at https://www.usgs.gov/special-topic/water-science-school/science/groundwater-decline-and-depletion?qt-science_center_objects=0#qt-science_center_objects (March 29, 2021).

³⁸ Al Leydecker M.D, *The Goleta Slough Watershed A review of data collected from October 2005 through September 2006* by Santa Barbara Channelkeeper's Goleta Stream Team at 2 available at https://www.waterboards.ca.gov/water_issues/programs/tmdl/records/region_3/2007/ref2294.pdf (2006) (“Channelkeeper (2006)”); See also City of Goleta (2020) at 117, 125, 138, 146, and 152.

³⁹ Channelkeeper (2006); See also USGS, *Groundwater Wells* Webpage available at https://www.usgs.gov/special-topic/water-scienceschool/science/groundwater-wells?qt-science_center_objects=0#qt-science_center_objects (June 8, 2020).

water diversions and groundwater pumping.⁴⁰ Agricultural operations rely on streamside water wells to irrigate crops, such as the avocado orchards which are prevalent in Goleta's foothills and the Santa Ynez Mountains. The GWD also has fourteen wells, a number of which extract groundwater alongside Goleta's creeks, including San Jose Creek, San Antonio Creek, and Las Vegas Creek, lowering water tables and creek flows by creating a "cone of depression" around wells.⁴¹ (Figure 10)



Figure 8. Glen Annie Dam and Glen Annie Reservoir on West Fork Glen Annie Creek. Google Earth. 2014.

Fremont Creek and Glen Annie Creek in Goleta have been dammed, forming barriers to steelhead migration, and dewatering downstream reaches of the creeks. (Figures 8 and 231) Tecolote Tunnel, which delivers water from Cachuma Reservoir to the Goleta area, infiltrates approximately 2,000 acre-feet per year of water from the surrounding watershed and may decrease flows in Tecolote and Ellwood Creeks.⁴² (Figure 9) Dewatering creeks and riparian habitats downstream from dams reduces live fuel moisture levels in creeks, desiccates riparian forests, and increases fire hazards.⁴³

⁴⁰ City of Goleta (2020) at 126; *See also* Trautwein, Brian, Environmental Analyst / Watershed Program Coordinator, EDC Letter to Andy Newkirk, Senior Planner, J. Ritterbeck, Senior Planner, and Anne Wells, Advanced Planning Manager, City of Goleta Planning and Environmental Review, *Attachment A: Dams, Diversions, Wells, and Tecolote Tunnel* (June 26, 2020) ("Trautwein (2020)").

⁴¹ USGS, *Cone of depressions* webpage available at <https://www.usgs.gov/media/images/cone-depression-pumping-a-well-can-cause-water-level-lowering> (January 21, 2021); *See also* Trautwein (2020).

⁴² William Mills, Jr., R.G., P.E., *Description of the Santa Ynez River Watershed* available at https://www.waterboards.ca.gov/waterrights/water_issues/programs/hearings/cachuma/phase2/exhibits/ccrbid1_201.pdf (undated) ("Mills (undated)"); *See also* Rantz, Saul Edward. *Flow of springs and small streams in the Tecolote Tunnel area of Santa Barbara County, California*. US Government Printing Office, 1962. ("Rantz (1962)"); *See also* Trautwein (2020) at 19 – 20.

⁴³ City of Goleta (2020) at 221.



Figure 9. Workers constructing Tecolote Tunnel with groundwater infiltrating the borehole. Cachuma Operations and Maintenance Board, 1954.

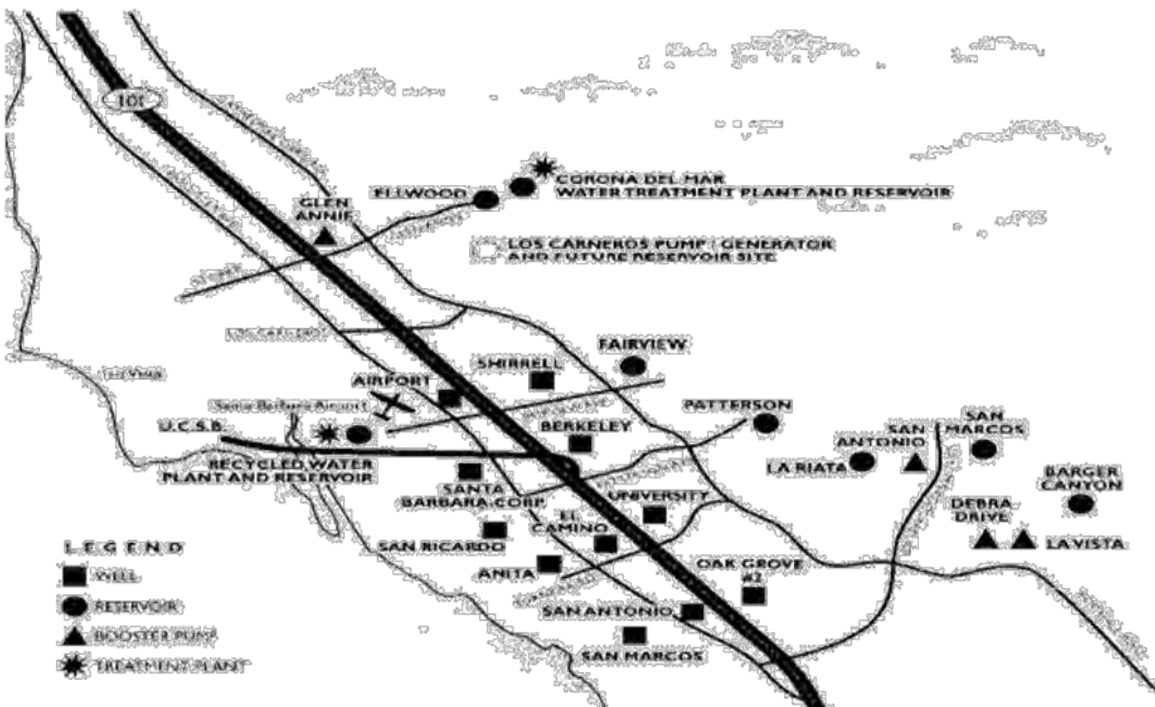


Figure 10. Map of GWD wells and facilities. Goleta Water District. 2009.



Figure 11. Three adult steelhead over twenty inches-long, many resident steelhead, and steelhead nests containing eggs were killed when groundwater pumping apparently dried Carpinteria Creek overnight. Moe Gomez. 2008.

When groundwater is pumped, such as during droughts, the water tables may drop below the elevation of stream beds, causing significant impacts to biological resources and potentially harming special-status species.⁴⁴ For example, in 2008, groundwater pumping is believed to responsible for drying up a deep pool on Carpinteria Creek, killing three adult steelhead, numerous resident steelhead, and steelhead eggs.⁴⁵ (Figure 11) Desiccated riparian forests and creeks threaten hydrophytic riparian vegetation such as white alder, which requires year-round water.⁴⁶ Riparian corridors that are over-drafted by wells and diversions lack high live fuel moisture levels.⁴⁷ Absent this moisture in riparian vegetation, riparian forests are becoming increasingly desiccated. Instead of acting as natural fire inhibitors, dewatered riparian forests with standing dead wood enable fires to move down canyons, consuming dry riparian woodland plants, and enter the WUI and urban neighborhoods, especially during sundowner wind conditions. For example, at 6:02 pm on June 27, 1990, on the heels of a significant drought, the Painted Cave Fire was propelled by “some of the worst sundowner winds ever recorded” and a temperature of 109 degrees Fahrenheit. The fire was funneled down Maria Ygnacio Creek, devouring riparian trees from Highway 154 at San Marcos Pass Road into residential neighborhoods in the WUI by 7:00 pm, and across Highway 101 at 7:42 pm, taking out 463 structures and killing one person.⁴⁸

⁴⁴ Santa Barbara County (2008) at 69.

⁴⁵ Moe Gomez, Director, South Coast Habitat Restoration, personal communication with Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (2008).

⁴⁶ Jason Nelson, Student, *UCSB Environmental Studies Report* (1993) (“Nelson (1993)”).

⁴⁷ City of Goleta (2020) at 221.

⁴⁸ Robert Bernstein, Santa Barbara EdHat, *Painted Cave Fire 30th Anniversary* available at <https://www.edhat.com/news/painted-cave-fire-30th-anniversary> (June 27, 2020); *See also* Wikipedia, *Painted Cave Fire*, available at https://en.wikipedia.org/wiki/Painted_Cave_Fire (March 28, 2021).

3. Increasing Fire Severity Damages Riparian and Aquatic Habitats in Streams.

Climate change is increasing fire severity.⁴⁹ “Climate change threatens to increase the frequency, extent, and severity of fires through increased temperatures and drought.”⁵⁰ Studies have shown that riparian habitats are sensitive to the influences of fire.⁵¹ In one study, fires had the “strongest total effect” on floodplain vegetation which influenced vegetation more than stream power and geomorphic position.⁵² Fires alter microclimatic regimes, and when fires are compounded with seasonal stormwater runoff, they increase runoff and stream discharges, erosion, sediment inputs, and deposition in streams.⁵³ Water quality and stream chemistry, including oxygen levels, pH, turbidity, nutrient load such as nitrogen, and specific conductance can change dramatically in pulses following wildfires and subsequent floods and debris flows, with less dramatic changes occurring further downstream from burn areas.⁵⁴ Fire severity can play a significant role in watershed impacts. “The Thomas Fire showed the effect of extreme fire severity on both riparian and surrounding chaparral areas. Everything burned off, including most of the riparian vegetation. We saw the horrible aftermath of resulting debris flows.”⁵⁵ Fires increase dissolved and particulate carbon (ash and charcoal), decrease organic inputs (leaf litter), increase sunlight exposure, and increase the rate of leaf litter decomposition in stream habitats.⁵⁶

When strong storm events occur following a recent wildfire there is potential for increased erosion, sedimentation, mud flows, debris flow, and damaging floods. Fires and post-fire floods can radically change stream communities. Decreased riparian canopies increase algae growth in streams.⁵⁷ Macroinvertebrate recovery after fires and debris flows may be delayed by drought.⁵⁸ Wildfires remove logs and woody vegetation which contribute to stream habitat diversity and health.⁵⁹ Native steelhead and chub can be eliminated from burned watersheds due

⁴⁹ Alejandra Borunda, *The Science Connecting Wildfires to Climate Change* stating “California and Oregon’s 2020 fire season has the highest fire intensity of the past 18 years,” National Geographic available at <https://www.nationalgeographic.com/science/article/climate-change-increases-risk-fires-western-us> (September 17, 2020).

⁵⁰ US EPA, Climate Change Indicators: Wildfires Webpage available at <https://www.epa.gov/climate-indicators/climate-change-indicators-wildfires> (October 18, 2021).

⁵¹ Bixby, Rebecca J., Scott D. Cooper, Robert E. Gresswell, Lee E. Brown, Clifford N. Dahm, and Kathleen A. Dwire, *Fire Effects on Aquatic Ecosystems: An Assessment of the Current State of the Science*, Freshwater Science, The Society for Freshwater Science at 1342, available at https://www.fs.fed.us/rm/pubs_journals/2015/rmrs_2015_bixby_r001.pdf (September 2015) (“Bixby, *et al* (2015)”).

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.* at 1343.

⁵⁵ Email from Rob Hazard, Division Chief/ Fire Marshal, Fire Prevention Division, SBCFD to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator (October 5, 2021) (“Hazard (2021)”).

⁵⁶ *Id.* at 1344.

⁵⁷ *Id.*

⁵⁸ *Id.* at 1344 and 1345. See also Daniel Swain, Weather West, *Modest April Showers, but Worsening Drought Continues*, EdHat available at https://www.edhat.com/news/weather-west-modest-april-showers-but-worsening-drought-continues?qt-right_side_tab=2 (April 24, 2021).

⁵⁹ *Id.*

to hypoxia, elevated ammonia, metals, and/or ferrocyanides.⁶⁰ Migratory barriers may prevent recolonization by native fish.⁶¹ Fires may threaten native fish more than nonnative warmwater fish and crayfish, although post-fire storms eliminated nonnative sunfish from Mission Creek in 2009-2010.⁶² One study demonstrated cutthroat trout resiliency to post-fire debris flows, likely due to recolonization from “headwater streams and lakes.” The 2018 debris flows likely eliminated resident steelhead from two creeks in southeastern Santa Barbara County.⁶³

4. Increasing Fire Frequencies May Result in Type-conversion of Chaparral to Nonnative Annual Vegetation Which Increases Fire Ignition Risks, and Further Desiccates Watersheds.

In addition to the effects of fire and post-fire debris flows on stream ecosystems, wildfires’ impacts on watershed vegetation pose an additional threat to creek ecosystems. Increased fire frequency associated with climate change, drought, and increased anthropogenic ignitions as discussed above may cause type-conversion of chaparral, currently the dominant vegetation community in the upper portions of most Goleta Valley watersheds.⁶⁴ Chaparral in the Goleta Valley does not currently appear to be undergoing type-conversion, but it may in the future.

“The one factor all types of chaparral have in common, however, is that they are all sensitive to fire intervals shorter than 30 years. A fire return interval ten years or less has been shown to guarantee ecological loss. Ten year (sic) is the minimal amount time it takes for a burned chaparral stand to mature enough to set enough seed in the soil to create a healthy, pyrogenic habitat after the next fire. As fire frequencies increase due to human-caused ignitions, the intervals between fires have been contracting, causing the complete elimination of chaparral in some areas and serious degradation in others. This is happening in both southern and northern California.”⁶⁵

⁶⁰ *Id.*; See also Kristi Klose, PhD, BAER Team Fisheries Biologist, LPNF, Casey Horgan, Michael Morales, Kyle Evans, Sam Bankston, Teagan Partin, and Katie Carmody, Pacific States Marine Fisheries Commission and CDFW, *Assessment of Steelhead Habitat and Migration Barriers within Watersheds Impacted by the Thomas, Whitter, and Topanga Wildfires* (September 10, 2019) (“Klose *et al* (2018)”).

⁶¹ Bixby, *et al* (2015) at 1345.

⁶² Bixby, *et al* (2015) at 1344 – 1345; See also email from Matt McGoogan, Fisheries Biologist, NMFS, to Rebecca Bjork, Water Supply Manager, City of Santa Barbara (August 31, 2010).

⁶³ Bixby, *et al* (2015) at 1345; See also Klose *et al* (2018) at 107 stating, “Zero *O. mykiss* were observed in these streams during the habitat and barrier assessments conducted for this report. It is unlikely San Ysidro Creek and Carpinteria Creek continue to support a resident *O. mykiss* population at this time considering the numerous negative impacts on stream habitat conditions from persistent drought, wildfire, and subsequent sediment influxes.”

⁶⁴ Alexandra D. Syphard, Teresa J. Brennan, and Jon E. Keeley, *Extent and drivers of vegetation type conversion in Southern California chaparral* available at <https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.2796> (July 2019) (“Syphard *et al* (2019)”); See also Goleta (2020) at 33; See also Google Earth (2019).

⁶⁵ California Chaparral Institute Website, *What is Type Conversion* Webpage, available at <https://www.californiachaparral.org/threats/too-much-fire/> (October 18, 2021).

However, according to Rob Hazard, SBCFD Division Chief / Fire Marshal, fire return intervals along the south coast of Santa Barbara generally remain high so far (between nineteen and sixty-two years).⁶⁶ “While we have experienced an unusual number of major fires along the front country, the majority of burnt acreage has not overlapped.”⁶⁷ Two recent examples are noteworthy:

“One exception we have seen is the 2019 Cave Fire. The Cave Fire initially displayed extreme fire behavior as it burned through 55-year-old chaparral driven by 50 plus mph winds. The resulting extremely intense flaming front burning through old age class chaparral generated a large amount of fire brands and embers which were driven down-wind into receptive fuels resulting in numerous spot fires. As the fire burned into the 2009 Jesusita in its southern half the fire intensity was dramatically reduced, what we call a “dirty burn” with many unburned islands of chaparral, some places where only the understory burned, and the primary mechanism of fire spread was wind-driven embers spotting in lighter grass and sage fuels.”⁶⁸

The 2021 Alisal Fire burned into the footprint of the 2016 Sherpa Fire. However, the Alisal Fire “diminished on the east side after reaching younger vegetation in the 2016 Sherpa fire burn scar.”⁶⁹ Nevertheless, climate change, drought, hotter temperatures, and increasing fire ignitions may shorten the future fire frequency in local chaparral stands.

If chaparral stands were to burn too frequently, obligate chaparral seeders such as ceanothus, which require fire for seeds to germinate, never get a chance to set seed because they are burned too frequently, and they disappear, allowing weedy plant communities dominated by annuals such as thistles and nonnative annual grasses to displace the scrub and chaparral.⁷⁰ Herbaceous annual plants such as thistles and annual grasses which replace chaparral die and dry out each year.⁷¹ This transition from dense, woody perennial chaparral vegetation to herbaceous and grassy annual plants exacerbates fire ignition threats by physically allowing easier human access into wildland and WUI areas, which increasingly support nonnative annual plants that die and dry out every year. In areas where type-conversion is occurring (see Figures 394 and 396 below), conversion of chaparral to nonnative plants creates a negative feedback loop with increasingly frequent fire ignition, accelerating type-conversion of chaparral to nonnative annual weeds, and intensifying the impacts of increasingly frequent fires.⁷² If fire frequency increases in Santa Barbara County due to climate change and/or increased anthropogenic ignitions, the

⁶⁶ Hazard (2021).

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ Dave Minsky, Alisal fire containment reaches 41%; 3 residences destroyed, Lompoc Record available at https://lompocrecord.com/news/local/alisal-fire-containment-reaches-41-3-residences-destroyed/article_4c68be9e-4552-598f-aff5-72ec472ac9b7.html (October 16, 2021).

⁷⁰ Syphard *et al* (2019).

⁷¹ *Id.*

⁷² California Chaparral Institute, *Type-Conversion – the Impact of Too Much Fire* webpage available at <https://www.californiachaparral.org/threats/too-much-fire/> (February 21, 2021) (“Chaparral Institute (2021)”).

impacts of fire, floods, erosion, sedimentation, and debris flows on watersheds, creeks, and riparian forests would occur more frequently, decreasing public safety and increasing damage to watersheds, creeks, riparian forests, aquatic habitats, and special-status species, including steelhead.

Loss of chaparral and coastal sage scrub to type-conversion also reduces fog-drip and groundwater recharge because the nonnative weeds are smaller and less effective at capturing and infiltrating fog droplets and rain drops, reducing moisture available for steams and steelhead.⁷³ Reduced fog drip dries out vegetation, making it more prone to wildfire, exacerbating the negative feedback loop between increasing temperatures, type-conversion, fog-drip, moisture levels, wildfire ignition frequency and fire spread, and adverse effects on creeks, riparian forests, and watersheds.



Figure 12. A twenty-five-foot waterfall on a perennial creek at an undisclosed location on a private ranch in the Goleta Valley. Brian Trautwein. 2017.

5. Climate Change Causes More Severe Storms, Which Increase Erosion, Flooding, and Debris Flows.

Climate change also impacts weather patterns. Stronger storm events are expected to become more commonplace, which increases the likelihood of creek flooding.⁷⁴

⁷³ [Alicia Torregrosa, Lorraine E. Flint, Alan L. Flint, Hydrologic Resilience from Summertime Fog and Recharge: A Case Study for Coho Salmon Recovery Planning](https://onlinelibrary.wiley.com/doi/full/10.1111/1752-1688.12811) <https://onlinelibrary.wiley.com/doi/full/10.1111/1752-1688.12811> (November 20, 2019).

⁷⁴ Amir AghaKouchak, Elisa Ragno, Charlotte Love, Hamed Moftakhari, *Projected Changes in California's Precipitation Intensity-Duration-Frequency Curves* available at https://www.energy.ca.gov/sites/default/files/2019-11/CCCA4-CEC-2018-005_ADA.pdf (August 2018).

Increasingly frequent fires denude Goleta's watersheds, and when followed by more powerful storms lead to increased erosion, sedimentation, and mud flows, debris flows, and damaging floods. As an example, the 2017 Thomas Fire burned from Santa Paula to Santa Barbara.⁷⁵ The fire was fully contained on January 12, 2018. However, prior to containment on January 9, 2018, intense rainfall led to widespread debris flows killing at least twenty-two people and destroying "around 100 homes."⁷⁶ The 2018 Montecito Debris Flows caused substantial damage to creek and riparian habitats and appears to have extirpated steelhead from several important watersheds, including Carpinteria and San Ysidro Creeks.⁷⁷

6. Fire and Flood Prevention Measures Can Cause Incidental Damage to Watersheds, Streams, and Riparian Habitats

Implementation of measures to protect homes, communities, and watersheds from wildfires and subsequent debris flows, including fuel breaks and debris basins, are increasing due to the profound number of damaging wildfires in Santa Barbara County during 2007-2021. While necessary to control fire spread and protect property and natural resources from fires and debris flows, these measures can result in incidental adverse effects to watersheds, including spread of invasive plant species, increased erosion and sedimentation, reduced infiltration, and impacts on aquatic habitat and species. Fire retardant is often necessary to halt the spread of wildfires but is toxic to steelhead as illustrated by a fish kill reported by EDC in Maria Ygnacio Creek Goleta during the Jesusita Fire in 2009.⁷⁸ Flood prevention measures necessitated by increasing fire frequency, such as debris basins, creek clearing, and ring nets⁷⁹ pose additional impacts to fish, wildlife, and riparian habitats.⁸⁰ As discussed further below, protecting creek hydrology and healthy, hydrated riparian vegetation and habitats by minimizing groundwater extraction and stream diversions may reduce the spread of fires, reducing the fire hazards in the WUI, the resulting impacts on watersheds, and the added incidental impacts of fire and flood mitigation measures on watersheds, creeks, and fish and wildlife (See Recommendation Global 18A below). Figure 24 shows Arroyo Hondo Creek after the 2004 Gaviota Fire and that moist riparian habitats can act as fuel breaks during fires.

⁷⁵ Klose et al (2018).

⁷⁶ Greta Mart, KCBX, *Thomas Fire scars still pose risk, one year later* available at <https://www.kcbx.org/post/thomas-fire-scars-still-pose-risk-one-year-later#stream/0> (December 4, 2018). See also Nasa, Earth Observatory Webpage available at <https://earthobservatory.nasa.gov/images/91573/deadly-debris-flows-in-montecito> (March 29, 2021).

⁷⁷ Klose et al (2018).

⁷⁸ Mark Capelli, South-Central / Southern California Steelhead Recovery Coordinator, NMFS Memo to File Re: *Maria Ygnacio O. mykiss Mortalities, Jesusita Fire, Santa Barbara* (May 15, 2009). ("Capelli (2009)").

⁷⁹ The Partnership for Resilient Communities Website available at <https://www.partnershipsb.org/net-project> (October 19, 2021).

⁸⁰ See e.g., NMFS, *Biological Opinion for Flood Control Operations including Annal Stream Maintenance, Debris Basin Maintenance, Goleta Slough Dredging and Long-term Atascadero Creek Channel Maintenance permitted by the US Army Corps of Engineers, and implemented by the Santa Barbara County Flood Control District in designated waters occurring within* (March 11, 2014) ("NMFS (2014)").

7. Invasive Exotic Vegetation Increases Wildfires, Reduces Streamflow, and Desiccates Riparian Habitats.

People have historically installed and continue to plant exotic landscaping in public and private areas, including along the Goleta Valley's many creeks and riparian woodlands, and other locations in Goleta's watersheds. Plants such as giant reed (*Arundo donax*),⁸¹ pampas grass, and eucalyptus trees were introduced to the Goleta Valley and have become naturalized. (See Problem Global 1 on page 159 below) These exotic species form dense, uniform stands of flammable vegetation in Goleta Valley creeks, worsening the trend of increasing fire hazards. Eucalyptus and *Arundo* grow rapidly and utilize vast amounts of water during evapotranspiration, further desiccating riparian areas.⁸² Homeless camps are often found within *Arundo* and eucalyptus stands in riparian areas, increasing the threat of wildfires along Goleta's creeks, and within Goleta's WUI and surrounding neighborhoods.

8. A Growing Number of Homeless Community Member Camps Increase Fires in Goleta's Creeks and Riparian Woodlands.

Homeless camps in Goleta's creeks and riparian areas contribute to the growing number of fires in riparian forests.⁸³ This problem has been increasing since the COVID-19 Pandemic began and homelessness increased.⁸⁴ Wildfires in and near Goleta's creeks have become very common due to an increase in cooking and warming fires at encampments.⁸⁵ Fires at encampments may also be increasing due to drier riparian woodland vegetation caused by droughts, hotter temperatures, decreased water tables, and reduced streamflow wrought by climate change and increased pumping by wells and stream diversions as discussed above. (See Problem Global 5 at page 168 below.)

In summary, climate change is causing hotter temperatures and longer droughts, which have the potential to increase the frequency and severity of fires in Goleta Valley watersheds. It is also causing a reduction in groundwater recharge from rainfall and streamflow. At the same time, hotter temperatures and droughts cause increased groundwater and creek diversions for agricultural and municipal water supplies. As a result, groundwater tables drop, creeks and riparian habitat become desiccated, and fires start and spread more readily. Once desiccated,

⁸¹ California Invasive Plant Council, *Arundo donax* webpage available at <https://www.cal-ipc.org/plants/profile/arundo-donax-profile/> (February 19, 2021).

⁸² *Id.*

⁸³ EdHat Staff, *Multiple Brush Fires Near Homeless Camp on Highway 101 in Goleta* Available at <https://www.edhat.com/news/multiple-brush-fires-near-homeless-camp-on-highway-101-in-goleta> (November 27, 2020); See also EdHat Staff, *Brush Fire at Homeless Camp in Goleta* available at <https://www.edhat.com/news/brush-fire-at-homeless-camp-in-goleta> (December 20, 2020); See also Jean Yamamura, Santa Barbara Independent, *Homeless Camps and Fires a Challenge for Goleta During COVID* available at <https://www.independent.com/2020/07/17/homeless-camps-and-fires-a-challenge-for-goleta-during-covid/> (July 17, 2020) ("Yamamura (2020)").

⁸⁴ EDC (2021).

⁸⁵ Yamamura (2020).

riparian corridors can transform from natural fire breaks to corridors for fire to travel down canyons. Climate change results in more intense storms. Erosion, flooding, and debris flows are increasing due to the increase in fires, resulting in denuded hillsides, and increasingly severe storms. The increase in flammable nonnative vegetation caused by type-conversion of chaparral may exacerbate this altered fire regime. Increased presence of eucalyptus, Arundo, and other exotic plants along Goleta's creeks and the increasing number of homeless community member camps contribute to this fire-flood-watershed degradation cycle. Taken together, these related processes driven by climate change and anthropocentric activities are increasingly threatening human life and property, while devastating watersheds, riparian forests, and Goleta's creek habitats. This report is intended to offer solutions which will minimize the impacts, protect watersheds and riparian forests, and improve fire safety in the Goleta Valley WUI.

F. Goals and Objectives: Enhancing Fire Safety and Riparian Forest Health

The coequal overarching visions of this report are to increase public safety and environmental health in the Goleta Valley by reducing the threat that wildfires pose to the public and the natural functions and values of the Goleta Valley's Watersheds.

Objective: Create safer neighborhoods complemented by restored creeks and riparian forests, by reducing the number, extent and impacts of wildfires, floods, and debris flows, and protecting and enhancing the natural functions and values of healthy watersheds.

Strategies:

- Develop interagency, non-profit, and public-private partnerships to mitigate the threat of wildfires and restore degraded streams and watersheds.
- Adapt to the effects of climate change through nature-based measures that improve conditions of local watersheds.
- Increase the resiliency of neighborhoods in the WUI and watersheds to climate change-induced droughts, rising temperatures, fires, and intensified storms.

Actions:

- Retain and restore watershed hydrology to protect natural resources and watershed functions and values and ensure that riparian corridors can serve as natural impediments to wildfire spread.
- Seek to eradicate or curtail the spread of flammable nonnative plants that damage local watersheds and exacerbate fire dangers.
- Provide alternative living situations to homeless community members to provide for their safety in a socially just and equitable manner and reduce their contribution to fires.

In addition to these broader actions, this report recommends site-specific and global implementation actions and projects with the dual objectives of watershed enhancement and preservation and WUI fire safety. (See Section V below.) The City, cooperating agencies and jurisdictions, nonprofits, and private partners should initially focus on projects achievable in the short-term. Each project should set forth measurable performance standards, such as acres of flammable exotic vegetation removed, number of native trees planted and surviving, acres of riparian forest restored, increased live fuel moisture levels, and stream baseflows recovered and protected in order to continually gauge the success of implementation projects, assess program effectiveness, and allow for adaptive management to concurrently maximize fire safety in the WUI and creek and watershed enhancement.

G. Implementation Timeframe

The agencies, organizations, and community members should set a timeframe for achieving specific milestones, goals, and objectives of this plan. Many of the environmental problems and fire hazards caused by climate change and improper watershed management have accrued for over one hundred years. It may take several decades of focused work to implement the actions necessary to begin to reverse these problems and increase fire safety and watershed health for future generations.

The planning and implementation timeline for the actions recommended in this report is twenty to fifty-years. The rationale for this timeframe accounts for the difficulty of minimizing the increasing impacts of climate change as well as the length of time it can take to undertake large projects, such as eradicating exotic species, managing groundwater, rezoning high fire hazard areas, and mitigating flow impairments. It can take years to obtain project funding. It can take decades to improve groundwater management, increase reuse of wastewater, change land and stream management practices, and prioritize and purchase properties and water rights. It takes decades for planted riparian trees to mature. Therefore, it will take decades to implement the projects recommended in this report to lessen the fire hazards in Goleta Valley watersheds and WUI neighborhoods and to restore Goleta's creeks and watersheds to achieve the community's vision. However, with funding and community support, some actions, such as increased enforcement of defensible space, home hardening, and improved stream hydrology may begin to result in increased fire safety and watershed health within a few years.



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Replace eucalyptus trees in Rancho Embarcadero with oak trees or fruit trees.	
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Evaluate potential effects of Tecolote Tunnel on flows in Tecolote Creek.	
Recommendation Bell Canyon 1	Page 76
Replace nonnative trees and Arundo in San Miguel Open Space with native riparian plants.	
Recommendation Bell Canyon 3	Page 80
Research water supply and permits for Ellwood Canyon Reservoir.	
Recommendation Bell Canyon 5	Page 81
Replace eucalyptus trees near Ellwood Onshore Facility and Bacara with oak trees.	
Recommendation El Encanto 3	Page 84
Remove eucalyptus, install wood-rail fence and bioswales, restore riparian habitat, and prevent off-pavement parking.	
Recommendation Devereux 2	Page 87
Replace unmaintained eucalyptus stand with oak savannah and riparian plants in tributary within open space at Brandon Drive and Calle Real.	
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Enhance Devereux Creek and monarch overwintering sites at Sperling Ellwood Mesa Preserve.	
Recommendation Glen Annie 2	Page 94
Replace eucalyptus trees with native oak and riparian plants near end of Glen Annie Road.	
Recommendation Glen Annie 5	Page 95
Clean up informal staging area, install wood-rail fence and gate, and replace nonnative plants, including eucalyptus trees, with riparian and oak woodland plants.	
Recommendation Los Carneros 1	Page 100
Replace eucalyptus trees with oak and riparian forest plants near Edison Cat Way Road.	
Recommendation Los Carneros 2	Page 102
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- Recommendation Los Carneros 3** Page 103
Replace Arundo and exotic plants with native riparian and oak woodland plants on Cathedral Oaks Road west of Los Carneros Road.
- Recommendation Los Carneros 9** Page 104
Replace eucalyptus trees with riparian and oak woodland plants between Highway 101 and Union Pacific Railroad east of Los Carneros Road.
- Recommendation San Pedro 1** Page 106
Replace eucalyptus trees and other nonnative plants with native riparian and oak savannah plants in Stonebridge Open Space.
- Recommendation San Pedro 3** Page 110
Relocate wooden storage building outside of riparian forest within orchard by Cathedral Oaks Road.
- Recommendation San Pedro 4** Page 112
Remove tires from creek bank and stabilize bank using native vegetation.
- Recommendation San Pedro 10** Page 114
Clean up unoccupied encampments near Highway 101 and plant native brambles to deter camping.
- Recommendation Las Vegas 1** Page 119
Replace stands of eucalyptus trees with riparian and oak woodland plants near La Goleta Road and Fairview Avenue.
- Recommendation Las Vegas 2** Page 122
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Replace eucalyptus trees with native riparian trees at Cathedral Oaks Road and Kellogg Avenue.



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Control spread of eucalyptus trees, enhance riparian corridor, and maintain monarch overwintering site near Kellogg Avenue and Calle Real.
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- Recommendation Maria Ygnacio 1** Page 136
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- Recommendation Maria Ygnacio 11** Page 138
Control the spread of eucalyptus trees, replace fallen eucalyptus with native riparian and oak woodland species, and restore riparian corridor.
- Recommendation Maria Ygnacio 15** Page 142
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- Recommendation San Antonio 1** Page 147
Research water rights and compliance for water diversion near Arroyo Burro Trail.
- Recommendation San Antonio 2** Page 149
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- Recommendation San Antonio 9** Page 153
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- Recommendation San Antonio 10** Page 158
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- Recommendation San Antonio 13** Page 161
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- Recommendation Atascadero 11** Page 163
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- Recommendation Atascadero 15** Page 168
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**Recommendation Atascadero 16**

Page 172

Replace eucalyptus and California pepper trees along Atascadero Creek and at the Edison Substation at Highway 154 and Foothill Road.

Recommendation Atascadero 17

Page 174

Acquire property bounded by Calle Caridad on the north and Highway 154 on the west in the WUI to create a public park or open space.

Recommendation Global 1

Page 178

Eliminate, or control the spread of flammable invasive plant species by removing plants and replacing them with less fire-prone native species, banning or disincentivizing propagation and sale, and through public education campaigns.

Recommendation Global 5

Page 187

Clean up and revegetate unoccupied encampments with brambles to discourage camping, disincentivize dispersed camping, and support programs to secure and create housing for people experiencing homelessness.

Recommendation Global 15

Page 189

Acquire, secure easements, and downzone rural and WUI areas in high fire hazard areas.

Recommendation Global 16

Page 190

Protect chaparral from excessively frequent fires and type-conversion.

Recommendation Global 17

Page 196

Support state funding for defensible space maintenance and inspections, home-hardening projects, for staff, and equipment necessary to prevent and stop the spread of wildfires, and to remove flammable nonnative vegetation in WUIs and wildlands.

Recommendation Global 18

Page 198

Curtail water diversions and wells' effects on stream flows and fire safety.

II. EXISTING CONDITIONS

The forty-seven square-mile Goleta Slough Watershed includes twelve named creeks listed below from west to east:

- Glen Annie Creek (named Tecolotito Creek below Highway 101)
- Los Carneros Creek
- San Pedro Creek
- Las Vegas Creek
- San Jose Creek including the tributary Fremont Creek
- Maria Ygnacio Creek including the tributary East Fork Maria Ygnacio
- San Antonio Creek, and
- Atascadero Creek including the tributaries Hospital Creek and Cieneguitas Creek.

The roughly 2.5-mile Devereux Slough Watershed is fed by Devereux Creek, a relatively small stream draining the foothills of western Goleta. El Encanto Creek (named Phelps Creek downstream from Hollister Avenue) is a tributary of Devereux Creek.

Creeks in the City of Goleta which drain directly to the Pacific Ocean include: (1) Bell Canyon Creek (including Winchester Canyon Creek and Ellwood Canyon Creek tributaries), which feeds the Bell Canyon Estuary between the Bacara Hotel and the Venoco Ellwood Oil Facility (“EOF”), and (2) a short reach of Tecolote Creek near the Bacara Hotel.

This section of the report serves as a preliminary baseline of information about the City’s creeks and watersheds and their individual qualities. The following sections briefly describe the primary creeks in the City of Goleta and the larger Goleta Valley. Included below are descriptions of each watershed, data regarding the watershed sizes, the one-hundred-year flow rates, water quality impairments (including chemicals classified by section 303(d) of the Clean Water Act as prohibited for discharge), and land use, recreational, geographical, and biological characteristics, and other pertinent information regarding the Goleta Valley’s named creeks, beginning with Tecolote Creek on the west side of Goleta.

A. Tecolote Creek Watershed

Tecolote Creek’s watershed begins at the crest of the Santa Ynez Mountains in the LPNF near West Camino Cielo, 1.1 miles west of the Winchester Gun Club. It contains extensive wildlands dominated by chaparral and coast live oak woodlands, as well as riparian woodlands along the creek and five main tributaries. To the south of this natural portion of the watershed, 2.8 miles south of West Camino Cielo, a large agricultural area highlighted by avocado orchards dominates the foothills of the Santa Ynez Mountain Range. Rancho Embarcadero, a semi-rural residential area west of the City of Goleta, is located between the orchards and Highway 101. South of Highway 101 is the Bacara Hotel, where Tecolote Creek flows through a small estuary into the ocean.

- Watershed Size: Approximately 5.77 square miles; creek length approximately 6.2 miles.⁸⁶
- Hydrology: Tecolote Creek can generate flows over 4,000 cubic feet per second (“cfs”) during 100-year return interval flow events.
- Land Use:
 - ❖ Impervious <10%
 - ❖ Chaparral, coastal scrub, and oak woodland ~60%
 - ❖ Agriculture ~30%
- 303(d) Impairments
 - ❖ Sodium
 - ❖ Chloride⁸⁷
- Watershed Description:

Watershed Geography

Tecolote Creek originates in the chaparral and oak woodlands of the Santa Ynez Mountains at 3,080 feet in elevation⁸⁸ north of the westernmost portion of the City of Goleta. Four unnamed tributaries join at approximately 1,800 – 1,950 feet in elevation in the LPNF, forming Tecolote Creek. The mainstem of the Creek below the tributaries’ confluence flows for approximately one mile through a healthy, north-to-south trending riparian corridor in the LPNF. Some reaches in the National Forest appear to be perennial, while others are intermittent. Coast live oaks (*Quercus agrifolia*), black cottonwoods (*Populus trichocarpa*), arroyo willow (*Salix lasiolepis*), western sycamore (*Platanus racemosa*), big-leaf maple (*Acer macrophyllum*), California bay laurel (*Umbellularia californica*), and white alder (*Alnus rhombifolia*) trees comprise the riparian woodland. Below the National Forest, the Creek enters an agriculturally zoned area under Santa Barbara County jurisdiction. This area is dominated by avocado orchards. A network of roads on steep slopes supports the orchard operations.⁸⁹ Chaparral and oak woodlands were removed to install the orchards which, along with the roads, increase the area of exposed soil, and thus the potential for slope erosion and sedimentation in the creek. Water is provided by creek-side wells visible in aerial photos.⁹⁰ Given the hydrogeology and shallow groundwater near south coast streams, the wells are probably shallow alluvial wells tapping the stream’s underground flow, potentially depriving the stream of flows.

⁸⁶ Goleta Water District (2017) at 28.

⁸⁷ *Id.* at 27.

⁸⁸ *Id.*

⁸⁹ Google Earth (2019).

⁹⁰ *Id.*

The Tecolote Tunnel passes underneath the watershed delivering Cachuma Reservoir water to Goleta. (Figure 9) Tecolote Tunnel infiltrates 2,000 acre-feet of ground water per year.⁹¹ As discussed in EDC 2013-2021 Master Report, there is concern that the Tecolote Tunnel may adversely affect flows in Tecolote Creek.⁹²

Below the agricultural zone but still under County jurisdiction, Tecolote Creek flows for approximately two miles through the Rancho Embarcadero neighborhood, an area with approximately 155 homes on lots ranging in size from approximately one-half acre to several acres along both sides of the Creek. EDC has received permission to survey and conduct creek cleanups in this area. There are thirteen check dams in this section of Tecolote Creek. EDC has also received reports of three water diversions in the Creek.⁹³ This Creek flowed year-round and supported steelhead in the 1970s but went dry after increased water extraction for avocado orchards and has not flowed year-round on a consistent basis since the 1980s.⁹⁴

Further downstream below the Rancho Embarcadero neighborhood, the Creek passes under Calle Real, Highway 101, and the UPRR tracks through a narrow culvert which daylights in the City of Goleta upstream from the Bacara Hotel on Hollister Avenue in an area dominated by exotic eucalyptus trees. The Creek terminates in a small estuary adjacent to the ocean at a public beach adjoining the Hotel.

Watershed Biology

A single California red-legged frog – a federally threatened species - was identified in the Creek during construction of the bridge for the Bacara Hotel circa 2000. Southern California steelhead (*Oncorhynchus mykiss*) were historically present in Tecolote Creek.⁹⁵ (Figure 13) An effort to reintroduce steelhead in 1973 resulted in adult fish returning to spawn in 1974, but was ultimately unsuccessful, possibly because “a long culvert and concrete apron near the mouth of Tecolote Canyon Creek create a complete barrier so steelhead spawning.”⁹⁶ California newt (*Taricha torosa*), occurs in the Creek in the National Forest. Special-status species such as federally threatened California red-legged frog (*Rana aurora*), southwestern pond turtle

⁹¹ Mills (undated).

⁹² Letter from Anthony P. Spina, Chief, Southern California Branch, California Coastal Office, National Marine Fisheries Service to Michael Jackson, U.S. Bureau of Reclamation at 6 (February 8, 2021); *See also* Rantz (1962); *See also* EDC (2021).

⁹³ Anonymous water diversion complaint (2020).

⁹⁴ Vincent Pagliaro, Rancho Embarcadero resident, personal communication with Brian Trautwein, Environmental Analyst/Watershed Program Coordinator, EDC (March 19, 2021).

⁹⁵ Center for Ecosystem Management and Restoration (“CEMAR”) *Steelhead/Rainbow Trout (Oncorhynchus mykiss) Resources South of the Golden Gate, California: Distribution Report*, Steelhead/rainbow trout resources of Santa Barbara County at available at 283 available at http://www.cemar.org/SSRP/pdfs/SSRP_santaBarbara.pdf (October 2008) (“CEMAR (2008)”; *See also* Stoecker (2002) Salmonid Documentation Table available at http://www.stoeckerecological.com/reports/SoSBCoReport/Tables/Chapter%206%20Salmonid%20Documentation/Table_6.3_salmonid_documentation.pdf.

⁹⁶ *Id.*

(*Emys marmorata pallida*), and two-striped garter snakes (*Thamnophis hammondi*) are likely to occur in the middle and upper watershed.



Figure 13. Steelhead were historically present in Tecolote Creek. Unknown photographer. 1931 and 1937. Tecolote Creek Steelhead Planting Project Summary Report by Philip Gant, UCSB. (1974).

http://www.stoeckerecology.com/reports/SoSBCoReport/Tables/Chapter%206%20Salmonid%20Documentation/Table_6.3_salmonid_documentation.pdf

Recreation in the Tecolote Creek Watershed

There are no known public recreational facilities in this watershed, however, there is evidence people sometimes walk the Creek. Within the Bacara Hotel, there are walking paths near the Creek used by hotel patrons. The public beach at the mouth of Tecolote Creek is used by beachgoers.

B. Bell Canyon Creek Watershed

Bell Canyon Creek drains Winchester Canyon and Ellwood Canyon north of Highway 101. These Canyons contain extensive orchards, and the headwaters are wildlands dominated by chaparral. Bell Canyon Creek flows into a one-tenth mile estuary located next to the Sandpiper Golf Course and the Venoco EOF.

- Watershed Size: Estimated 6 sq. miles.

- Hydrology: Bell Canyon Creek may be able to generate a flow of 4,600 cfs during 100-year return runoff events.⁹⁷
- Land Use:
 - ❖ Impervious <10%
 - ❖ Chaparral, coastal scrub, and oak woodlands ~60%
 - ❖ Agriculture ~30%
- 303(d) Impairments:
 - ❖ Pathogens (fecal coliform)
Nitrate
 - ❖ Toxicity⁹⁸
- Watershed Description:

Watershed Geography

The Bell Canyon Creek Watershed originates in the Santa Ynez Mountains at an elevation of between roughly 2,680 feet above sea level⁹⁹ (Winchester Canyon Watershed) and 3,000 feet (Ellwood Canyon Watershed). Ellwood Canyon Creek flows through native chaparral and oak woodlands in the LPNF, supporting a narrow riparian corridor and ephemeral stream which may be perennial in rainy years. Ellwood Canyon Creek and its watershed are largely undisturbed for three linear miles south of West Camino Cielo. Below this area, the Creek passes into agricultural lands which consist of orchards and row crops.¹⁰⁰ A large reservoir is present next to the Creek.¹⁰¹ Electrical lines visible along the Creek are likely to serve agricultural water wells located near the riparian corridor which could impair stream flows.¹⁰²

The upper portion of the Winchester Canyon Creek drains an area primarily vegetated by avocado orchards, with limited chaparral in the uppermost three-fourths of a mile of Winchester Canyon.¹⁰³ Farther south, in the middle portion of the watershed from the Winchester Canyon neighborhood north approximately 1.3 miles, extensive coastal sage stands interspersed with oak woodlands persist on both sides of the canyon, forming perhaps the most intact and largest remaining coastal sage scrub stands left in the Goleta vicinity.¹⁰⁴ Row crops are present in the flat floodplain along either side of Winchester Canyon Road.¹⁰⁵

⁹⁷ FEMA, Flood Insurance Study Volume 1 (September 28, 2018).

⁹⁸ Goleta Water District (2017) at 28.

⁹⁹ *Id.* at 27.

¹⁰⁰ Google Earth (2019).

¹⁰¹ *Id.*; *See also* EDC (2021).

¹⁰² Google Earth (2019).

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

Farther south, adjacent to the Winchester Canyon neighborhood and San Miguel Open Space in the City of Goleta, Ellwood Canyon Creek and Winchester Canyon Creek join to become Bell Canyon Creek, a mostly intermittent stream which flows through the City's San Miguel Open Space Park. The Creek then flows through the private Braggs Live Food Products property, an organic farm located in an unincorporated area of the County. EDC has received permission to conduct creek cleanups on this property. Some sections of the Creek appear to be perennial on the Braggs property. Below the Braggs property, Bell Canyon Creek passes underneath Calle Real and Highway 101 through a long culvert, reenters the City of Goleta, passes through a two-hundred foot-long section dominated by eucalyptus trees between Highway 101 and the Union Pacific Railroad ("UPRR") tracks, where the diverted Devereux Creek tributary joins.¹⁰⁶ Bell Canyon Creek continues to flow south underneath the Hollister Avenue Bridge and into the Bell Canyon Estuary which is located adjacent to the Venoco EOF. The EOF encroaches into and reduces the size of the Bell Canyon riparian habitat and estuary.¹⁰⁷

Watershed Biology

Ellwood Canyon Creek is the largest tributary to Bell Canyon Creek. In the Santa Ynez Mountains and LPNF, the Creek supports various willow species, western sycamores, coast live oak, California bay laurel, white alders, black cottonwoods, and big-leaf maples. Within the Forest, this Creek supports California newts, and is likely to support federally threatened California red-legged frogs, western pond turtles, and two-striped garter snakes. Ellwood Canyon Creek and Bell Canyon Creek historically supported steelhead, until at least 1984.¹⁰⁸ Winchester Canyon Creek is smaller, is impaired by agriculture, and is intermittent, but is likely to support smaller populations of the same special-status species. "Bell Canyon Creek is also the home to several special-status species, including monarch butterflies, red-legged frog, and tidewater goby."¹⁰⁹ Bell Canyon Creek and its estuary may contain southwestern pond turtles and two-striped garter snakes. The Creek's riparian habitat is important to migratory and nesting birds, amphibians, reptiles, and mammals. The largely undeveloped Bell Canyon, Winchester Canyon, and Ellwood Canyon watersheds exhibit conditions suitable for significant wildlife movement including black bear (*Ursus americanus*) mountain lion (*Puma concolor*), coyote (*Canis latrans*), and bobcat (*Lynx rufus*) from the National Forest to the coastal area.

Recreation in the Bell Canyon Watershed

The City operates the San Miguel Open Space Park in Winchester Canyon, which includes lawn area, a footbridge, and playground. Otherwise, there is little public recreation in the watershed. However, the Venoco EOF is a legal non-conforming use on a recreationallly

¹⁰⁶ EDC (2021).

¹⁰⁷ *Id.*

¹⁰⁸ CEMAR (2008) at 283.

¹⁰⁹ Staff Report Addendum from Lisa Hague, Chief of Enforcement, California Coastal Commission, to Commission and Interested Parties re *Addendum to Item Nos. 5.3 & 5.5 –Consent Cease and Desist Order Ccc-13-Cd-03 And Restoration Order Ccc-13-Ro-03 (Bacara Resort)* (April 11, 2013).



zoned parcel. When the EOF is removed, EDC recommends that the site be remediated and turned into a new City park or open space. (See Recommendation Bell 5A in Section III below.)

C. Devereux Creek Watershed

Devereux Creek flows from the headwaters of several tributaries in agriculturally productive land in the foothills north of the western portion of City of Goleta. These tributaries, including El Encanto Creek, flow through the Glen Annie Golf Club and western Goleta neighborhoods, Evergreen Park, underneath Highway 101, joining together at various confluences, through the Sandpiper Golf Course, where Devereux Creek then flows through the City's Sperling Ellwood Mesa Preserve and UCSB's North Campus Open Space ("NCOS"). Within the NCOS, Phelps Creek (known as El Encanto Creek north of Highway 101) joins Devereux Creek and feeds the Devereux Lagoon - which flows through UCSB's Coal Oil Point Reserve ("COPR") and connects to the ocean during storms and high tides.

- Watershed Size: 3.7 sq. mile watershed (2,330 acres);¹¹⁰ approximately 3.7 mile long (El Encanto Creek tributary)¹¹¹
- Hydrology: Devereux Creek may be capable of producing flows in the range of 3,900 – 4,100 cfs during 100-year return interval flow events.¹¹²
- Land Use:
 - ❖ Impervious ~30%
 - ❖ Residential ~40%
 - ❖ Commercial ~15%
 - ❖ Agricultural <10%
 - ❖ Open Space ~15%
 - ❖ Golf course ~1%¹¹³
- 303(d) Impairments:
 - ❖ Pathogens (fecal coliform)
 - ❖ Low DO¹¹⁴
- Watershed Description:

¹¹⁰ Sarika Kathuria, Watershed Program Intern, EDC, and Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC, *2016 Goleta Watershed Protection and Education Program Report: Summary of 2016 Goleta Creek Cleanup Program and Recommendations for Watershed Enhancement* (December 16, 2016) ("EDC (2016)").

¹¹¹ City of Goleta, *Final EIR for Westar Mixed-use Village* available at <https://www.cityofgoleta.org/home/showdocument?id=6719> (July 2012); See also Goleta Water District (2017) at 26.

¹¹² Stantec, *Devereux Creek Flood Analysis* available at https://www.openspace.vcadmin.ucsb.edu/files/docs/Att_20_Devereux_Creek_Flood_Analysis.pdf (June 3, 2016).

¹¹³ Channelkeeper (2006).

¹¹⁴ Goleta Water District (2017) at 29.

Watershed Geography

Devereux Creek originates in the foothills of western Goleta at an elevation of approximately 560 feet above sea level between Ellwood Canyon to the west and including the Glen Annie Golf Club on the east.¹¹⁵ The upper watershed consists of avocado orchards, scattered rural residences, and coastal sage and grassland plant communities.¹¹⁶ Several springs were historically present in this area but may no longer flow due to water extractions (i.e., wells) and grading for the Glen Annie Golf Club in 1997.¹¹⁷ Several willow and live oak trees persist in this upper watershed area amidst the orchards.¹¹⁸ The primary branch of Devereux Creek is El Encanto Creek. The Creek is perennial where it flows from the orchards down onto the Glen Annie Golf Club. The Creek was placed in a 515-foot-long culvert underground to accommodate the golf course.¹¹⁹ El Encanto Creek and its tributaries on the golf course were restored circa 1997-2000 as part of the Golf Course construction project to mitigate the impacts of construction on the Creek, springs, and tributaries pursuant to County permit conditions, and pursuant to settlement of a lawsuit.¹²⁰

South and east of the golf course, El Encanto Creek passes by an undeveloped open space which is the site of the proposed sixty-unit Shelby housing project. The Creek is dominated by eucalyptus trees in this reach, and this has been identified as a fire hazard and ecological problem. (See Problem El Encanto 3 in Section III below.) The Creek passes underneath Cathedral Oaks at Northgate and Evergreen Drives through a wildlife-friendly culvert designed by Santa Barbara County Public Works (“SBCPW”) in response to EDC and Urban Creeks Council (“UCC”) advocacy for the Creek as a wildlife corridor circa 1997-98. The creek flows south through a residential neighborhood, and behind El Encanto School. This section is extremely dense vegetation and almost inaccessible in areas, as observed during EDC creek cleanups and surveys. The Creek then flows through Evergreen Park where it merges with an unnamed tributary.¹²¹ The Creek is intermittent adjacent to the School but becomes perennial again at the southeasternmost (downstream-most) section of Evergreen Park. El Encanto Creek then flows into a culvert underneath the western Goleta El Encanto Heights Neighborhood, where the Creek joins with the Bella Vista Park tributary (Bella Vista Creek) before daylighting in private open space north of Calle Real on the site of the proposed fifty-nine-unit Kenwood Village Subdivision east of the 7-11 store.¹²² El Encanto Creek often flows or has standing water year-round in this area. El Encanto Creek then passes through a culvert underneath Calle Real and Highway 101, emerging as Phelps Creek downstream of Highway 101 and the UPRR tracks.

¹¹⁵ *Id.* at 26; *See also* Google Earth (2019).

¹¹⁶ Google Earth (2019).

¹¹⁷ Personal communication, Dougal House, Certified Arborist to Brian Trautwein, Executive Director, UCC, 1997.

¹¹⁸ *Id.*; *See also* Google Earth (2019).

¹¹⁹ EDC (2021).

¹²⁰ Citizen Planning Association and Urban Creeks Council, represented by EDC, sued the County for approving the Glen Annie Golf Club Project and reached a settlement requiring restoration of creeks and drainages in 1994.

¹²¹ Google Earth (2019).

¹²² EDC (2021).

Downstream from the Calle Real/Highway 101 and UPRR culvert, El Encanto Creek sometimes contains standing water in pools year-round. It flows south by southeast through a densely vegetated reach supporting native willow trees hemmed in by various commercial developments north of Hollister Avenue.¹²³ Underneath Hollister Avenue Phelps Creek enters a 2,000-foot-long concrete-lined flood control channel, which usually has small amounts of water from urban nuisance flows or infiltration seepage through cracks in the concrete channel, observed during EDC's annual creek cleanups.

The concrete-channelized Phelps Creek passes under Phelps Road and into a vegetated earthen channel which was planted with native riparian plants, including willow trees, by community volunteers and UCC beginning in the 1990s, and is now lined by the mature willow trees. Phelps Creek passes through an undeveloped parcel then flows onto UCSB's North Campus housing site, and onto the NCOS where Phelps Creek joins Devereux Creek one mile north of the ocean.¹²⁴ UCSB's North Campus housing project was constructed with setbacks from El Encanto and Devereux Creeks.¹²⁵

EDC, on behalf of its clients Santa Barbara Audubon Society and Citizens for Goleta Valley ("CGV"), other community groups, and UCSB staff and alumni succeeded in scaling the housing project back from over five hundred proposed homes to less than two hundred homes, preserved over forty wetlands and native grasslands which were identified by EDC, Audubon, and EDC's biologist, Dr. Beth Painter, on the North Parcel, and permanently preserved the entire seventy-acre South Parcel (south of Devereux Creek) by way of a first-ever deed restriction approved by the UC Regents as part of a settlement agreement with EDC on behalf of Audubon and CGV. The deed restriction was codified through Special Condition 28 imposed by the California Coastal Commission ("CCC") on the UCSB North Campus Long-Range Development Plan Amendment.¹²⁶

The western fork of Devereux Creek begins in the Winchester Commons Neighborhood north of Highway 101 and flows underneath Highway 101 and the UPRR tracks, then through the Hideaways residential development, under Hollister Avenue, south by southeast through the Sandpiper Golf Course, and into the Sperling Ellwood Mesa Preserve. It then continues west onto UCSB's NCOS where it joins Phelps Creek. There is usually standing water in this branch

¹²³ Google Earth (2019).

¹²⁴ EDC (2021) Problem El Encanto 10; *See also* Google Earth (2019).

¹²⁵ Google Earth (2019).

¹²⁶ CCC Staff Report Memo from Jack Ainsworth, Deputy Director, Gary Timm, South Central Coast District Manager, Steve Hudson, Supervisor, Planning and Regulation, Melissa Hetrick, Coastal Program Analyst, Commissioners and Interested Parties re *Proposed Major Amendment 1-06 to the UCSB Certified Long Range Development Plan (LRDP), UCSB Notice of Impending Development 106, and Coastal Development Permit Application 4-06-097 for Public Hearing and Commission Action at the November 17, 2006, Commission Meeting in Huntington Beach, CA.* available at [file:///Z:/Shared/Documents/Program/Historic%20Cases/1109_Ellwood/Administrative%20Review%20-%20CCC/Agency%20Notices%20-%20Staff%20Reports%20-Proposed%20Rulemaking%20-Resolutions/CCC%20staff%20report%20\(November%202006\)%20for%20UCSB%20North%20Campus%20LRDP%20and%20NOID.pdf](file:///Z:/Shared/Documents/Program/Historic%20Cases/1109_Ellwood/Administrative%20Review%20-%20CCC/Agency%20Notices%20-%20Staff%20Reports%20-Proposed%20Rulemaking%20-Resolutions/CCC%20staff%20report%20(November%202006)%20for%20UCSB%20North%20Campus%20LRDP%20and%20NOID.pdf) (November 3, 2006).

of Devereux Creek in a large pool at the downstream end of the Highway 101/UPRR culvert outfall, amidst a eucalyptus stand, but it is otherwise seasonal.

The culvert under the railroad tracks and upstream from the Hideaways is plugged with sediment due to an apparent lack of maintenance.¹²⁷ As a result, the tributary is diverted from its course and flows for roughly one-quarter mile west following the railroad tracks, forming a new streambed along the north side of the tracks. The new Creek channel adjacent to the UPRR tracks prompted UPRR to line the Creek with rock riprap to protect the tracks from streambank erosion.¹²⁸ During storms, this tributary now flows west along the tracks to Bell Canyon Creek, providing a new source of freshwater for the Bell Canyon Estuary, but depriving the Devereux Slough, NCOS, and COPR of freshwater.¹²⁹

An eastern tributary of El Encanto Creek, referred to herein as Bella Vista Creek, flows from the Glen Annie Golf Club underneath Cathedral Oaks Road into a culvert under the El Encanto Heights Neighborhood and the northern portion of Bella Vista Park.¹³⁰ This perennial tributary forms a riparian wetland for roughly six hundred thirty linear feet in the southern portion of Bella Vista Park, including Monarch Butterfly Overwintering Site number 2817, where the tributary supports riparian and wetland vegetation, including at least one native willow tree and cattails.¹³¹

All tributaries merge into Devereux Creek, which flows into the Upper Devereux Slough at UCSB's NCOS - the former Ocean Meadows Golf Course purchased by UCSB in 2014.¹³² The former golf course site is currently being restored by UCSB's Cheadle Center for Biodiversity and Ecosystem Restoration ("CCBER") with over sixty acres of native wetlands and habitats.¹³³ Downstream from the NCOS, the Devereux Slough is part of the COPR, which is part of the UC Reserve System. The University of California Reserve System manages the COPR which, like the NCOS, is very important for fish, birds, and other wildlife.

Watershed Biology

Devereux Creek and Devereux Slough are very significant biological resources because they harbor numerous special-status habitats and plant and animal species, and because significant sections of the Creek and its tributaries occur on public and/or protected open spaces. In addition, the Devereux Watershed still supports several protected plant communities and

¹²⁷ EDC (2021) See Problems Bell 7 and Devereux 5 in Section IV.

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ *Id.* See Problem Bella Vista 1 in Section IV.

¹³¹ Google Earth (2019); *See also* Western Monarch Count, *Find an Overwintering Site* webpage, available at <https://www.westernmonarchcount.org/find-an-overwintering-site-near-you/> (April 8, 2021) ("Western Monarch (2021)").

¹³² University of California Santa Barbara, North Campus Open Space Website available at <https://www.openspace.vcadmin.ucsb.edu/overview> (February 20, 2021) ("UCSB (2021)"); *See also* Google Earth (2019).

¹³³ UCSB (2021).

habitats, including one of “the largest Monarch butterfly over-wintering groves in California.”¹³⁴ Because of these open spaces and connections to the undeveloped foothills, Devereux Creek is also valuable as a wildlife movement corridor. However, a wildlife corridor connecting Devereux Slough and Goleta Slough has been hemmed in by development.¹³⁵

Devereux Creek, Devereux Slough, and the Devereux Watershed support California red-legged frog, western pond turtle, tidewater goby, globose dune beetle (*Coelus globosus*), burrowing owl (*Athene cunicularia*), Belding’s savannah sparrow (*Passerculus sandwichensis*), western snowy plover (*Charadrius alexandrinus nivosus*), white-tailed kite (*Elanus leucurus*), Cooper’s hawk (*Accipiter cooperii*), monarch butterfly (*Danaus plexippus*), Ventura salt marsh milkvetch (*Astragalus pycnostachyus* var. *lanosissimus*), wooly seablite (*Suaeda taxifolia*), Santa Barbara honeysuckle (*Lonicera subspicata subspicata*), and southern tar plant (*Centromadia parryi*).¹³⁶ Devereux Creek does not provide suitable habitat for southern steelhead. A single California red-legged frog was documented in the persistent pool immediately below the UPRR tracks prior to County-approval of the Hideaways (then called Sandpiper Residential) on January 15, 2002.¹³⁷

The following sensitive plant communities and habitat types occur in the Devereux Watershed: southern riparian scrub, southern riparian forest, southern foredune, Ventura coastal sage scrub, southern dune scrub, southern coastal bluff scrub, coyote brush scrub, coastal freshwater marsh, coastal salt marsh, vernal pool, native grassland, oak woodland, raptor nesting and foraging habitat, and open water (freshwater in Devereux Creek and brackish water in Devereux Slough).¹³⁸

Devereux Creek supports riparian trees including arroyo willow and coast live oak, as well as wetland species such as cattail. Oak trees have been planted as part of restoration projects within COPR (1.3 acres) and the Sperling Ellwood Mesa Preserve.¹³⁹ Phelps Creek south of Phelps Road supports willow, cottonwood, and sycamore trees planted as part of the 1990s community creek revegetation project, and other wetland and native plants installed by CCBER in association with the North Campus Housing Project.

Devereux Creek and the Devereux Watershed are ecologically significant because of their location in protected and public open spaces such as Evergreen Park and the Sperling Ellwood Mesa Preserve in the City of Goleta and NCOS and COPR within the University of

¹³⁴ Land Trust for Santa Barbara County, *Coronado Preserve* webpage available at <https://www.sblandtrust.org/coronado-butterfly-preserve-2/> (February 23, 2021).

¹³⁵ EDC (2021) See Problem Devereux 7 in Section IV.

¹³⁶ UCSB, *Faculty and Family Student Housing, Open Space Plan, and LRDP Amendment EIR*, Chapter 4.4 (2004) (“UCSB (2004)”).

¹³⁷ Environmental Defense Center, *Appeal to the California Coastal Commission*, Sandpiper Residential Development at 9 (February 13, 2002).

¹³⁸ UCSB (2004).

¹³⁹ UC Santa Barbara Natural Reserve System, *Coal Oil Point Reserve Habitat Restoration Projects* website, available at <https://copr.nrs.ucsb.edu/about/programs/habitat-restoration-projects> (April 8, 2021).



California. The presence of numerous protected species and the diversity of habitat types adds to the environmental significance of the Devereux Watershed.

Recreation in the Devereux Creek Watershed

The Glen Annie Golf Club is in the Devereux Watershed. The City's Bella Vista and Evergreen Parks are also located in the Bella Vista and El Encanto Watersheds, respectively, between Cathedral Oaks Road, Ellwood Station Road, Alameda Avenue, and Padova Road. Evergreen Park is very popular for frisbee golf ("disc golf") and includes one of the few disc golf courses on the south coast. The popular disc golf course encroaches into the riparian habitat and Stream Protection Area¹⁴⁰ ("SPA") in locations.¹⁴¹ Evergreen Park also has playing fields, trails, pickleball/tennis courts, and a playground. Many people walk their dogs and recreate in both parks. City parkland also occurs along the channelized section of Phelps Creek below Hollister Avenue.¹⁴²

The Sperling Ellwood Mesa Preserve occurs in the Devereux Watershed. Devereux Creek flows through the northern and central portions of the Preserve. The area enjoys substantial use by the public, and is primarily used for walking, hiking, bicycling, and dog walking. UCSB has established passive recreational uses near Devereux Creek and Slough, including walking trails in COPR and the NCOS, birdwatching, and sunbathing. UCSB's CCBER and COPR offer volunteer activities, including guided tours, a docent program, and planting native plants to restore habitat.

D. Glen Annie Creek Watershed (known as Tecolotito Creek South of Highway 101)

Glen Annie Creek's headwaters flow south-southeast through McCoy Canyon, West Fork Glen Annie Canyon, and several other tributaries south of West Camino Cielo in the LPNF. Some reaches of these tributaries have perennial flows. McCoy Creek merges into Glen Annie Creek east of the northern dead-end of Glen Annie Road, and the Creek flows south along Glen Annie Road for approximately 9,300 feet to the Cathedral Oaks Road culvert, and another 2,330

¹⁴⁰ City of Goleta (2006): Stream Protection Areas are described in the City of Goleta General Plan / CLUP Policy CE 2.2 as, "A streamside protection area (SPA) is hereby established along both sides of the creeks identified in Figure 4-1. The purpose of the designation shall be to preserve the SPA in a natural state in order to protect the associated riparian habitats and ecosystems. The SPA shall include the creek channel, wetlands and/or riparian vegetation related to the creek hydrology, and an adjacent upland buffer area. The width of the SPA upland buffer shall be as follows: a. The SPA upland buffer shall be 100 feet outward on both sides of the creek, measured from the top of the bank or the outer limit of wetlands and/or riparian vegetation, whichever is greater. The City may consider increasing or decreasing the width of the SPA upland buffer on a case-by-case basis at the time of environmental review. The City may allow portions of a SPA upland buffer to be less than 100 feet wide, but not less than 25 feet wide, based on a site specific assessment if (1) there is no feasible alternative siting for development that will avoid the SPA upland buffer; and (2) the project's impacts will not have significant adverse effects on streamside vegetation or the biotic quality of the stream."

¹⁴¹ EDC (2021) See Problems El Encanto 6 and 7 in Section IV.

¹⁴² *Id.* See Problem Phelps 1 in Section IV.

feet south to the Highway 101 – Storke Road Interchange. At Highway 101, the Creek curves to the east for 1,740 feet along the Highway 101 northbound offramp. Glen Annie Creek then passes through culverts underneath the highway and the UPRR tracks, becoming Tecolotito Creek. It then flows south by southeast through the Village at Los Carneros residential neighborhood and the light industrial and commercial area near Cortona, Castilian, and Cremona Roads, under Hollister Avenue where it joins with Los Carneros Creek and enters the Goleta Slough.

- Size: 8 sq. mile watershed, 8.1-mile-long creek¹⁴³
- Hydrology: Glen Annie Creek can generate a 4,600 cfs flood flow during a 100-year return interval flow event.¹⁴⁴
- 303(d) Impairments:
 - ❖ Chloride
 - ❖ Pathogens (E. coli, fecal coliform, and enterococcus)
 - ❖ Nitrate
 - ❖ Sodium
 - ❖ Toxicity¹⁴⁵
- Land Use:
 - ❖ Impervious: 11%
 - ❖ Residential: 12.9%
 - ❖ Commercial: 6.2%
 - ❖ Chaparral: 34%
 - ❖ Forest: 14.2%
 - ❖ Agriculture: 30.4%¹⁴⁶
- Watershed Description:

Watershed Geography

Glen Annie Creek (named Tecolotito Creek downstream from Highway 101) originates on the south flanks of the Santa Ynez Mountains in the LPNF above western Goleta at an elevation of 3,069 feet.¹⁴⁷ The headwaters drain the Lizard’s Mouth area – a popular hiking and rock-climbing site - south of West Camino Cielo near the Winchester Gun Club. The upper reaches of the Creek and its tributaries are intermittent and flow through chaparral and oak

¹⁴³ Goleta Water District (2017) at 26.

¹⁴⁴ Santa Barbara County Flood Control and Water Conservation District (“SBCFCWCD”) (“SBCFCWCD (2010)”).

¹⁴⁵ Goleta Water District (2017) at 29.

¹⁴⁶ Channelkeeper (2006).

¹⁴⁷ Goleta Water District (2017) at 26.

woodlands in steep canyons, with one branch forming the Widow's Tears Waterfall.¹⁴⁸ (Figure 14) Further downslope in the LPNF, significant riparian woodlands are supported by perennial flows in sections of Glen Annie Creek, the McCoy Canyon tributary, and an unnamed tributary. California red-legged frogs are present in McCoy Creek within the LPNF. (Figure 3)



Figure 14. Widow's Tears Waterfall, Glen Annie Creek Watershed. Jack Elliot's Adventures. March 18, 2017. https://elliott955.rssing.com/chan-34184301/all_p4.html

A several-foot-tall private dam and associated water diversion project built in 1984 at the LPNF boundary in McCoy Creek regularly diverts up to 100% of the Creek flow.¹⁴⁹ Agricultural water wells are visible near the creek and the Edison Catway Road on aerial photos.¹⁵⁰ Decreased flows and significant die-offs of alder trees have been reported in the Creek immediately below the diversion at the National Forest boundary,¹⁵¹ where red-legged frogs are present in the Creek within the Forest upstream from the Creek diversion. (Figure 3) The upper and middle portions of the McCoy Watershed are largely undeveloped and support chaparral, oak woodlands, and riparian habitats.

Approximately 1,800 feet north of the end of Glen Annie Road, the 135-foot-tall Glen Annie Dam creates a barrier to fish and wildlife movement up and down West Glen Annie Canyon.¹⁵² The Dam was constructed in the 1950s as part of the Cachuma Project but is

¹⁴⁸ Jack Elliot's Santa Barbara Adventure, *Widow's Tears Falls, Santa Ynez Mountains* webpage available at https://elliott955.rssing.com/chan-34184301/all_p4.html (March 18, 2017).

¹⁴⁹ State Water Resources Control Board Division of Water Rights, *Statement for Diversion and Use of Water, Permit 20014* (March 27, 1987); *See also* Santa Barbara County Conditional Use Permit Case No. 84-CP-35 (March 5, 1985).

¹⁵⁰ Google Earth (2019).

¹⁵¹ Nelson (1993).

¹⁵² EDC (2021) See Problem Glen Annie 1 Section IV.

essentially obsolete; it is structurally deficient and prone to collapse during earthquakes.¹⁵³ As a result, significant amounts of water are generally not stored in the Glen Annie Reservoir.¹⁵⁴

Beginning in the vicinity of the Glen Annie Dam, the watershed vegetation changes from mostly native chaparral and oak trees to avocado and lemon orchards which exist right up to the Creek bank in many locations.¹⁵⁵ The stream lacks riparian vegetation in some locations due to agricultural operations.¹⁵⁶ The agricultural land uses adjacent to Glen Annie Creek are present from the vicinity of the Glen Annie Dam south to Cathedral Oaks Road.¹⁵⁷ The Creek channel is deeply incised, possibly because of the Dam trapping sediment and releasing sediment-starved, erosive water into the Creek.¹⁵⁸

Glen Annie Creek is intermittent in this agricultural area but becomes perennial again in the vicinity of Cathedral Oaks where the Creek passes by the Glen Annie Golf Club.¹⁵⁹ Below Cathedral Oaks Road, the perennial stream passes through the Dos Pueblos High School property supporting lush riparian woodlands. Beginning at the Glen Annie Road culvert, the perennial Creek enters a concrete box culvert and flows east in a concrete channel extending from Glen Annie Road downstream to below the UPRR tracks. The concrete channel and check dams located near Highway 101 and the UPRR tracks form impediments to steelhead passage.¹⁶⁰ Despite being concrete channelized, the channel supports native vegetation, including cattails, which grow in the sediment deposited on the concrete channel bed.

Below the UPRR tracks, Glen Annie Creek becomes Tecolotito Creek and passes through the Village at Los Carneros residential subdivision, and through a commercial area with numerous light industrial and research businesses located between the UPRR tracks and Hollister Avenue, near Cremona, Castilian, and Cortona Roads. This section of the Creek is intermittent

¹⁵³ National Marine Fisheries Service (“NMFS”), *Draft Biological Opinion for the Cachuma Project* at 158 (2016) (“NMFS (2016)”); *See also* letter from Maggie Hall, Staff Attorney, and Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, Environmental Defense Center to Michael Jackson, Area Manager, South-Central California, US Bureau of Reclamation, and Barry Thom, Regional Administrator, West Coast Region, NMFS regarding Cachuma Project Draft Biological Opinion at 9 (February 21, 2017).

¹⁵⁴ *Id.*

¹⁵⁵ Google Earth (2019).

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ Matt Kondolf, University of California Berkeley, *Hungry Water: Managing Sediment in Rivers*, Presentation to the MRC Sediment Workshop, slide 8 available at http://archive.iwlearn.net/mrcmekong.org/download/Presentations/sediment-monitoring/S4_Kondolf_HungryWater_managing%20sediment%20in%20rivers.pdf (October 2008); *See also* Lawrence Hunt, Hunt and Associates Biological Consulting, Personal Communication with Brian Trautwein, Environmental Analyst / Watershed Program, Coordinator, EDC (February 28, 2021); *See also* EDC (2021) Problem Glen Annie 3 in Section IV.

¹⁵⁹ United States Geological Survey Goleta Quad Topo Map available at <https://www.sciencebase.gov/catalog/item/5a8a2e29e4b00f54eb3ceceb> (February 20, 2021) (“USGS (2021)”).

¹⁶⁰ Stoecker, Matt W., Conception Coast Project, *Steelhead Assessment and Recovery Opportunities in Southern Santa Barbara County, California*, (June 2002) (“Stoecker (2002)”); *See also* EDC (2021) Problem Glen Annie 12 in Section IV.

but contained water in August of 2018.¹⁶¹ It was rerouted and stabilized prior to 1994 using pipe and wire revetment and riprap, and was planted with native cultivars, i.e., non-local versions of native plant species.¹⁶²

South of Hollister Avenue, Tecolotito Creek enters the Santa Barbara City Airport property where it empties into a Santa Barbara County Flood Control and Water Conservation District (“SBCFCWCD”) sediment basin in the Goleta Slough. The Slough is a large wetland and ecological reserve owned in part by the City of Santa Barbara, CDFW, and UCSB. Here, Tecolotito Creek is tidally influenced and brackish, and the riparian woodland is replaced by low-growing shrubs such as native saltbush (*Atriplex lentiformis*),¹⁶³ hydrophytes,¹⁶⁴ such as pickleweed (*Salicornia pacifica*)¹⁶⁵ and mud flats. The SBCFCWCD sediment basin in the Goleta Slough is designed to trap sediment to protect the Airport from flooding.¹⁶⁶ The basin is maintained by the SBCFCWCD. Accumulated sand-sized sediments are generally deposited on Goleta Beach to nourish the eroding coast.¹⁶⁷ Given this location in the Creek and Goleta Slough, the basin is considered an ESHA by the City of Goleta¹⁶⁸ and Santa Barbara County’s Goleta Community Plan.¹⁶⁹

According to Santa Barbara Channelkeeper (“SBCK”), Glen Annie (Tecolotito) Creek is the major source of excess nutrient contamination in the Goleta Slough.¹⁷⁰ Runoff from urban development also damages the Creek. Increased runoff rates and decreased infiltration due to impervious landscapes, including roads, buildings, and parking lots throughout the lower urbanized watershed, reduces groundwater infiltration and increases the threats of flooding, erosion, and nonpoint source pollution, i.e., hydromodification.¹⁷¹ Glen Annie Creek is located primarily in FEMA Flood Map Zone.¹⁷²

¹⁶¹ Jem Unger Hicks, Goleta Watershed Program Intern and Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, *Goleta’s Creeks and Watersheds: Opportunities for Enhancement and Restoration* (May 22, 2019) (“EDC (2019)”).

¹⁶² Google Earth (2019 and 1994).

¹⁶³ Calflora *Atriplex lentiformis* webpage available at https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=986 (February 23, 2021).

¹⁶⁴ Hydrophytes are plants “typically found in wet habitats.” US Army Corps of Engineers, *Defining Hydrophytes for Wetland Identification and Delineation* available at <https://apps.dtic.mil/dtic/tr/fulltext/u2/a555761.pdf> (January 2012).

¹⁶⁵ Calflora *Salicornia pacifica* webpage available at https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=12001 (February 23, 2021).

¹⁶⁶ City of Santa Barbara, *Final Environmental impact Report for Dredging of Tecolotito Creek & Carneros Creek Silt Basin* (1994).

¹⁶⁷ *Id.*

¹⁶⁸ City of Goleta (2006).

¹⁶⁹ Santa Barbara County Planning and Development Department, *Goleta Community Plan Figure 30* at 186 available at <https://cosantabarbara.app.box.com/s/n48g3bvpt0j5sj6g85ewpe9yhy9tm0pq> (August 1993).

¹⁷⁰ Channelkeeper (2006).

¹⁷¹ Surfrider Foundation, *Hydromodification* webpage available at <https://www.surfrider.org/coastal-blog/entry/hyromodification> “Hydromodification is the alteration of the natural flow of water through a landscape, and often takes the form of channel modification or channelization. It is one of the leading sources of impairment in streams, lakes, estuaries, aquifers, and other water bodies in the United States.” (February 20, 2021).

¹⁷² SBCFCWCD (2010).

Watershed Biology

Glen Annie and Tecolotito Creeks and their tributaries, such as McCoy Canyon Creek, constitute protected habitats and are significant environmental resources. McCoy Canyon Creek, within the National Forest, and Glen Annie Canyon Creek are perennial in several reaches and support healthy riparian woodlands, including western sycamore, coast live oak, white alder, black cottonwood, big leaf maple, and various species of willow trees.

A 2008 field survey found tidewater goby (*Eucyclogobius newberryi*), a federally endangered fish species, in the Glen Annie Creek sedimentation basin.¹⁷³ Western pond turtles may still inhabit Glen Annie Creek near Dos Pueblos High School.¹⁷⁴ A colony of turtles may have been displaced circa 1990 by Caltrans' Glen Annie Road Highway 101 Interchange Project.¹⁷⁵ Glen Annie Creek supported steelhead until at least the 1970s.¹⁷⁶ Impediments including check dams and concrete channels in the creek underneath the UPRR tracks and near Highway 101, may currently inhibit recolonization by anadromous steelhead.¹⁷⁷ California red-legged frogs, California newts, and other special-status species occur in McCoy Canyon Creek in the National Forest and are likely to occur in McCoy Creek below the forest boundary and in Glen Annie Canyon Creek. A 2009 field survey found marsh rosemary (*Limonium californicum*), a special-status plant species, along Glen Annie Creek in the Goleta Slough at a dredge discharge pipe landfall.¹⁷⁸

Recreation in the Glen Annie / Tecolotito Watershed

The Glen Annie Golf Club skirts the west bank of Glen Annie Canyon Creek.¹⁷⁹ Dos Pueblos High School supports a few trails along the Creek between Cathedral Oaks Road and Del Norte Drive; these trails are used by students and neighbors. In the LPNF, Lizard's Mouth is a popular hiking and picnicking destination at the top of the Glen Annie Watershed.

E. Los Carneros Creek Watershed

Los Carneros Creek is a primarily intermittent stream but is perennial in certain reaches. It drains chaparral and oak woodlands in the LPNF and in and near Bartlett Canyon. Downslope and south of the National Forest, Los Carneros Creek flows south through lemon and avocado orchards north of Cathedral Oaks Road, then through Bishop Ranch south of Cathedral Oaks

¹⁷³ *Id.*

¹⁷⁴ Larry Hunt, Hunt and Associates Biological Consulting, email to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (February 26, 2021).

¹⁷⁵ *Id.*

¹⁷⁶ CEMAR (2008); *See also* Dougal House, Certified Arborist, personal communication with Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (2016).

¹⁷⁷ Stoecker (2002).

¹⁷⁸ Calflora *Marsh Rosemary* webpage available at <https://www.calflora.org/entry/observ.html?track=m#srch=t&cols=0,3,61,35,37,13,54,32,41&lpcli=t&taxon=Limonium+californicum&chk=t&cch=t&inat=r&cc=SBA> (February 23, 2021).

¹⁷⁹ Google Earth (2019).

Road, under Highway 101 and the UPRR tracks, becoming a concrete flood control channel. The concrete-lined, straightened creek flows south from the railroad tracks to Hollister Avenue through a commercial and light industrial area, underneath Hollister Avenue, then into the Goleta Slough.

- Watershed Size: 4.2 sq. mile watershed, 5.3-mile-long creek¹⁸⁰
- Hydrology: Los Carneros Creek can generate a 3,500 cfs flood flow during a 100-year return interval flow event.¹⁸¹
- Land Use:
 - ❖ Impervious: 5.1%
 - ❖ Residential: 4.0%
 - ❖ Commercial: 2.6%
 - ❖ Chaparral: 34.3%
 - ❖ Forest: 11.8%
 - ❖ Agriculture: 45.1%¹⁸²
- 303(d) Impairments:
 - ❖ Electrical conductivity
 - ❖ Pathogens (E. coli and enterococcus)
 - ❖ Nitrate
 - ❖ pH¹⁸³
- Watershed Description:

Watershed Geography

Los Carneros Creek originates at roughly 2,860 feet in elevation¹⁸⁴ in chaparral and coast live oak covered drainages of the Santa Ynez Mountains along West Camino Cielo Road in the vicinity of the Playgrounds Trail, which leads to a prominent rock outcropping in the upper watershed which is frequented by rock-climbers and hikers. The western upper fork of the ephemeral creek flows south from Arrowhead Springs through coast live oak woodlands and California bay-lined drainages. A perennial spring located a mile below (southeast from) Arrowhead Springs provides perennial flows and supports a healthy riparian woodland in the LPNF. Farther downstream at roughly 700 feet in elevation, where the Santa Ynez Mountains begin to transition into foothills, the Creek crosses the Edison Catway Road – an access road for Southern California Edison’s power lines.¹⁸⁵

¹⁸⁰ Goleta Water District (2017) at 26.

¹⁸¹ SBCFCWCD (2010).

¹⁸² Channelkeeper (2006).

¹⁸³ Goleta Water District (2017) at 29.

¹⁸⁴ *Id.* at 26.

¹⁸⁵ Google Earth (2019).

Below the National Forest and Edison Catway Road between seven hundred and four hundred feet in elevation, another spring in Bartlett Canyon feeds a series of pools and falls known as Hearts Pools. Intermittent Dry Canyon Creek joins Los Carneros Creek at Hearts Pools.¹⁸⁶ Below this location, in the foothills, Carneros Creek enters the agricultural area where avocado and lemon trees are cultivated using water potentially derived from a nearby creek diversion and/or water wells near the base of Hearts Pools.¹⁸⁷ Hearts Pools typically flows or holds standing water year-round except during droughts.¹⁸⁸ Los Carneros Creek is intermittent below Hearts Pools.¹⁸⁹ The Creek channel appears incised within orchards for 1.8 miles north of Cathedral Oaks Road.¹⁹⁰

From the Cathedral Oaks Road Bridge, where, based on EDC' surveys, the creek is perennial, downstream to the Los Carneros Road Bridge, Los Carneros Creek passes through a portion of Bishop Ranch, an agriculturally zoned open space. It appears overgrown and difficult to traverse and appears to be rarely visited by people. On Bishop Ranch south of Cathedral Oaks Road, the Creek supports native riparian trees including western sycamore, willow, and coast live oak, mixed with exotic eucalyptus. A grouted riprap check dam in the Creek on Bishop Ranch, located two hundred to two hundred and fifty feet upstream of the Los Carneros Road culvert near Highway 101, forms an impediment to steelhead migration.¹⁹¹ The Hollister Avenue Bridge may impede steelhead and tidewater goby movement up Los Carneros Creek when it flows.

On the downstream side of Highway 101, the Creek flows are ephemeral. This rarely visited section of the Creek parallels Highway 101 between the Highway and railroad tracks for a quarter mile where it supports a lush riparian habitat consisting mostly of willows and sycamores. Underneath the UPRR tracks, the Creek enters a concrete trapezoidal flood control channel - an impediment to steelhead migration. The channel continues downstream due south for roughly 2,060 feet through a light industrial and manufacturing area east of Aero Camino Road. This intermittent reach of channelized Los Carneros Creek lacks riparian vegetation and is subject to impacts including runoff from the surrounding businesses, and thermal pollution.¹⁹²

The concrete flood control channel terminates at the downstream side (south) of Hollister Avenue where Los Carneros Creek empties into the Goleta Slough. A large sediment basin was constructed by the SBCFCWCD at this location to (1) trap sediment before it is carried by high flows downstream and deposited in the Slough, and (2) reduce flooding at the airport. The basin is routinely maintained by SBCFCWCD. Los Carneros Creek flooded in 1995 during significant

¹⁸⁶ USGS (2021).

¹⁸⁷ Google Earth (2019) showing water tank and irrigated orchards near creek.

¹⁸⁸ *Id.* (2007 – 2019) showing pools of water during dry season.

¹⁸⁹ USGS (2021).

¹⁹⁰ *Id.*; *See also* Google Earth (2019).

¹⁹¹ EDC (2021) Problem Los Carneros 4 in Section IV.

¹⁹² Thermal pollution involves warming of creek water caused by a lack of shade trees; *See also* EDC (2019).

rainfall. In 2008, the basin was desilted, resulting in a loss of vegetation.¹⁹³ Rainstorms in 2017 prompted the desilting of the Los Carneros Creek basin, resulting in the removal of approximately 3,000 cubic yards of sediment and debris.¹⁹⁴

Watershed Biology

Los Carneros Creek's riparian woodlands consist of white alder trees where flows are sustained, western sycamore, big leaf maple, coast live oak, California bay, black cottonwood, and willow trees. Special-status wildlife in the Creek includes the two-striped garter snake and California newt. A 2008 field survey found tidewater goby (*Eucyclogobius newberryi*), a federally endangered fish species, in the Los Carneros Creek sedimentation basin.¹⁹⁵ A single California red-legged frog was found during surveys for the CWMP in 2020.¹⁹⁶ California red-legged frogs and western pond turtle are likely to occur in the Creek and riparian woodland in the foothills and Santa Ynez Mountains, above and within the agricultural zone. Steelhead still occur in the Goleta Slough but have not been observed in Los Carneros Creek.¹⁹⁷ At Los Carneros Road the Creek flows through a double box culvert – a barrier or impediment to steelhead migration - and flows down a ramp – another barrier or impediment - then into yet another steelhead impediment - a box culvert located under Highway 101. The concrete channel between Hollister Avenue and the UPRR tracks forms a significant migratory barrier preventing natural recolonization by steelhead.¹⁹⁸ Mapped Monarch Butterfly Overwintering Site number 2758 occurs in the eucalyptus-dominated riparian woodland within Bishop Ranch, south of Cathedral Oaks Road.¹⁹⁹ This section of Los Carneros Creek supports a large population of exotic crayfish.

Recreation in the Watershed

There are few public recreational facilities associated with Los Carneros Creek. There is a public trail in the National Forest from Camino Cielo to Arrowhead Springs. Another public trail connects West Camino Cielo to the Playgrounds. Very few people walk or hike this creek bed in the National Forest because there is no trail, it is remote, and overgrown. Los Carneros Creek is primarily located on private property. In 2016, EDC creek cleanup volunteers observed skateboarders skating in the concrete channel below the UPRR tracks.

¹⁹³ SBCFCWCD (2010).

¹⁹⁴ Santa Barbara County Flood Control and Water Conservation District, *Final Updated Debris Basin Maintenance and Management Plan* available at https://www.countyofsb.org/uploadedFiles/pwd/Content/Water/Environmental/Updated%20Debris%20Basin%20Plan_Final.pdf (June 2017).

SBCFCWCD (2017).

¹⁹⁵ SBCFCWCD (2010).

¹⁹⁶ John Davis, Dudek Consulting, Presentation to CWMP TAC (2020).

¹⁹⁷ CEMAR (2008).

¹⁹⁸ City of Goleta (2020) at 151.

¹⁹⁹ Western Monarch (2021).

F. San Pedro Creek

San Pedro Creek flows from its headwaters in the LPNF in the Santa Ynez Mountains through rugged wildland terrain down through extensive avocado orchards, and then through residential areas south of Cathedral Oaks. It passes through a concrete flood control channel above Calle Real, passes under Highway 101 and the UPRR tracks near a large, well-known homeless camp, and joins Las Vegas Creek just above Hollister Avenue. It then empties into the Goleta Slough alongside the Santa Barbara Airport.

- Size: 7.1 sq. mile watershed, 6.2- mile-long creek²⁰⁰
- Hydrology: San Pedro Creek can generate a 6,000 cfs flow during a 100-year return interval flow event.²⁰¹
- Land Use:
 - ❖ Impervious: 12.4%
 - ❖ Residential: 19.2%
 - ❖ Commercial: 5.7%
 - ❖ Chaparral: 30.5%
 - ❖ Forest: 8.6%
 - ❖ Agriculture: 33.8%²⁰²
- 303(d) List
 - ❖ Enterococcus
 - ❖ Escherichia coli
 - ❖ Fecal coliform
 - ❖ Temperature
 - ❖ pH
 - ❖ Sodium²⁰³
- Watershed Description:

Watershed Geography

San Pedro Creek originates in the Santa Ynez Mountains at approximately 2,760 feet in elevation near West Camino Cielo.²⁰⁴ San Pedro Creek and tributaries flow through chaparral

²⁰⁰ Goleta Water District (2017) at 25 - 26.

²⁰¹ SBCFCWCD (2010).

²⁰² Channelkeeper (2006).

²⁰³ Goleta Water District (2017) at 29; *See also* State Water Resources Control Board (“SWRCB”) 303(d) List available at

https://www.waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/category5_report.shtml (2014).

²⁰⁴ Goleta Water District (2017) at 26.

and coast live oak tree-lined canyons on and near private ranches including Windermere Ranch, and the LPNF.²⁰⁵ A large area of chaparral in the creek's headwaters was removed in 2004 potentially leading to increased sedimentation. The Creek is fed by springs emanating from geologic formations such as the Coldwater Sandstone Formation. Below this, in the middle portion of the watershed, the Creek supports a healthy riparian woodland with native trees. The intermittent Creek flows in a southerly direction through the LPNF and private inholdings near Slippery Rock – an historic location where the Old Stagecoach Road passes through a sandstone formation marked by two sets of wagon wheel ruts approximately twelve to twenty-inches-deep and 200 feet long. In this area, several unnamed tributaries, at least one of which is fed by a reliable spring and is perennial, join San Pedro Creek, and it flows over Fairview Falls, a series of three waterfalls ranging from 25 to 45 feet tall.²⁰⁶ The falls flow year-round on rainy years, and even during dry years, a large pool is visible in aerial photos between waterfalls.²⁰⁷ This section of the creek appears to flow year-round.²⁰⁸

Landowners drilled bedrock wells in the 1980s which were offered to the GWD as part of an exchange for water meters. According to the USFS, GWD, and neighbors, the wells harmed springs and other water wells in the area,²⁰⁹ so the exchange was scuttled. However, in recent years, the current owner has begun to export water from bedrock wells to Montecito for landscaping, and there was discussion about providing water formally to the Montecito Water District.²¹⁰

Below the falls, San Pedro Creek passes through a large avocado orchard. The Creek is primarily intermittent in this section but may flow year-round in wet years.²¹¹ Roughly two miles downstream from the orchards, the Creek passes under the Cathedral Oaks Road Bridge and enters residential neighborhoods north of Calle Real and Highway 101. The Creek has flowed year-round at the Cathedral Oaks Bridge since 2016, despite the drought, although in prior years the Creek has gone dry at this location.²¹² Year-round flow ends around the Stow Canyon Open Space approximately 1,000 feet downstream from Cathedral Oaks Road.

Riparian vegetation is well developed from Cathedral Oaks Road at the site of the City of Goleta's Stonebridge Open Space to roughly 1,600 feet downstream from the Covington Road Footbridge, where the Creek is confined to a ten-foot-deep concrete trapezoidal flood control

²⁰⁵ USGS (2021); *See also* Google Earth (2019).

²⁰⁶ USGS (2021); *See also* Google Earth (2019).

²⁰⁷ Google Earth (2007 – 2019).

²⁰⁸ USGS (2021).

²⁰⁹ News-Press Staff Report, *Goleta to rethink buying of water well*, Santa Barbara News-Press (undated).

²¹⁰ Email from Tom Mosby, Montecito Water District, to Brian Trautwein, EDC (November 17, 2014); *See also* letter from John McInnes, General Manager, GWD to Thomas Mosby, General Manager, Montecito Water District re *Slippery Rock Ranch* (October 29, 2014).

²¹¹ USGS (2021).

²¹² EDC (2019). The owner of Slippery Rock Ranch has sought support for construction of ten to fifteen estates although the ranch is not zoned for that type of development. Releases of water from one or more of the bedrock wells into the creek have reportedly been made and may explain the creek's recent year-round flow at Cathedral Oaks during the current drought.



channel and lacks riparian vegetation. This channel extends downstream roughly 1,550 feet to Calle Real.²¹³ Other than occasional nuisance flows and stormwater runoff, the Creek is normally dry in this section.

The culvert under Calle Real and Highway 101, and the bridge supporting the railroad tracks, were enlarged by Caltrans, UPRR, and SBCFCWCD in 2016, eliminating a bottleneck and increasing flood protection for nearby neighborhoods, roads, Highway 101, and the UPRR tracks.²¹⁴ NMFS required a fish passage structure the foot of the trapezoidal channel at Calle Real as a to protect steelhead.

A new flood wall was installed on the Creek's western bank downstream from the railroad tracks at the same time. Riparian vegetation was planted on the Creek banks downstream from the UPRR tracks in this area as mitigation for the channel and bridge enlargement projects. Previously, riparian vegetation, consisting of willow, sycamore, and cottonwood trees, was planted on the west bank by the SBCFCWCD as mitigation for routine maintenance in the 1990s, but this riparian habitat was removed for the 2016 culvert and bridge replacement project.²¹⁵ Numerous homeless camps exist between Highway 101 and Hollister Avenue, creating a large source of trash in the creek between Highway 101 and Hollister Avenue.

Vegetation on the east bank within the Twin Lakes Golf Course located between Hollister Avenue and the UPRR tracks is largely exotic including myoporum. The east bank has been hardened with concrete. The concrete is cracking in numerous places.²¹⁶

The typically dry San Pedro Creek passes alongside the golf course, is joined by Las Vegas Creek, and widens from roughly twenty feet to roughly sixty feet near the Hollister Avenue Bridge, where the Creek bed is wide, flat, and sandy.²¹⁷ San Pedro Creek has flooded at this location near Fairview and Hollister Avenues. The SBCFCWCD routinely disks the channel to loosen soil, encourage transport of sand downstream, and prevent vegetation growth, and desilts the channel south of James Fowler Road for approximately 2,000 feet to maintain capacity for carrying high flows safely through the area.²¹⁸ The Creek follows Fairview Avenue south alongside the Santa Barbara Airport downstream from Hollister Avenue. Here the intermittent San Pedro Creek is lined by willow trees. Near the James Fowler Road Bridge, the Creek becomes tidally influenced. Brackish water and mudflats can often be seen here. The Creek enters the Goleta Slough near the Goleta Sanitary District Wastewater Treatment Plant and joins San Jose Creek.

²¹³ EDC (2021) Problem San Pedro 5 in Section IV; *See also* Google Earth.

²¹⁴ Memo from Hazel Johns, Airport Director, City of Santa Barbara Airport Department to Airport Commission re *Las Vegas and San Pedro Creeks Capacity Improvement Project* (January 20, 2016) ("Johns (2016)").

²¹⁵ Email from Maureen Spencer, SBCFCWCD, to Brian Trautwein, Environmental Analyst/Watershed Program Coordinator, EDC (August 2, 2021).

²¹⁶ EDC (2021) Problem San Pedro 13 in Section IV.

²¹⁷ Google Earth (2019); *See also* EDC (2021).

²¹⁸ SBCFCWCD (2010); *See also* EDC (2021) Problems San Pedro 14 and 15.

Watershed Biology

San Pedro Creek supports a relatively healthy riparian woodland from its origin in the LPNF near the Playgrounds to the concrete channel below Covington Way.²¹⁹ The woodland supports trees such as white alder, western sycamore, coast live oak, California bay, black cottonwood, big-leaf maple, and willows.

Resident steelhead were observed in the Creek below the falls in the mid-1990s.²²⁰ Anadromous steelhead were observed in San Pedro Creek in 1984, 1992, and, in 2012 at the confluence with Las Vegas Creek near Hollister Avenue.²²¹ The two 2012 steelhead, which measured between 20 and 28 inches, were trapped in the creek by a shallow-depth barrier, i.e., the water was too shallow in the wide, maintained channel for steelhead to pass upstream the where deeper water occurs. The Creek is maintained by the SBCFCWCD as a wide, sandy channel with no thalweg (low-flow path) by disking the streambed to loosen soil and reduce plant growth to facilitate sediment flushing. As a result, flows are often too shallow for steelhead to migrate above this reach.²²²

Another impediment to steelhead migration – a double check dam located at the UPRR tracks - was removed when the Creek was widened by SBCFCWCD in 2016. However, the 1,600-foot-long concrete flood control channel is probably a complete barrier to steelhead migration.²²³ Four check dams located between Cathedral Oaks Road and just below the Stow Canyon Road Bridge also form impediments to steelhead.²²⁴

Recreation in the Watershed

The Stow Canyon Open Space is a City of Goleta park offering tennis courts located along San Pedro Creek. There are flood control access roads used as trails in this area. The City's Stonebridge Open Space is located on the east bank and terrace south of Cathedral Oaks Road. (See Problem San Pedro 1 in Section III below.) The Twin Lakes Golf Course abuts the creeks eastern bank.²²⁵

G. Las Vegas Creek

Las Vegas Creek drains the foothills above central Goleta. It flows from north to south parallel to and between San Pedro Creek on the west and North Fairview Avenue on the east before it flows into San Pedro Creek just upstream from Hollister Avenue.

²¹⁹ Google Earth (2019).

²²⁰ CEMAR (2008) at 284.

²²¹ *Id.*; See also City of Goleta (2020) at 145.

²²² EDC (2021) Problems San Pedro 14 and 15 in Section IV.

²²³ *Id.* Problem San Pedro 9 in Section IV.

²²⁴ *Id.* Problem San Pedro 5 in Section IV.

²²⁵ Google Earth (2019).

- Watershed Size: 2.1 sq. mile watershed, 3.6 miles long²²⁶
- Watershed Description:

Watershed Geography

Las Vegas Creek is one of Goleta's smallest streams. It has four tributaries that originate in the foothills above Cathedral Oaks Road between Fairview Avenue and La Goleta Road on the west and Cambridge Drive on the east. The highest point in the Las Vegas Creek Watershed is 1,055 feet in elevation.²²⁷ Much of Las Vegas Creek is channelized as it runs through two golf courses, a shopping center, and residential neighborhoods.²²⁸ The eastern branch flows through underground culverts along Arundel Road and under the Fairview Shopping Center parking lot. The Creek is generally intermittent and supports limited riparian vegetation, which includes primarily willow trees, some coast live oak trees, many of which have been planted, and a handful of sycamore trees which have been planted. Some short reaches may be perennial - including the tributary upstream from the Cathedral Oaks Tennis Club - which drains residential and agricultural areas. Various tributaries traverse Fairview Farms, Live Oak Unitarian Church, Goleta Valley Junior High School, the Fairview Shopping Center, and The Meadows and Encina Royale Neighborhoods. Las Vegas Creek passes through a double box culvert underneath Calle Real and Highway 101 which was enlarged by SBCFCWCD in 2016.²²⁹ Las Vegas Creek joins San Pedro Creek in the Twin Lakes Golf Course ninety feet north of Hollister Avenue.

Watershed Biology

Las Vegas Creek supports riparian woodlands on several of its branches including:

- 1) north of the Cathedral Oaks Tennis Club
- 2) along Franklin Ranch Road
- 3) near North Fairview and Holiday Hill Road
- 4) near North Patterson Avenue at Spur Valley Road
- 5) at Live Oak Congregation by Fairview Avenue and Cathedral Oaks Road
- 6) along La Goleta Road east and west of Fairview Avenue
- 7) on private property north of the Fairview Road dead-end
- 8) in the Meadows residential development between Stow Canyon Road and Shirrell Way
- 9) west of the Fairview Shopping Center between Shirrell Way and Calle Real
- 10) within Fairview Farms Garden
- 11) within the City open space located between Paseo Palmilla, La Goleta Road, and Manzanillo Drive, and
- 13) north of Hollister Avenue adjacent to the Twin Lakes Golf Course parking lot.²³⁰

²²⁶ EDC (2016); *See also* Goleta Water District (2017) at 26.

²²⁷ Goleta Water District (2017) at 26.

²²⁸ Google Earth (2019).

²²⁹ Johns (2016).

²³⁰ Google Earth (2019).

Riparian trees include primarily red and arroyo willow (*Salix laevigata* and *Salix lasiolepis*), western sycamore, and coast live oak. Two black cottonwood trees were planted as part of Las Vegas Creek restoration projects at Fairview Gardens Farm and the Goleta Presbyterian Church. Several notable community Creek restoration projects have been implemented by (1) the Live Oak Unitarian Church congregation and UCC near Fairview Avenue and Cathedral Oaks Road, (2) SBCFCWCD, Goleta Presbyterian Church, and UCC behind the Fairview Shopping Center, and (3) UCC and Fairview Farms Garden. SBCFCWCD has also implemented restoration as mitigation for its annual maintenance plan, e.g., near the Fairview Shopping Center and north of Cathedral Oaks Road and Goleta Valley Junior High School.

However, because the Las Vegas Creek Watershed only extends up to the foothills and includes substantial urban alteration, natural; riparian habitats are generally degraded and include exotic plant species. Sections of the Creek are channelized, e.g., in the Encina Royale Neighborhood and Goleta Valley Junior High School between Cathedral Oaks and Stow Canyon Road, or straightened, e.g., the Meadows Residential Neighborhood and Fairview Shopping Center between Stow Canyon Road and Calle Real. The branch of Las Vegas Creek flowing through the Cathedral Oaks Tennis Club was undergrounded in the early 1960s to accommodate residential development from Cathedral Oaks Road south to Berkeley Road.

The Creek may support California red-legged frogs but is unlikely to support breeding populations of steelhead or western pond turtles. In 2008, two anadromous steelhead were documented in a small pool at the confluence of San Pedro and Las Vegas Creeks following a storm.²³¹ The twenty to twenty-four-inch fish were apparently blocked from migrating upstream in San Pedro Creek by the wide sandy San Pedro Creek channel and other impediments.²³²

Recreation in the Las Vegas Creek Watershed

The only significant active outdoor recreational opportunity in the watershed are the Twin Lakes and Encina Royale Golf Courses. The Cathedral Oaks Tennis Club is located along a branch of Las Vegas Creek near Cathedral Oaks Road and Arundel Road. People walk along flood control access roads which double as trails, for instance near Shirrell Drive west of the Fairview Shopping Center. The public enjoys passive recreational opportunities including walking and birding within the City of Goleta's La Goleta Open Space located along Las Vegas Creek near Paseo Palmillo and La Goleta Road.

²³¹ Central Coast Regional Water Quality Control Board, *Draft 2008 California 303(d)/305(b) Integrated Report for San Pedro Creek*, available at https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/303d/appendix_f2/01928.shtml (undated); See also photographs in EDC (2021) Problems San Pedro 14 and 15 in Section IV.

²³² EDC (2021) Problems San Pedro 14 and 15 in Section IV.

H. San Jose Creek

San Jose Creek flows from its headwaters at 2,760 feet in elevation²³³ near West Camino Cielo in the LPNF. The upper watershed is dominated by native habitat. The middle watershed is largely natural but includes the Trout Club residential community, Highway 154, Kinevan Ranch, Hidden Valley Ranch, and scattered residences. One mile below the Trout Club the Creek passes through an agricultural area, and then through residential neighborhoods between North Patterson Avenue and Highway 101. San Jose Creek is diverted from its natural channel (“Old San Jose Creek”) into a concrete flood control channel at Hollister Avenue west of South Kellogg Avenue which empties into the Goleta Slough near South Kellogg Avenue.

- Size: 9.5 sq. mile watershed, 8-mile-long creek²³⁴
- Hydrology: San Jose Creek generates a 5,300 cfs flood flow during a 100-year return interval flow event.²³⁵
- Land Use:
 - ❖ Impervious: 7.7%
 - ❖ Residential: 12.2%
 - ❖ Commercial: 2.4%
 - ❖ Chaparral: 36.5%
 - ❖ Forest: 25.2%
 - ❖ Agriculture: 21.4%²³⁶
- 303(d) Impairments:
 - ❖ Chloride
 - ❖ Electrical conductivity
 - ❖ Pathogens (E. coli, fecal coliform, and enterococcus)
 - ❖ Sodium, pH²³⁷
- Watershed Description:

San Jose Creek is one of the two largest watersheds feeding the Goleta Slough, a State-designated Ecological Reserve. (See Appendix III.) The Creek’s headwaters originate at approximately 2,760 feet in the LPNF within the Santa Ynez Mountains along both sides of West Camino Cielo near Lizard’s Mouth and the Winchester Gun Club. The upper and middle watershed consists largely of chaparral and oak woodlands on private and Forest Service land. In this upper watershed area, the stream flows intermittently from west to east through oak woodlands and chaparral within private inholdings, including Kinevan Ranch, and Forest Service

²³³ Goleta Water District (2017) at 25.

²³⁴ *Id.*

²³⁵ SBCFCWCD (2010).

²³⁶ Channelkeeper (2006).

²³⁷ Goleta Water District (2017) at 29.

land for three miles before turning south toward the coast through the San Marcos Pass near the Trout Club, Highway 154, and Hidden Valley Ranch. San Jose Creek becomes perennial in the San Marcos Pass and is fed by year-round flows of Hidden Valley Creek near the White Lotus Foundation. The stream flows south from the pass through the Trout Club, an existing developed rural residential neighborhood, supporting healthy riparian woodlands dominated by western sycamore, white alder, black cottonwood, arroyo and red willow, big leaf maple, coast live oak, and California bay trees.

This perennial section of San Jose Creek and its tributary springs provide a water supply for numerous land uses including the Trout Club,²³⁸ White Lotus Foundation, and Hidden Valley Ranch, yet continued to flow during significant droughts in the late 1980s - early 1990s and from 2011 to present. The Creek is designated by the State Water Resources Control Board (“SWRCB”) as a Fully Appropriated Stream with respect to water rights, meaning its surface water is legally allocated for domestic use, irrigation, or water storage and no more water can be allocated from the creek.²³⁹

One mile below the Trout Club, the stream passes through private agricultural lands with active avocado orchards. Water extraction by Creek-side wells²⁴⁰ and a Creek diversion occurs in this reach to support agriculture. The wells and diversion may reduce the Creek’s typically perennial flows.²⁴¹ The riparian buffer is lacking in many locations in this agricultural section, replaced by avocado trees and ranch roads.²⁴² The streamside terraces, slopes, and canyons have been converted to orchards in many areas. In addition, several slopes were cleared in 2018, creating the potential for significant erosion and sedimentation into the Creek.²⁴³

In the residential area below Vineyard Avenue and North Patterson Avenue, human alterations are more evident and include flood control and creek bank stabilization structures such as rock riprap and pipe and wire revetments. The Creek has more non-native plants, storm drains, litter, and bridges. The watershed features the San Jose Creek Bike Path, parks, and open spaces. Homeless camps are becoming more common in the area near Calle Real, Highway 101, and the UPRR bridge over the Creek. The bulk of litter found during EDC’s annual creek cleanups is in this area. This section of San Jose Creek also includes prior creek revegetation and riparian habitat restoration plantings by UCC, Growing Solutions, and Audubon, and mitigation plantings installed by SBCFCWCD as a requirement of state and federal permits.

Downstream from Hollister Avenue, the Creek has been redirected through an artificial flood control channel which was widened by the City of Goleta beginning in 2013 as part of an

²³⁸ Emails from Larry Farwell and Rocky Siegel, San Marcos Trout Club, to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (June 11, 2020).

²³⁹ SBCFCWCD (2010); *See also* EDC (2021) Problem San Jose 1 in Section IV.

²⁴⁰ Waterways Consulting, Inc. *San Jose Creek Fish Passage Improvements 100% Submittal* at sheets 2, 3, 5, and 6 (August 13, 2017).

²⁴¹ UCC, *Water Rights Complaint to State Water Resources Control Board* (1992).

²⁴² Google Earth (2019).

²⁴³ EDC (2021) Problem San Jose Problem 2 in Section IV.

eighteen-million-dollar flood control and steelhead passage restoration project. The flood control channel isolates “Old San Jose Creek” south of Hollister Avenue. Old San Jose Creek receives only local neighborhood runoff. The mile-long concrete channel ends in an arm of the Goleta Slough near south Kellogg Avenue and the Westwind Drive-In Theatre, where it merges with San Pedro Creek.

Watershed Biology

A number of special-status wildlife species reside in and along San Jose Creek and potentially Fremont Creek, including federally threatened California red-legged frog (*Rana aurora draytonii*), federally endangered southern California steelhead (*Oncorhynchus mykiss*), and four state species of concern: southwestern pond turtle (*Emys marmorata pallida*) (also proposed for listing under the federal Endangered Species Act (“ESA”)),²⁴⁴ and State Species of Special Concern California newt (*Taricha torosa*), arroyo chub (*Gila orcutti*), and two-striped garter snake (*Thamnophis hammondi*).²⁴⁵ Ringtail cat (*Bassariscus astutus*), designated as a Fully Protected Mammal in the California Fish and Game Code, has been observed at the Trout Club and within one half mile downstream from the Trout Club.²⁴⁶ (Figure 15) Local biologists report seeing dead ringtails on Highway 154 near San Jose Creek.²⁴⁷ Other than steelhead which may migrate to and from the ocean, these species primarily occur upstream from Patterson Avenue where flows are more reliable, and riparian habitat is more natural, and more remote areas with less human influences. Several steelhead barriers and impediments on San Jose Creek include an obsolete failing dam and three or more at-grade road crossings in the foothill ranches.²⁴⁸ Federally endangered tidewater goby occur in the Goleta Slough.

²⁴⁴ CDFW, CDFW News Website, *Increase in Turtle “Rescues” Prompts CDFW Reminder: If You Care, Leave Them There*, <https://cdfgnews.wordpress.com/2015/05/12/increase-in-turtle-rescues-prompts-cdfw-reminder-if-you-care-leave-them-there/> (Posted May 12, 2015).

²⁴⁵ Hunt and Associates Biological Consulting, *Results of Special-Status Surveys for Plants and Wildlife, Bosio/Cavaletto Ranches, Fish Passage Improvement Project, San Jose Creek, Goleta, Santa Barbara County, California* at 7 – 8 (September 8, 2017) (“Hunt 2017”).

²⁴⁶ Personal Communication with Ralph Philbrick, Trout Club Resident (2001); Personal Observation by Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (1986); *See also*: California Fish and Game Code Sections 3511, 4700, 5050 and 5515; *See also* CDFW Fully Protected Animal List available at <https://wildlife.ca.gov/Conservation/Fully-Protected> (February 23, 2021).

²⁴⁷ Email from Mark Holmgren, Wildlife Biologist, to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (June 29, 2020); *See also* email from John Storrer, Wildlife Biologist, to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (June 23, 2020).

²⁴⁸ Waterways Consulting, Inc., *San Jose Creek Fish Passage Improvement Project Feasibility Report* (March 20, 2015) (Waterways (2015)).



Figure 15. Ringtail cat, a member of the raccoon family, is a Fully Protected Species under the California Fish and Game Code. Wikipedia https://en.wikipedia.org/wiki/Ring-tailed_cat (February 23, 2021).

Fremont Creek is a significant tributary originating in the Los Padres Forest. It feeds San Jose Creek just north of Cathedral Oaks Road. Fremont Creek is dammed in the foothills, creating Dennis Reservoir which serves nearby orchards. The reservoir supports non-native bullfrogs which feed on and compete with native species such as steelhead, California red-legged frog, and two-striped garter snakes.

Recreation in the San Jose Creek Watershed

Recreational target shooting occurs at the Winchester Gun Club at the top of the watershed. Hiking occurs at the top of the watershed at Lizard's Mouth. Residents and guests hike and swim in the private reaches of the Creek near the Trout Club and San Marcos Pass, although no formal trails exist. Downstream from Vineyard Avenue, there are numerous City and County parks and open spaces, such as the University Village Open Space, with trails and flood control access roads used for recreational walking between Patterson Avenue and Hollister Avenue. This includes the new City of Goleta Jonny D. Wallis Park. The public Kellogg Tennis Courts are located along the Creek near Cathedral Oaks Road. San Jose Creek is a well-known birdwatching destination. A new section of the San Jose Creek Bike Path was recently constructed connecting Kellogg Avenue to the University Village Open Space, with plans to continue the Bike Path downstream to Hollister Avenue, and possibly beyond.

I. Maria Ygnacio Creek

Maria Ygnacio Creek's main fork originates in a watershed near Painted Cave, in an area which supports predominantly native chaparral, oak woodland, and riparian habitat. The upper watershed is largely natural. The middle portion of the watershed in the foothills of the Santa Ynez Mountains is zoned for agriculture and supports orchards. From the base of North San Marcos Pass Road to one mile south of Hollister Avenue, the watershed supports primarily residential neighborhoods. Maria Ygnacio Creek passes through the South Patterson Agricultural Block, which includes greenhouses, hoop houses, and open field farming north of More Mesa and near the Creek's confluence with Atascadero Creek at South Patterson Avenue.

- Size: 6.6 sq. mile watershed, 6.7 miles long²⁴⁹
- Hydrology: Maria Ygnacio's 100-year flow rate is 8,500.²⁵⁰
- Land Use:
 - ❖ Impervious: 4.4%
 - ❖ Residential: 8.2%
 - ❖ Commercial: 0.9%
 - ❖ Chaparral: 52.6%
 - ❖ Forest: 26%
 - ❖ Agriculture: 10.8%²⁵¹
- 303(d) Impairments:
 - ❖ Pathogens (E. coli, fecal coliform, and enterococcus)
 - ❖ Sodium
 - ❖ pH²⁵²
- Watershed Description:

Maria Ygnacio Creek, like San Jose Creek, is one of the largest and best-flowing creeks in the Goleta Valley. The Creek begins around 3,200 feet in elevation²⁵³ in the chaparral-covered Santa Ynez Mountains near East Camino Cielo in the vicinity of the Painted Cave residential neighborhood and Knapp's Castle.²⁵⁴ Below the rural Painted Cave neighborhood, the intermittent Creek passes a Chumash rock art site located on Painted Cave Road. Numerous residences in this area utilize springs as water supplies, which would otherwise likely support more permanent flows in the Creek. The Creek and its tributaries, including the Maria Ygnacio East Fork, begin as drainages located within chaparral and oak woodlands between Highway 154

²⁴⁹ Goleta Water District (2017) at 25.

²⁵⁰ FEMA, *Flood Insurance Study* Volume 1 (September 28, 2018).

²⁵¹ Channelkeeper (2006).

²⁵² Goleta Water District (2017) at 29.

²⁵³ *Id.* at 25.

²⁵⁴ Google Earth (2019).

and East Camino Cielo. Numerous springs give rise to perennial flows in the main fork below Highway 154, and support dense riparian woodlands consisting of white alder, black cottonwood, western sycamore, coast live oak, California bay, big-leaf maple, and willow trees. Springs also provide water to residential and ranch properties near Highway 154, including Bjorklund Ranch and the Arnoldi property.

Below Highway 154 is a series of perennial pools known as Teardrop which used to be a popular hiking destination but is located on private property. Downstream from Teardrop is a twenty-five-foot waterfall on Bjorklund Ranch which provides recreational opportunities to Ranch residents and guests. The Creek flows year-round from the Highway 154 culvert, which intersects a spring, downstream over one and a half miles to the foothills, where it becomes intermittent below the site of the former Maria Ygnacio Main Fork Debris Basin, a flood control facility installed in 1990 after the Painted Cave Fire scorched the watershed. The main fork and east fork debris basins and dams were removed by SBCFCWCD in 2019 pursuant to NMFS' ESA requirements to prevent further jeopardy to federally endangered southern California steelhead.²⁵⁵

A Creek diversion located adjacent to the former main fork debris basin was the subject of discussions between CDFW and landowners in 2013, with the intent of curtailing the diversion to increase instream flows for fish and wildlife.²⁵⁶ The diversion had entrained thirteen resident steelhead in a reservoir.²⁵⁷ Below the former basin location, the Creek passes through agricultural lands consisting primarily of avocado orchards where numerous wells, visible on aerial photos, produce water for agriculture but may reduce stream flows. The Creek becomes intermittent in this location. An unnamed tributary joins Maria Ygnacio Creek at a private campground located three hundred meters northeast of the former basin site. The confluence with the East Fork of Maria Ygnacio Creek is roughly 4,300 feet south of the former Main Fork Debris Basin site, and 390 feet upstream from the North San Marcos Road Bridge. EDC surveys suggest the Creek flows year-round in this location. Below the North San Marcos Road Bridge near Giorgi Park, the Creek flows through a residential neighborhood and becomes intermittent.

Several meters below the North San Marcos Road Bridge, the Creek passes over the Cachuma Project South Coast Conduit, which conveys potable water originating in Cachuma Reservoir on the Santa Ynez River north of the Santa Ynez Mountains. A concrete structure installed to protect the conduit forms an impediment to steelhead migration.²⁵⁸ Steelhead have been identified upstream from numerous impediments, including the South Coast Conduit.²⁵⁹

²⁵⁵ EDC (2021) Problems Maria Ygnacio 2 and 3 in Section IV.

²⁵⁶ Email from Natasha Lohmus, CDFW, to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (August 2, 2021).

²⁵⁷ Email from Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC, to Natasha Lohmus, CDFW. (May 26, 2013).

²⁵⁸ EDC (2021) Problem Maria Ygnacio 4 in Section IV.

²⁵⁹ Mark Capelli, South-Central / Southern California Steelhead Recovery Coordinator, NMFS, Memo to File Re: *Maria Ygnacio O. mykiss Mortalities, Jesusita Fire, Santa Barbara* (May 15, 2009).



Figure 16. This check dam on Maria Ygnacio Creek below the UPRR bridge inhibits steelhead migration. February 6, 2019.

The Creek passes beneath Cathedral Oaks Road through a double box culvert²⁶⁰ then continues to flow south next to Foothill Elementary School, and through residential neighborhoods and open spaces, such as the County's Barquero Open Space, then beneath Highway 101 and UPRR tracks (Figure 16) to Hollister Avenue. The Maria Ygnacio Creek Bike Path follows the Creek from University Drive, underneath Highway 101, the UPRR tracks, and Hollister Avenue ultimately reaching the Atascadero Creek Bike Path near the Creek's confluence with Atascadero Creek.

Watershed Biology

Maria Ygnacio Creek is perennial from Highway 154 down to the foothills. As a result, it supports a healthy riparian woodland, including coast live oak, white alder, black cottonwood, western sycamore, big-leaf maple, California bay, and willow trees.²⁶¹

Maria Ygnacio Creek supports one of the last southern California steelhead populations. (Figure 2) The Creek supports other protected species, including the federally threatened California red-legged frog, western pond turtle, California newt, and two-striped garter snake.²⁶²

²⁶⁰ EDC (2021) Problem Maria Ygnacio 6 in Section IV.

²⁶¹ Google Earth (2019); *See also* USGS (2021); *See also* Personal Observations, Brian Trautwein, Environmental Analyst/Watershed Program Coordinator (1983 – 2000).

²⁶² SBCFCWCD, *Maria Ygnacio Creek Debris Dam Removal and Fish-Passage Projects*

Yuma myotis (*Myotis yumanensis*), a special-status mammal species, is known to roost within expansion joints within the Hollister Avenue Bridge at Maria Ygnacio Creek.²⁶³ There is a strong smell of guano under the Hollister Avenue Bridge, and guano is present in the Creek channel, and may increase fecal coliform bacteria in the creek.

The Creek joins Atascadero Creek at the South Patterson Bridge, which flows into the Goleta Slough six-tenths of a mile downstream from the confluence. The South Patterson Avenue Bridge, Cathedral Oaks Road culvert, and a check dam at the UPRR tracks form impediments to migrating steelhead.²⁶⁴ These facilities are being evaluated for modifications to facilitate steelhead migration. SBCFCWCD is required by the July 2020 CCC permit special conditions to develop plans and permitting to remove the South Patterson Avenue migration barrier.²⁶⁵

Recreation in the Maria Ygnacio Watershed

Given the private ownership of the Creek in the upper and middle watershed, there is little or no public recreation. However, a private campground and trail on Bjorkland Ranch serves Ranch visitors and provides Creek access and access to swimming holes. (Figure 12) The private Giorgi Park is located along the Creek near North San Marcos Road and serves neighborhood residences and guests. The well-used public Maria Ygnacio Creek Bike Path begins on University Drive in the County Parks Department's moderately used Barquero Open Space, which is situated along the Creek from above University Drive to Highway 101 and features a playground and lawn. It is common to see children playing and adults walking dogs in these open spaces, along the bike path and less formal trails, and along the bed of the Creek. The Maria Ygnacio Bike Path follows the Creek for one and a half miles south to the Atascadero Creek Bike Path, which continues west along Atascadero Creek and the Goleta Slough for one and a third miles to the popular Goleta Beach County Park, and then to UCSB. Both bike paths are heavily used by recreational bicyclists, students, commuting cyclists, and walkers.

J. San Antonio Creek

San Antonio Creek is located east of San Marcos Pass and flows from headwaters near East Camino Cielo and the Arroyo Burro Trailhead south through wildlands dominated by chaparral and coast live oak woodlands. The Creek passes through agricultural areas in the lower Santa Ynez Mountains and foothills near Highway 154. Downstream from Highway 154, the Creek flows along the San Antonio County Park and Trail south, the SBCFCWCD's San Antonio Creek Debris Basin, through Kiwanis Meadow Park, and Tucker's Grove Park, and then through residential neighborhoods in the eastern Goleta Valley, before joining Maria Ygnacio Creek at the Highway 101 Bridge.

Post-Project Report (September 25, 2019) ("SBCFCWCD (2019)").

²⁶³ SBCFCWCD (2010).

²⁶⁴ Stoecker (2002).

²⁶⁵ California Coastal Commission *Staff Report and Adopted Findings for Application 4-19-1158, Agenda Item F15a*, available at <https://www.coastal.ca.gov/meetings/agenda/#/2020/7> (July 10, 2020) ("CCC (2020)").

- Watershed Size: 5 sq. mile watershed, 6.1 miles long²⁶⁶
- Hydrology: San Antonio Creek's 100-year flow rate is 4,000 cfs.²⁶⁷
- Watershed Description:

Watershed Geography

San Antonio Creek originates at roughly 3,380 feet in elevation²⁶⁸ along East Camino Cielo in the Santa Ynez Mountains near the Arroyo Burro Trailhead in the LPNF. Springs support perennial flow a short distance below the top of the watershed. The trail follows the East Fork of San Antonio Creek through the National Forest for less than a mile before it passes through an easement on private ranchland, turns east, and leaves the San Antonio Watershed. The East and West Fork of San Antonio Creek are dominated by chaparral and coast live oak woodlands, with narrow bands of riparian forests along the stream corridors. The forks contain areas with perennial flows²⁶⁹ and support numerous special-status species in the National Forest. (Figures 5a, 5b, 6a, and 6b) A water diversion located along the public trail intersects the east fork of the Creek and often diverts all the water from the east fork into cisterns along the trail and delivers it through pipes for irrigating orchards over a mile downstream, eliminating, or impairing stream flow below the point of diversion throughout the dry season.²⁷⁰ Other than Arroyo Burro Trail and water diversions, there is very little human development in the upper portions of east and west forks.

The forks combine in agricultural lands north of the Highway 154 Bridge.²⁷¹ A large off-stream reservoir near the confluence may signal the presence of additional Creek diversions or riparian wells which can significantly reduce Creek flows and harm biological resources, according to the Santa Barbara County Thresholds and Guidelines Manual for water resources.²⁷² Downstream from the Highway 154, the Creek flows intermittently through the County's San Antonio Creek Park alongside the public San Antonio Creek Trail, which is a popular hiking trail connecting Tucker's Grove Park to Highway 154. Another private water diversion is sited in an intermittent section of San Antonio Creek within the park.²⁷³ The Creek supports riparian and oak woodland vegetation in this area. The SBCFCWCD San Antonio Creek Debris Basin Dam is located along the trail below Highway 154.²⁷⁴ The Dam is slated to be removed or modified for steelhead migratory passage in coming years pursuant to NMFS' ESA requirements.

²⁶⁶ Goleta Water District (2017) at 24.

²⁶⁷ FEMA, *Flood Insurance Study* Volume 1, (September 28, 2018).

²⁶⁸ Goleta Water District (2017) at 24.

²⁶⁹ USGS Topographic Maps, Goleta and Santa Barbara Quadrangles.

²⁷⁰ EDC (2021) Problem San Antonio 1 in Section IV.

²⁷¹ Google Earth. (2019).

²⁷² *Id.*; See also Santa Barbara County (2008) at 69; See also EDC (2021) Problem San Antonio 3 in Section IV.

²⁷³ EDC (2021) Problem San Antonio 5 in Section IV.

²⁷⁴ *Id.* Problem San Antonio 4 in Section IV.

San Antonio Creek flows southwest through Tucker's Grove Park, underneath the Cathedral Oaks Bridge located at the entrance to Tucker's Grove Park, then downstream past two churches, and through residential neighborhoods for over a mile to its confluence with Maria Ygnacio Creek at the Highway 101 Bridge. Before reaching the confluence, San Antonio Creek passes through Tabano Hollow, a County open space with paths and a popular off-leash dog park.

Watershed Biology

The west and east forks of San Antonio Creek in the LPNF and private inholdings in the Santa Ynez Mountains are perennial and support numerous rare species and healthy riparian habitats.²⁷⁵ The Creek is reported to support historical steelhead runs, and a small resident steelhead population located near Highway 154 was lost in the mid-1980s due to drought.²⁷⁶ There is a western pond turtle breeding habitat in the west fork within the LPNF. The Creek also supports two-striped garter snake (Figures 6a and 6b), California newts, and California red-legged frog in the forest. Both forks support lush riparian woodlands with white alders, black cottonwoods, coast live oaks, California bay laurels, willows, and western sycamores. While generally very natural in the National Forest, the west fork has been invaded by pampas grass and other exotic invasive species.

K. Atascadero Creek

Atascadero Creek is the easternmost creek in the Goleta Slough Watershed. It begins in the foothills near the San Marcos Foothills Preserve northeast of Highway 154. The two upper tributaries are Cieneguitas Creek and Hospital Creek. Cieneguitas Creek and Atascadero Creek flow through residential neighborhoods and schools between Foothill Road and southwest of the Modoc Avenue - State Street - Hollister Avenue juncture. Hospital Creek passes through the County campuses between Cathedral Oaks Road and Hollister Avenue, through culverts and channels in residential neighborhoods, and joins Atascadero Creek a half mile downstream from the Cieneguitas Creek confluence. Maria Ygnacio flows into Atascadero Creek at the South Patterson Avenue Bridge.

The Atascadero Creek Bike Path skirts the Creek from Modoc Road to Goleta Beach, forming a major cycling and pedestrian thoroughfare. The Creek is well known for homeless community member encampments along the bike path. The once shifting Atascadero Creek was channelized to accommodate development of large residential tracts south of Hollister Avenue between Puente Drive and the Goleta Slough near Ward Drive, north of More Mesa. The More Ranch Geologic Fault supports springs which keep this Atascadero Creek flowing even during droughts.²⁷⁷

²⁷⁵ USGS Topographic Maps, Goleta and Santa Barbara Quadrangles.

²⁷⁶ CEMAR (2008) at 285 citing to Gant (1974) and Brian Trautwein personal observation and communication.

²⁷⁷ More Mesa Preservation Coalition, *Monthly Archives: July 2017* <http://www.moremesa.org/wordpress/2007/07/> (July 1, 2017).

- Watershed Size: 8.5 sq. mile watershed, 6.3 miles long²⁷⁸
- Hydrology: Atascadero Creek at the gaging station on South Patterson Avenue (below the confluences with Cieneguitas and Maria Ygnacio Creeks) generates flows of 13,000 to 19,500 cfs during a 100-year return interval flow event.²⁷⁹
- Land Use:
 - ❖ Impervious: 20.4%
 - ❖ Residential: 43.3%
 - ❖ Commercial: 5.8%
 - ❖ Chaparral: 18.6%
 - ❖ Forest: 6.4%
 - ❖ Agriculture: 23.2%²⁸⁰
- 303(d) Impairments:
 - ❖ Chloride
 - ❖ Pathogens (E. coli, fecal coliform, and enterococcus)
 - ❖ Low DO
 - ❖ Sodium
 - ❖ Temperature
 - ❖ pH²⁸¹
- Watershed Description:

Watershed Geography

Atascadero Creek is the easternmost watershed in the Goleta Valley, a portion of which extends into the City of Santa Barbara. Atascadero Creek originates in the foothills of the Santa Ynez Mountains at around 900 to 1,100 feet in elevation, north of Highway 154. The Creek's headwaters, along with the origins of the main tributary Cieneguitas Creek, begin on private ranchland, including orchards and chaparral, oak woodland, grassland, and coastal sage scrub habitats in and near the San Marcos Foothills Preserve. Within the Preserve, Atascadero Creek is being restored by Channel Islands Restoration ("CIR").

The Cieneguitas Creek tributary also flows from the San Marcos Foothills Preserve south and west through the Cocopah Drive Neighborhood, underneath Foothill Road then through the La Colina Junior High School Campus. Cieneguitas Creek passes through a culvert under Highway 154 near Calle Real, then under Highway 101 at Old Mill Road, continuing in a southwest direction beneath Modoc Road, alongside Vieja Valley School, eventually joining Atascadero Creek in the Hope Ranch Annex near Nueces Drive and Arboleda Road.

²⁷⁸ Goleta Water District (2017) at 24.

²⁷⁹ SBCFCWCD (2010); *See also* FEMA, Flood Insurance Study Volume 1 (September 28, 2018).

²⁸⁰ Santa Barbara Channelkeeper (2006).

²⁸¹ Goleta Water District (2017) at 29.

The Hospital Creek tributary originates on the San Marcos Foothills western mesa just east of Highway 154 and flows southwest between Camino del Rio and Camino del Retiro, under Cathedral Oaks and underneath the Alpha Resources Center, then daylights and continues south through the County Campus between the County Jail and the County Public Health Facilities. Hospital Creek then passes through a culvert underneath Calle Real and Highway 101, trends southwest through the Page Youth Center and Little League Fields, then passes under Hollister Avenue at South San Antonio Road, and finally passes through a series of underground conduits and concrete channels for two-thirds of a mile until its confluence with Atascadero Creek near the south Turnpike Road dead-end.

From there, Atascadero Creek, which has been straightened and channelized, flows west by southwest north of More Mesa, underneath South Patterson Avenue, where it combines with Maria Ygnacio Creek, and continues west by southwest for six-tenths of a mile where it enters the Goleta Slough near Ward Drive. The tidally influenced section of Atascadero Creek forms the eastern arm of the Goleta Slough which joins San Jose Creek by Ward Memorial Boulevard (Highway 217) and curves south toward Goleta Beach County Park.

The SBCFCWCD regularly maintains Atascadero Creek.²⁸² This includes vegetation removal and dredging Atascadero Creek to decrease flooding risks in the area.²⁸³

Watershed Biology

Steelhead have been recorded in Atascadero Creek since 1969 or 1970.²⁸⁴ Steelhead have been documented in the Creek recently as 2013, as well as in tributary Maria Ygnacio Creek in 2017. (Figure 2) At least one resident steelhead has been observed in the Cieneguitas Creek tributary.²⁸⁵ Several barriers to steelhead migration occur in the Creek. In 2013, a small run of steelhead trout was observed in Atascadero Creek, and was monitored by CDFW.²⁸⁶ Steelhead use Atascadero Creek to access Maria Ygnacio Creek. Southwestern pond turtles have been documented in the Creek in recent years and are the subject of a Pond Turtle Enhancement and Protection Plan required to mitigate the effects of the 2020 Atascadero Creek Flood Control Project.²⁸⁷ Other special-status species which may be present in the Creek include California red-legged frog, two-striped garter snake, and California newt.

²⁸² EDC (2021) Problem Atascadero 1 in Section IV; *See also* CCC (2020).

²⁸³ SBCPWD (2017); *See also* Santa Barbara County Public Works Department, *Atascadero Creek Dredging* webpage available at <http://countyofsb.org/pwd/central.c/1426> (April 9, 2021).

²⁸⁴ CEMAR (2008) at 284 citing to Stoecker (2002) and Phil Beguhl.

²⁸⁵ *Id.* citing to Trautwein.

²⁸⁶ Olivier Sinoncelli, Advocacy Intern, and Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, Environmental Defense Center, *Goleta Watershed Protection and Education Project* (October 15, 2013) (“EDC (2013)”).

²⁸⁷ CCC (2020).



Figure 17. Egret hunting on Atascadero Creek. Brian Trautwein. February 6, 2019.

Atascadero Creek and its upper tributaries, Cieneguitas Creek and Hospital Creek, have healthy riparian woodlands in some sections, and have been restored (i.e., by CIR within the San Marcos Foothills, at Saint Vincent’s Mercy Housing on Calle Real,²⁸⁸ and by Santa Barbara Audubon at Vieja Valley School). (See Problem Atascadero 11 in Section III below).²⁸⁹ Coast live oaks and willow trees are the most common riparian trees within the Creek’s riparian forest, but it also supports sycamores and cottonwoods, some of which were planted to restore the Creek’s riparian habitat. The endemic bitter gooseberry (*Ribes amarum* var. *hoffmannii*), a special-status species, is located along Atascadero Creek.²⁹⁰ Other sections are highly degraded and in need of restoration, such as the concrete channels of Hospital Creek and Atascadero Creek, and the portion of Hospital Creek within the Page Youth Center.²⁹¹ EDC discovered an eight-hundred-foot-long clear-cut on the banks of Atascadero Creek during a creek cleanup in 2019 and reported it to Santa Barbara County zoning enforcement staff and the CDFW warden, which issued Notices of Violations (“NOVs”), and are requiring the responsible party to restore the creek.²⁹²

Recreation in the Atascadero Creek Watershed

Atascadero Creek originates near the San Marcos Foothills Preserve, a 200-acre County open space with an adjoining passive park that was established in 2005. The Preserve offers several hiking trails. South of Highway 101, the Atascadero Creek Bike Path follows the Creek from near Modoc Road to Goleta Beach and UCSB, intersecting the Maria Ygnacio Creek Bike Path. Many people walk and bike on this route. Atascadero Creek is also a popular birdwatching location.²⁹³ A well-used private coastal open space, More Mesa, forms the Creek’s southern

²⁸⁸ EDC (2021) Problem Atascadero 22 in Section IV.

²⁸⁹ Email from Stephanie Langsdorf, Project Manager, Cieneguitas Creek Restoration Project, to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator (April 2, 2021).

²⁹⁰ SBCFCWCD (2010).

²⁹¹ EDC (2021) Problems Atascadero 7, 9, and 13 in Section IV.

²⁹² Santa Barbara County Planning and Development Department, *Notice of Violation*, letter from Christopher Schmuckal, Zoning Enforcement Program, to Michael Cicileo, Property Owner (December 10, 2019).

²⁹³ Santa Barbara Audubon Society, *Friday Bird Walk – Atascadero Creek* available at <https://santabarbaraaudubon.org/events/friday-bird-walk-atascadero-creek-5/> (July 13, 2018).

watershed boundary, and includes numerous trails including trails along the Creek and unnamed tributaries. The private Hidden Oaks Golf Course is adjacent to Atascadero Creek between Puente Drive and the South Turnpike Road dead-end. Hospital Creek passes through the Page Youth Center, which includes baseball fields and a gymnasium, however the Creek has not yet been incorporated into recreational activities.



Figure 18.
Atascadero Creek
Bike Path. Brian
Trautwein.
February 6, 2019.



Figure 19. The
Maria Ygnacio
Creek Bike Path
gives the public an
up-close look at the
Creek, but it also
encroaches into the
Creek habitat. Brian
Trautwein. 2017.

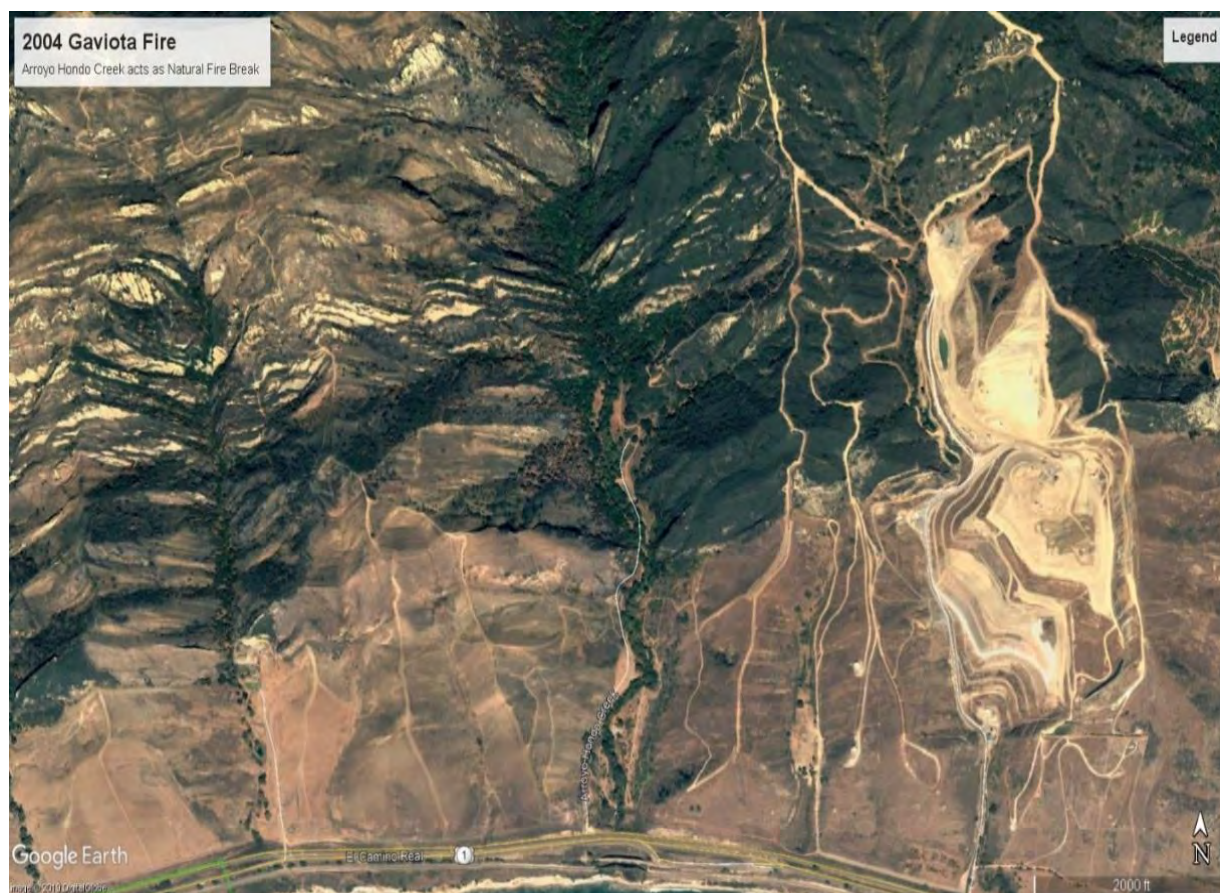


Figure 24. Arroyo Hondo Creek acted as a natural firebreak during the 2004 Gaviota Fire. Note burned landscape to west of creek and green vegetation to east. Google Earth. September 2004.

III. RECOMMENDATIONS, FUNDING, AND PARTNERS

The following Creek-by-Creek recommendations are separated into two sections. Section A describes two showcase enhancement projects in the City of Goleta. Section B identifies all recommendations for each watershed in the Goleta Valley.

A. Creek, Watershed, and WUI Recommendations

Projects will be designed to address watershed issues, including but not limited to water pollution and litter, hydro-modification, degraded riparian habitats, migratory fish barriers, reduced stream flows, invasive species, and impacts of climate change, public access and trails, public education about streams and watersheds, and homelessness.

The watersheds are listed in order from the westernmost watershed (Tecolote Creek) to the easternmost watershed (Atascadero Creek). Global watershed recommendations (i.e., those that apply to each watershed surveyed) are summarized following the watershed-specific recommendations. Recommendations are summarized in the following order:

- **Problem**
 - **Jurisdiction**
 - **Regulatory Jurisdiction (if applicable)**
 - **Recommendation**
 - **Community Benefits**
 - **Next Steps**

The following fire threats in Goleta's watershed and WUI's, along with recommended conceptual solutions identified by EDC during stream surveys from 2013-2020 are set forth below.²⁹⁴

²⁹⁴ EDC (2013); *See also* Tanner Yould, Watershed Program Intern, EDC, *State of Goleta's Creeks* (December 17, 2014); *See also* EDC (2016); *See also* EDC (2019); *See also* Alexandra Eisinger, EDC Goleta Watershed Program Intern, and Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC, *Goleta's Creeks and Watersheds: Opportunities for Enhancement and Restoration (2020 Addendum)* (June 10, 2020).

Tecolote Creek Watershed

- Problem Tecolote 2:** A stand of fire-prone invasive blue gum eucalyptus trees (*Eucalyptus globulus*) occurs on an east-facing slope five hundred feet west of Tecolote Creek near the north end of Vereda del Ciervo Road in the Rancho Embarcadero neighborhood in the WUI.²⁹⁵ (Figures 33 and 34). The eucalyptus trees are adjacent to chaparral and may exacerbate fire hazard in the Wildland-Urban Interface (“WUI”) neighborhood. Fires in this area could destabilize the slope, potentially increasing erosion, and thus sedimentation in Tecolote Creek. The eucalyptus may spread into the creek and displace native riparian vegetation.



Figure 33. A stand of eucalyptus near Tecolote Creek and Vereda del Ciervo. Google Earth. 2019.

- Jurisdiction:** Santa Barbara County
- Recommendation Tecolote 2A:** Replace the eucalyptus trees with avocado, lemon, or coast live oak (*Quercus agrifolia*) trees, depending on the landowner’s preference.
- Community Benefits:** Replacement of the eucalyptus trees would reduce the fire hazard in Rancho Embarcadero and the WUI.

²⁹⁵ Google Earth (2019); See also Santa Barbara County, *Multi-Jurisdictional Hazard Mitigation Plan* at 5-12 available at <http://www.countyofsb.org/ceo/asset.c/3416> (2017) (“Santa Barbara County (2017b)”).

- **Next Steps:** Coordinate with Santa Barbara County Fire Department (“SBCFD”) and the landowner to discuss the potential replacement of eucalyptus trees to reduce fire hazards and prevent the spread of eucalyptus in the watershed. If the landowner supports replacement, work with Santa Barbara County Fire Department (“SBCFD”), Cachuma Resource Conservation District (“CRCD”), the California Coastal Conservancy (“Conservancy”), and University of California Cooperative Extension (“UC Coop”) to seek funding to replace the eucalyptus trees with avocado, lemon, and/or coast live oak trees.



Figure 34. A stand of blue gum eucalyptus trees may increase the fire hazard in Rancho Embarcadero near Tecolote Creek. Max Kalber. September 2020.

- **Problem Tecolote 3:** The Tecolote Tunnel is the United States Bureau of Reclamation’s (“USBR”) unlined conduit through the Santa Ynez Mountains, that conveys water from USBR’s Cachuma Reservoir to the South Coast above Glen Annie Reservoir in Glen Annie Canyon. (Figure 35) Groundwater in the

sedimentary bedrock formations through which the Tunnel passes may infiltrate into the Tunnel instead of surfacing as springs which could otherwise hydrate Tecolote Creek (and Ellwood Creek as discussed below), to support dry-season base flows, riparian habitat, steelhead, and water-dependent wildlife species. It has been estimated that between 1,000 and 3,500 acre-feet per year may infiltrate the Tunnel.²⁹⁶ Steelhead used to occur in Tecolote Creek when it flowed more reliably.²⁹⁷ There is no modern study of the potential hydrologic impacts of Tecolote Tunnel on Tecolote Creek flows. The most relevant study EDC identified, published in 1962, found that the Tecolote Tunnel may have dried up a spring in Hot Springs Canyon near Cachuma Reservoir.²⁹⁸

- **Jurisdiction:** Santa Barbara County, USBR, USFS, NMFS
- **Recommendation Tecolote 3A:** Perform a hydrological study to identify impacts on Creek flows and riparian ecology that Tecolote Tunnel infiltration may impact. If feasible and necessary to mitigate surface flow impacts, release water from Tecolote Tunnel into the Tecolote Creek, or develop other measures to restore hydrological conditions in Tecolote Canyon.
- **Community Benefits:** Restoring flows in Tecolote Creek would improve riparian and aquatic habitat for special-status species such as federally endangered southern California steelhead (*Oncorhynchus mykiss*), threatened red-legged (*Rana aurora draytonii*), and California Species of Concern southwestern pond turtle (*Emys marmorata pallida*). Rehydrating Tecolote Canyon may reduce fire hazards by increasing moisture levels in riparian habitats.
- **Next Steps:** Collaborate with the GWD, USBR, USFS, the City of Goleta, NMFS, and UCSB biologists and hydrologists to develop a study plan to investigate potential impacts of Tecolote Tunnel on stream flows and habitat in Tecolote Creek. Seek funding to conduct the study.

²⁹⁶ G.A. Miller and J.R. Rapp, *Reconnaissance of the ground-water Resources of the Ellwood-Gaviota Area, Santa Barbara County, California* at 16 available at <https://pubs.usgs.gov/of/1968/0182/report.pdf> (April 10, 1968).

²⁹⁷ Becker, G.S., K.M. Smetak, and D.A. Asbury. 2010. Southern Steelhead Resources Evaluation: Identifying Promising Locations for Steelhead Restoration in Watersheds South of the Golden Gate. Cartography by D.A. Asbury. Center for Ecosystem Management and Restoration. Oakland, CA.

²⁹⁸ Rantz (1962).



Figure 35. A map that shows the path of Tecolote Tunnel running through the Santa Ynez Mountain Range. Sourced from: Rantz (1962).

Bell Canyon Creek Watershed

- Problem Bell Canyon 1:** Giant reed (*Arundo donax*), cape ivy (*Delairea odorata*), periwinkle (*Vinca minor*), and Algerian ivy (*Linden viburnum*) are present in Bell Canyon Creek at San Miguel Open Space.²⁹⁹ (Figures 38 – 42) These invasive plant species can outcompete native species, including California walnut trees (*Juglans californica*), which is present and designated California Rare Plant Rank 4.2.³⁰⁰ *Arundo* may increase fire hazards in this neighborhood open space and surrounding homes and farms.

²⁹⁹ The Bell Canyon Watershed includes Ellwood Canyon and Winchester Canyon.

³⁰⁰ California Native Plant Society Website, available at <http://www.rareplants.cnps.org/detail/1704.html> (September 15, 2020); See also Calflora website, https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=4428 (September 13, 2020).

Blue gum eucalyptus (*Eucalyptus globulus*) and Arundo are also present upstream in and near Ellwood Canyon Creek’s riparian woodland, elevating the threat of wildfires in the residential neighborhoods within the WUI south and east of Cathedral Oaks Road near Kalley Drive, Gerard Drive, Winchester Canyon Road, Ellwood Ridge Road, and Paseo del Pinon.³⁰¹ During sundowner wind events, eighteen homes on Kalley Drive are within fifty meters downwind from a substantial eucalyptus stand which measures 350 meters long. (Figure 43)



Figures 38 and 39. Invasive Algerian ivy (*Hedera canariensis*) climbing up the trunk of a sycamore tree at San Miguel Open Space. Algerian ivy climbing over 3 meters into riparian trees at the San Miguel Open Space Footbridge. Brian Trautwein. September 2020.



Figures 40 and 41. *Arundo donax* is prevalent and spreading on both banks of Bell Canyon Creek in the San Miguel Open Space. Brian Trautwein. December 13, 2020.

³⁰¹ Santa Barbara County (2017b) at 5-12.

- **Jurisdiction:** City of Goleta

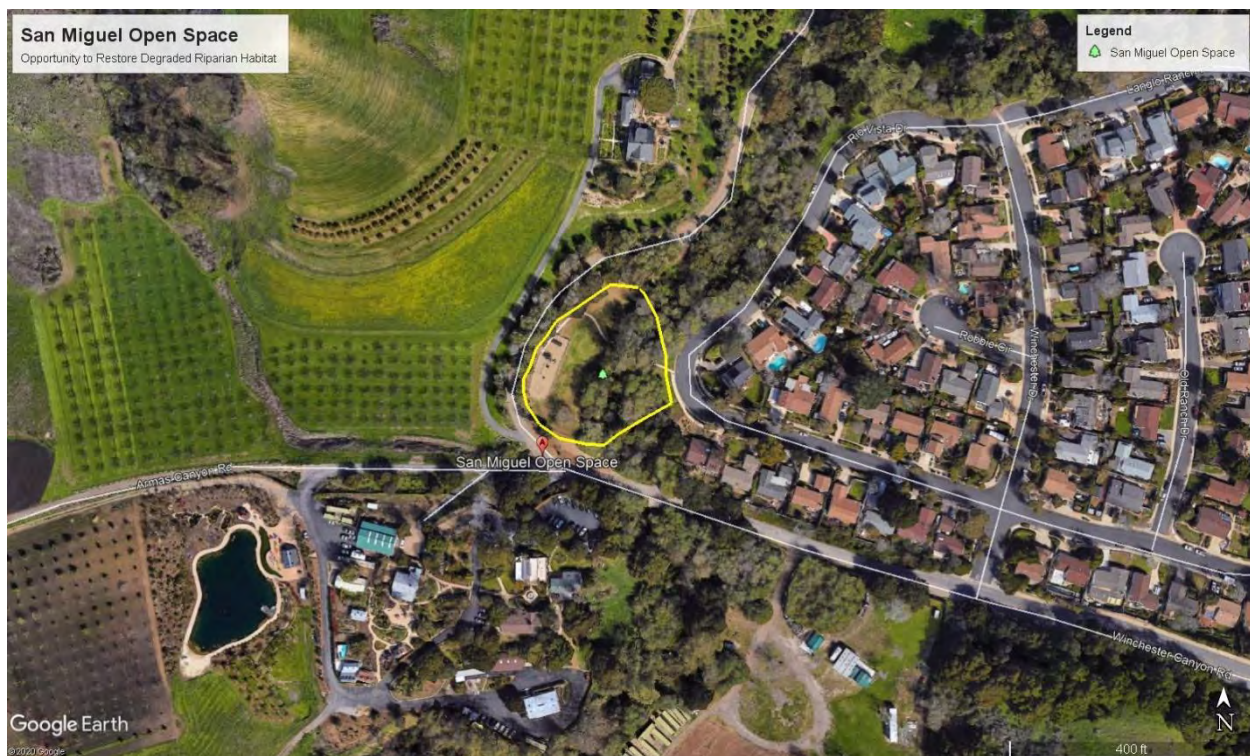


Figure 42. San Miguel Open Space is located at 283 – 299 Winchester Canyon Road and includes a segment of Bell Canyon Creek. Google Earth. 2019.

- **Recommendation Bell Canyon 1A:** Eradicate invasive exotic plants and install native riparian vegetation within the San Miguel Open Space. Replace the eucalyptus trees along Cathedral Oaks Road with native coast live oak woodland vegetation or irrigated orchards. Where feasible, experiment with different cape ivy eradication methods (e.g., manual removal, excavation, and biocontrol) to see what method is most effective.



Figure 43. A 350-foot-long eucalyptus stand occurs fifty meters from homes along Kalley Drive. Google Earth. 2019.

- **Community Benefits:** Replacing invasive nonnative plant species with native plants in San Miguel Open Space would be consistent with the intent of City of Goleta Zoning Ordinance Section 17.30.060 Management of ESHAs (E).³⁰² It would protect mature native riparian trees such as western sycamores (*Platanus racemosa*) and prevent the further spread of invasive species thereby protecting and enhancing the riparian forest of Bell Canyon Creek. Removing flammable invasive plants such as the large eucalyptus stand along Cathedral Oaks Road and Arundo in the San Miguel Open Space would reduce fire hazards in the WUI.

³⁰² Goleta Municipal Code available at <http://qcode.us/codes/goleta/> (December 9, 2020).

- **Next Steps:** Contact City of Goleta Public Works Department Parks and Open Space Division about replacing Arundo and other nonnative plants with native riparian vegetation at San Miguel Open Space. Coordinate with other potential project partners such as the Coastal Conservancy, UC Coop, SBCFD, and non-profits such as CIR and seek funding to develop and implement a riparian woodland restoration plan. Consider working with other landowners in Bell, Winchester, and Ellwood Canyons and CRCD to map and eradicate Arundo and eucalyptus throughout the watershed.
- **Problem Bell Canyon 3:** A reservoir is located adjacent to Ellwood Canyon Creek, a tributary of Bell Canyon Creek, on private property about one mile north of the confluence of Winchester and Ellwood Canyon Creeks. (Figure 45) The reservoir may be supplied by a well and/or creek diversion along Ellwood Canyon Creek.



Figure 45. The Ellwood Creek Reservoir covers roughly five acres adjacent to the Creek and is likely supplied with water from the Creek or from shallow wells located in the vicinity of the Creek. It may therefore contribute to flow impairments in the Creek. Google Earth. 2019.

- **Jurisdiction:** Santa Barbara County

- **Regulatory Jurisdiction:** Santa Barbara County, CDFW, and SWRCB³⁰³
- **Recommendation Bell Canyon 3A:** Determine if the reservoir is supplied by water diverted from the Creek or wells which extract groundwater near the Creek. If the water supply lacks necessary permits, report it to the SWRCB Division of Water Rights and CDFW. If the reservoir lacks County permits, report it County Zoning Enforcement.
- **Community Benefits:** Reducing water extractions from Ellwood Creek would increase Creek flows, improve riparian habitat, restore aquatic habitat for species such as California red-legged frog and southern California steelhead, and reduce fire hazards.
- **Next Steps:** Inquire with the Santa Barbara County Planning and Development Department regarding County land use permits or other information which could indicate the source of water for the reservoir. If necessary, (a) contact the SWRCB to see if there is a permitted Creek diversion supplying the reservoir, and (b) inquire with CDFW regarding streambed alteration agreements for the reservoir and/or related Creek diversion(s) or riparian well(s).
- **Problem Bell Canyon 5:** The Venoco EOF³⁰⁴ is located in the WUI adjacent to the Bell Canyon Creek Estuary.³⁰⁵ The EOF substantially reduces the size of the riparian woodland habitat and estuary, which supports tidewater gobies, a federally endangered fish.³⁰⁶ (Figures 46 and 47) A substantial eucalyptus stand that measures 280 meters long on the west side of the creek between the Union Pacific Railroad tracks and the beach displaces coastal sage scrub vegetation and increases fire hazards near the EOF and Bacara Resort. Additional eucalyptus trees east of the EOF may increase fire hazards.

³⁰³ CDFW and SWRCB would have jurisdiction if creek water diversions or wells impair stream flow.

³⁰⁴ Venoco filed for bankruptcy on March 18, 2016. The State Lands Commission (“SLC”) is managing decommissioning of the EOF, associated offshore Platform Holly, and supporting infrastructure. See e.g., <https://www.slc.ca.gov/oil-and-gas/southellwood/> (February 4, 2021).

³⁰⁵ Santa Barbara County (2017b) at 5-12.

³⁰⁶ Goleta Slough Management Committee, *1997 Goleta Slough Management Plan* available at http://goletaslough.org/gsemp/gsmcplanpage1_81.php (April 16, 2021), *See also* United States Fish and Wildlife Service, *Tidewater Goby* Webpage available at <https://www.fws.gov/arcata/es/fish/goby/goby.html> (December 9, 2020).



Figure 46. Venoco’s EOF located west of Sandpiper Golf Course, slated to be decommissioned in the next several years, would make an ideal location for a public park and restoration of the constrained Bell Canyon Creek and Estuary, following removal and soil remediation. Google Earth. 2019.

- **Jurisdiction:** City of Goleta
- **Regulatory Jurisdiction:** City of Goleta, California State Lands Commission (“CSLC”), CCC, and potentially CDFW
- **Recommendation Bell Canyon 5A:** Once the EOF is decommissioned, and the site is remediated, convert this site into a City park or open space. Restore the Creek and estuary. Consider a pervious parking lot on the east side of the park away from the Creek and estuary to increase infiltration. Construct bioswales³⁰⁷ throughout the park to filter pollutants. Replace the eucalyptus trees with coast live oak or coastal sage scrub vegetation.

³⁰⁷ Merriam-Webster Dictionary, A bioswale is “a long, channeled depression or trench that receives rainwater runoff (as from a parking lot) and has vegetation (such as grasses, flowering herbs, and shrubs) and organic matter (such as mulch) to slow water infiltration and filter out pollutants.” <https://www.merriam-webster.com/dictionary/bioswale> (February 4, 2021).

- **Community Benefits:** Replacing the eucalyptus trees would reduce fire hazards in the WUI area near the Bacara Resort. Removing the EOF would improve water quality in Bell Canyon Creek and the estuary, reduce the chances of oil and hazardous materials spills, remediate soil if contaminated, eliminate the potential for a deadly hydrogen sulfide release, and greatly enhance coastal aesthetics. Restoring the Bell Canyon Estuary and riparian habitat would benefit birds including songbirds, fish including the endangered tidewater goby, and wildlife including California red-legged frogs. Creating a new park or open space would increase coastal access and recreation.



Figure 47. Venoco's abandoned EOF, to be decommissioned, should be removed, and the site converted to a park or open space. Eucalyptus trees west of Bell Canyon Creek and east of the EOF should be replaced with native oak woodland or riparian vegetation. EDC. 2019.

- **Next Steps:** Contact the City and CSLC about the status of decommissioning. Inquire with the City of Goleta Public Works Department Parks and Open Space Division and Goleta City Council about the feasibility of acquiring this site after decommissioning and soil remediation. Coordinate with the Conservancy, UC Coop, SBCFD, and nonprofits such as CIR regarding potential replacement of eucalyptus trees with coast live oak woodland or riparian woodland trees.

Devereux Creek Watershed³⁰⁸

El Encanto Creek – Northgate Drive near Glen Annie Golf Club

- **Problem El Encanto 3:** Invasive blue gum eucalyptus trees (*Eucalyptus globulus*), castor bean (*Ricinus communis*), mustard (*Brassica nigra*), purple crown thistle (*Centaurea calcitrapa*) and other nonnative plant species are dominant in the El Encanto Creek SPA located on city-owned land near the southwest portion of Glen Annie Golf Club on Northgate Drive. (Figure 53) This condition creates a fire hazard in the WUI.³⁰⁹ The nonnative plants degrade the ecological health of the riparian forest. (Figure 56) Cars and trucks park in the SPA close to riparian vegetation at this site, damaging oak saplings, degrading the habitat, and increasing litter and water quality impacts (e.g., oil, brake fluid, transmission fluid, tire particles, etc.) in the creek and riparian habitat. Litter and oil stains are common where the vehicles currently park. Vehicle parking in the dry and dead weeds poses a fire ignition hazard. The soil is compacted from vehicles. Headlights shine directly into the creek and riparian habitat impacting nighttime wildlife use and movement. (Figures 53 and 56).
 - **Jurisdiction:** Santa Barbara County and City of Goleta
 - **Recommendation El Encanto 3A:** Replace the small and medium eucalyptus trees with coast live oaks and arroyo willows in a phased manner, avoiding raptor and bird nesting seasons. Eradicate the castor bean, mustard, and thistle plants. Subsequently replace the larger eucalyptus trees in a phased manner avoiding raptor and bird nesting seasons. Install a wood-rail fence on the eastern edge of Northgate Drive to prevent off-street parking in the creek buffer and riparian vegetation, while allowing on-street parallel parking. (Figures 54 and 56) Construct a bioswale(s) inside this fence to trap and filter polluted stormwater from Northgate Drive. (Figure 54) Plant coast live oak trees (*Quercus agrifolia*), oak woodland shrubs and understory plants, and riparian vegetation. Install educational signs about the natural habitat and bioswale(s).

³⁰⁸ The Devereux Creek Watershed includes Devereux Creek, El Encanto Creek, Bella Vista Creek, and Phelps Creek.

³⁰⁹ Santa Barbara County (2017b) at 5-12.



Figure 53. Invasive blue gum eucalyptus (red polygon), and castor bean, mustard, and purple-crown thistle (purple polygon) line Northgate Drive along the western side of the El Encanto Creek (blue line) riparian corridor. Note cars parked in the Creek buffer with headlights pointed directly in riparian habitat. Google Earth. 2020.

- **Community Benefits:** Removing the eucalyptus trees, castor bean, mustard, and thistle plants, and preventing parking on the dry grass and weeds would reduce fire hazards in the WUI and protect riparian habitat by preventing the spread of invasive species along the Creek corridor. A wood rail fence and bioswales would allow for improved wildlife passage, and keep vehicles out of the unpaved buffer area, while improving water quality, and reducing light pollution in the riparian woodland. Planting native oak woodland and riparian vegetation would enhance the health of the riparian woodland, improve water quality, reduce noise, light, and litter impacts, and improve neighborhood aesthetics.
- **Next Steps:** Identify land ownership and jurisdictional boundaries (i.e., City of Goleta, Santa Barbara County, Glen Annie Golf Club). Coordinate with City of Goleta Parks and Open Space, SBCFD, CRCD, Conservancy, UC Coop, and Glen Annie Golf Club. Create a phased plan. Develop a cost estimate and seek funding for Phase 1 involving clearing the mustard, thistles, grass, and castor bean, removing the smaller eucalyptus trees, and installing the wood-rail fence and bioswales.



Figure 54. A wood rail fence (yellow line) along the east side of Northgate Drive would prevent vehicles from parking in dry weeds within the El Encanto Creek SPA, reducing fire hazards, improving water quality, improving habitat conditions, and enabling planting of native riparian species. Bioswales (green lines) would convey runoff and filter stormwater pollution from the street runoff before it enters the Creek. Google Earth. 2019.

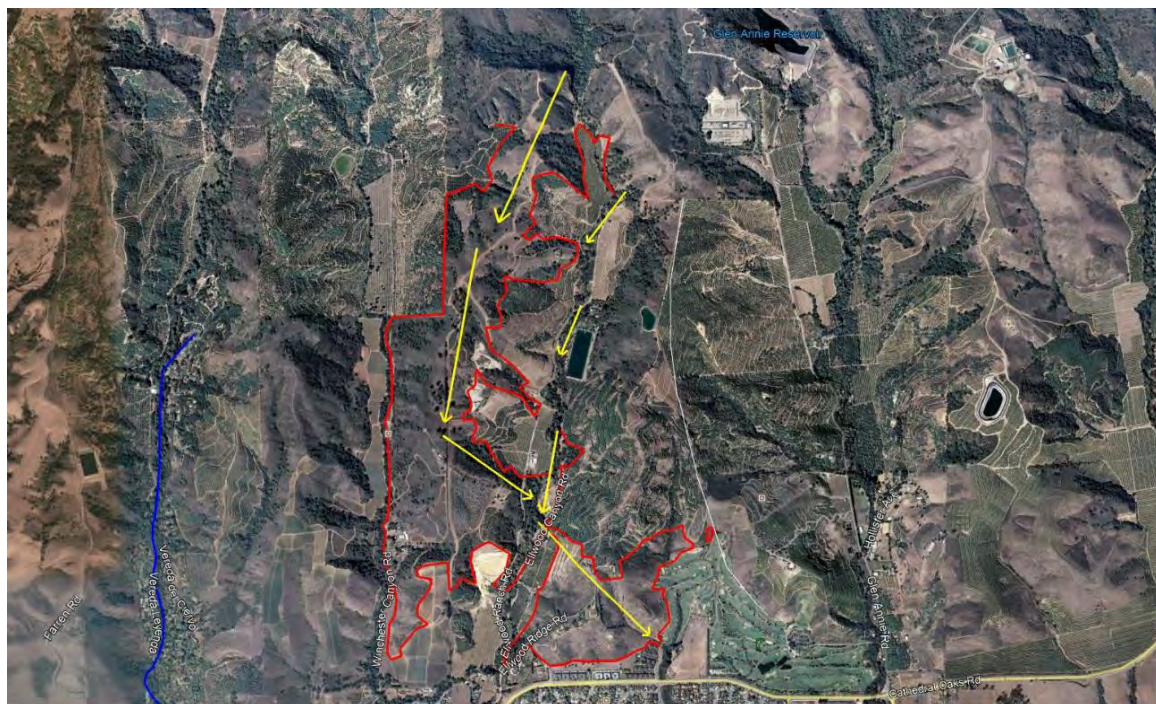


Figure 55. Paths for north wind-driven fires connecting wildlands (red outlines) to Northgate Drive eucalyptus stand. Note that these paths may also constitute important wildlife corridors and should not be converted to orchards or cleared because doing so could fragment wildlife corridors and habitats. Google Earth. 2019.



Figure 56 Note the proximity of the vehicles to the riparian vegetation, some vehicles' orientation with headlights directed into the riparian habitat, and lack of a barrier to keep vehicles out of the El Encanto Creek SPA. Note also dry annual weeds which could be ignited by vehicles' exhaust pipes and catalytic converters. Max Kalber. October 2020.

Unnamed Tributary to Devereux Creek on Calle Real

- **Problem Devereux 2:** An unnamed tributary to Devereux Creek located north of Calle Real at Brandon Drive features a concrete-lined swale and is dominated by unmaintained, invasive, flammable blue gum eucalyptus trees. Runoff from an adjacent parking lot is directed into this tributary by a concrete lined storm drain. (Figures 73 and 74) These conditions increase fire hazards in the neighborhood, degrade watershed functions and values and displace what could otherwise be a natural coast live oak riparian woodland habitat surrounding a natural drainage.
 - **Recommendation Devereux 2A:** Convert the concrete-lined channel to an earthen drainage with native groundcovers and wildflowers to allow for improved stormwater infiltration into the soil and groundwater recharge. Replace the flammable and unmaintained eucalyptus trees with coast live oak trees and oak woodland shrubs, such as toyon (*Heteromoles arbutifolia*) and lemonade berry (*Rhus integrifolia*). Plant willows (*Salix* spp.) and riparian understory plants along the drainage. Conduct tree

replacement in a phased manner to minimize disturbance, avoiding bird nesting season, and restore the open space to a native oak savannah or woodland setting. Consider extending nearby trails into the area.



Figure 73. Unnamed tributary to Devereux Creek in open space with invasive flammable eucalyptus trees and a concrete-lined channel. Calle Real and Brandon Drive. Google Earth. 2019.

- **Community Benefits:** Recommendation Devereux 2A would reduce fire hazards, improve wildlife habitat, improve water quality by increasing infiltration, and could enhance passive recreation in the open space.



Figure 74. A concrete-lined storm drain directs parking lot runoff into the tributary without any opportunity for infiltration. Brian Trautwein. October 2020.

- **Next Steps:** Coordinate with City of Goleta Public Works Department Parks and Open Space Division, the Conservancy, SBCFD, UC Coop, and CRCD to discuss Recommendation Devereux 2A. Conduct neighborhood outreach and education. Obtain funding. Develop an oak woodland or savannah restoration plan.

Sperling Ellwood Mesa Preserve Monarch Butterfly Overwintering Site

- **Problem Devereux 6:** Devereux Creek in the Sperling Ellwood Mesa Preserve is located in the WUI.³¹⁰ The Creek and riparian area are dominated by invasive, exotic, flammable eucalyptus trees which support several critical Monarch Overwintering Sites and autumnal “roost” or “aggregation” sites, which are designated ESHA by the City.³¹¹ (Figure 81) The United States Fish and Wildlife Service determined on December 15, 2020 that listing the monarch butterfly under the federal ESA list of “threatened and endangered is warranted but precluded.”³¹² Western monarch populations have dropped by 99% since the 1980s.³¹³ The eucalyptus trees also support raptor nest and roost sites.³¹⁴ While essential for monarch butterfly overwintering, eucalyptus trees also displace native riparian habitat, which is essential for special-status birds and wildlife, suppress native plants, are highly flammable, and consume tremendous amounts of water potentially reducing flows in Devereux Creek.³¹⁵

³¹⁰ Santa Barbara County (2017b) at 5-12.

³¹¹ Western Monarch (2021); *See also* City of Goleta (2006) Policy CE 4.2 at 4-18.

³¹² United States Fish and Wildlife Service, *U.S. Fish and Wildlife Service Finds Endangered Species Act Listing for Monarch Butterfly Warranted but Precluded* available at <https://www.fws.gov/news/ShowNews.cfm?ref=u.s.-fish-and-wildlife-service-finds-endangered-species-act-listing-for-&ID=36817> (December 15, 2020).

³¹³ Washing State University, *Scientists look to public for clues to recover monarch butterflies* available at <https://news.wsu.edu/2021/02/11/scientists-look-public-clues-recover-monarch-butterflies/> (February 11, 2021) (“Washington State University (2020)”).

³¹⁴ Santa Barbara County, *Goleta Community Plan*, Policy BIO-GV-6 (August 1993).

³¹⁵ EDC (2019) at 62 - 63; *See also* Tree Club, *Eucalyptus* webpage stating, “They become competitors to water for animal and human consumption. The water guzzling tree is taken blame for drying out many water sources across the globe. As we continue to plant eucalyptus on watersheds, we will continue to experience water shortages and it will even become a bigger problem as climate change hit [sic] us,” available at <https://d3gxp3iknbs7bs.cloudfront.net/attachments/737ee80b-eb1f-453c-bc79-baf7e6d70c7e.pdf> (February 6, 2021) (“Tree Club (2021)”); *See also* Liza Gross, KQED, *Eucalyptus: California Icon, Fire Hazard and Invasive Species* stating, “Blue gum eucalyptus is one of the most fire-intensive plants,” says Klatt. Trees not only put a lot of fuel on the ground as they shed bark, leaves and twigs, but in intense fires, volatile compounds in foliage cause explosive burning. “Once bark catches fire, it gets blown ahead of the flame front and drops burning embers by the tens of thousands per acre in the urban community,” available at <https://www.kqed.org/science/4209/eucalyptus-california-icon-fire-hazard-and-invasive-species> (June 12, 2013).

- **Recommendation Devereux 6A:** Selectively remove dead, dying, and diseased eucalyptus from the bed and banks of Devereux Creek and tributaries within the northern, central, and western portions of the Preserve as an ongoing program to reduce fire hazards while maintaining Monarch Overwintering Sites 2747, 2749, 2750, 2752, and 2753 consistent with Goleta’s Community Wildfire Protection Plan (“CWPP”).³¹⁶ Portions of three of these five sites were considered active in the CWPP: the southern portion of 2747, the northern portion of 2749, and the central-southern portion of 2751.³¹⁷ Retain dead, dying, and diseased eucalyptus, and other exotic plant species only if, “such plants provide critical habitat for monarch butterflies, raptors, or other protected animals.”³¹⁸



Figure 81. The Sperling Ellwood Mesa Preserve supports large groves of eucalyptus trees that host Monarch Butterfly Overwintering Sites Number 2747, 2749, 2750, 2751, 2752, and 2753. Google Earth. 2019.

³¹⁶ City of Goleta, *Community Wildfire Protection Plan* at 70-72 available at <https://www.cityofgoleta.org/home/showdocument?id=6223> (March 20, 2012) (“City of Goleta (2012)”).

³¹⁷ *Id.* Figure 12.

³¹⁸ City of Goleta (2006) Policy CE 2.6(d) at 4-15.

The City of Goleta General Plan / CLUP Policy CE 4.4 states, “Removal of vegetation within monarch ESHAs shall be prohibited, except for minor pruning of trees or removal of dead trees and debris that are a threat to public safety.”³¹⁹ In areas adjacent to homes, which includes the Devereux Creek corridor within the northern edge of Site 2749, “Understory, ladder fuel and dead-downed fuel removal are acceptable hazard reduction actions. Some level of careful thinning of the smaller or unhealthy trees in the first 30-feet of the grove is recommended with balancing the wind buffering needs of the aggregation.”³²⁰ Other acceptable actions include reducing “ladder fuels by pruning lower branches approximately 6 ft. up, or lower 1/3 of tree height on smaller” eucalyptus trees.³²¹

Undertake this work between April 1 and September 15 to avoid the monarch butterfly overwintering period.³²² Retain a biological monitor with expertise in local avian species, avoid the raptor nesting season, and conduct nesting bird surveys to avoid and minimize impacts to nesting.³²³ Conduct careful “site-specific consultation” coordination between butterfly, wildland fire, and wildlife biologists to adapt management is necessary.³²⁴ Conduct any removals, thinning, and pruning in a phased manner over multiple years to minimize visual disturbance to Preserve users.

Undertake “restoration of native riparian vegetation”³²⁵ along Devereux Creek and its tributaries in the Sperling Ellwood Mesa Preserve, including species which are compatible with, or which benefit, monarch butterfly, such as coast live oak (*Quercus agrifolia*), arroyo willow (*Salix lasiolepis*), California bay laurel (*Umbellularia californica*), and western sycamore (*Platanus racemosa*). Plant native shrubs such as narrow leaf

³¹⁹ *Id.* Policy CE 4.4 at 4-19.

³²⁰ City of Goleta (2012) at 71.

³²¹ *Id.* Table 14 at 72.

³²² *Id.* at 70.

³²³ City of Goleta (2006) Policy CE 8.4 at 4-25; *See also* State of California Department of Fish and Game, *Initial Statement Of Reasons For Regulatory Action (Pre-publication of Notice Statement) Add Section 681, Title 14, California Code of Regulations Re: Bird Nest Regulations* available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=105302&inline> (June 16, 2015); *See also* California Fish and Game Code Section 3503 stating ““It is unlawful to take, possess, or needlessly destroy the nest or eggs of any game bird or nongame bird.”

³²⁴ City of Goleta (2012) at 70.

³²⁵ City of Goleta (2006) Policy CE 2.6(d) at 4-15.

milkweed (*Asclepias fascicularis*),³²⁶ and fall-flowering nectar plants such as coyote brush (*Baccharis pilularis*) and mulefat (*Baccharis salicifolia*) which benefit overwintering monarch butterflies.³²⁷ (Figure 82). Plant additional compatible native riparian understory species, including native understory species such as wild blackberry (*Rubus ursinus*) and wild rose (*Rosa californica*).

- **Community Benefits:** Recommendation Devereux 6A would restore and enhance native riparian habitat, reduce fire danger in the Preserve and nearby residential neighborhoods, preserve and/or enhance conditions for monarch butterfly and other wildlife species, including birds, and potentially increase the availability of freshwater for wildlife, Devereux Creek, and Devereux Slough.

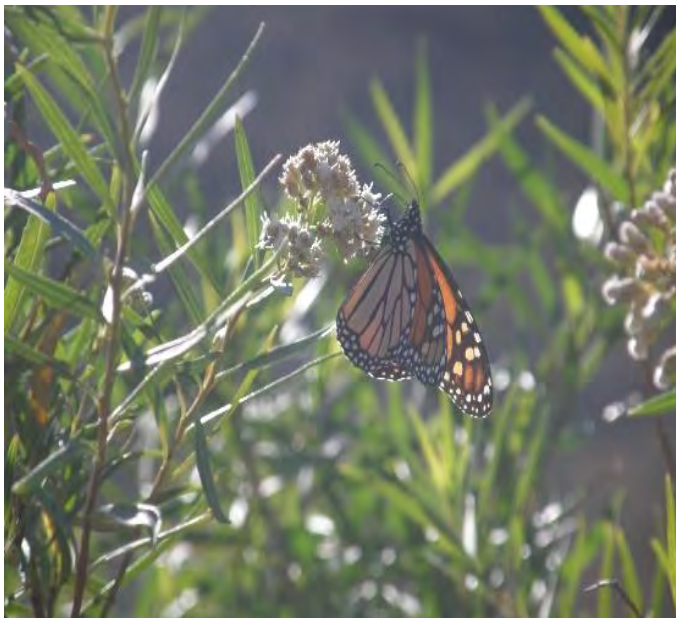


Figure 82.
Monarch
butterfly
feeding on
mulefat
nectar at
Gaviota State
Park. Brian
Trautwein.
2009.

- **Next Steps:** Meet onsite with City Parks and Open Space Division, CCBER, the Conservancy, CRCD, UC Coop, habitat restoration partners such as CIR, monarch butterfly biologists, wildlife biologists, SBCFD wildland fire experts, neighborhood representative, and advocates for eucalyptus to discuss the concept and evaluate feasibility.

³²⁶ Jaymee Marty and Emily Zakowski, Environmental Defense Fund, *Monarch Butterfly Habitat Creation in California, A Technical Field Guide* available at <https://www.edf.org/sites/default/files/content/Monarch-Butterfly-Habitat-Creation-in-California-A-Technical-Field%20Guide.pdf> (February 5, 2021) (“EDF (2021)”); *See also* CalFlora Narrow-leaf milkweed webpage available at https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=747 (February 5, 2021).

³²⁷ EDF (2021) Table 3 at 9.

Glen Annie/Tecolotito Creek Watershed

- **Problem Glen Annie 2:** A stand of invasive blue gum eucalyptus trees (*Eucalyptus globulus*) is present on a private ranch or USBR property located in the WUI between the northern terminus of Glen Annie Road and Glen Annie Dam.³²⁸ (Figure 89) A second stand is located at the Glen Annie Road electrical substation. The second stand appears to have been planted as a visual screen south of the electrical substation. (Figure 89) The stands may elevate fire hazards during wind-driven fires in Glen Annie Canyon by emitting blowing embers. The trees may also spread into Glen Annie Creek's riparian forest displacing native riparian trees and may consume groundwater which would otherwise contribute to stream flows and increase live fuel moisture levels in the riparian woodland along Glen Annie Creek.
 - **Jurisdiction:** Santa Barbara County and/or USBR
 - **Regulatory Jurisdiction:** CDFW



Figure 89. Highly flammable, invasive eucalyptus trees in the WUI directly below Glen Annie Dam and south of the Edison electrical substation may have been planted to visually screen the facilities. Google Earth, 2019.

³²⁸ Google Earth (2019); See also Santa Barbara County (2017b) at 5-12.

- **Recommendation Glen Annie 2A:** Replace the eucalyptus trees with coast live oak (*Quercus agrifolia*), western sycamore, and other native riparian woodland and oak woodland trees.
- **Community Benefits:** Recommendation Glen Annie 2A could reduce fire hazards in Glen Annie Canyon, allow for restoration of native riparian and oak woodland communities along the Creek below the dam, and reduce the threat of eucalyptus spread into native oak and riparian woodlands.
- **Next Steps:** Identify the landowner(s) and coordinate with the landowner(s), SBCFD, CRCDD, Conservancy, Southern California Edison, and UC Coop to develop a plan to replace the eucalyptus trees with appropriate native riparian and oak woodland vegetation grown from local seed stock in the vicinity of the Glen Annie Road dead-end.

Cathedral Oaks Road and Glen Annie Road

- **Problem Glen Annie 5:** A road construction staging area has persisted at the northwest corner of Cathedral Oaks Road and Glen Annie Road within the Glen Annie Creek riparian habitat since at least 2005. The Creek buffer is used to stockpile sediment, rocks, asphalt, and dead vegetation.³²⁹ (Figure 92) It is also subject to illegal dumping of trash, soil, rock, and debris.³³⁰ A roughly twenty-foot-tall pile of asphalt has been left near the Creek in this location since prior to August 2019.³³¹ (Figures 92 and 94) Straw wattles intended to contain the asphalt do not appear to be functioning properly. The highly visible area is aesthetically impaired. It supports nonnative weedy vegetation. Invasive eucalyptus trees (*Eucalyptus globulus*) are present within and on both sides of Glen Annie Creek, increasing the fire hazard in the WUI near Dos Pueblos High School.

³²⁹ EDC (2019) at 78-80.

³³⁰ Emails from Dougal House, Certified Arborist and Glen Annie creek Neighbor, to Brian Trautwein, Environmental Analyst / Watershed

Program Coordinator, EDC (August 17, August 28, and September 10, 2017).

³³¹ Google Earth (August 2019).



Figure 92. A staging area for road projects (white polygon) at the Cathedral Oaks Road and Glen Annie Road intersection includes an improperly contained and uncovered asphalt stockpile (black polygon), eucalyptus trees (red polygons), other invasive plants, and dumped dirt and debris. Google Earth. 2019.



Figure 93. Staging area along east side of Glen Annie Creek at Cathedral Oaks Road and Glen Annie Road. Looking west from Glen Annie Road towards Glen Annie Creek. Jem Unger-Hicks. 2018.

- **Jurisdiction:** Santa Barbara County
- **Recommendation Glen Annie 5A:** Remove the asphalt stockpile or relocate it to at least one hundred feet from the eastern edge of riparian vegetation, cover it with tarps, and properly contain it with silt fencing with the base of the silt fencing trenched eight to twelve inches underground.³³² (Figure 95)



Figure 94. Asphalt stockpiled near Glen Annie Creek and Cathedral Oaks Road with improperly installed coconut fiber coir bundles which are failing to contain the asphalt and apparently allowing polluted stormwater runoff to enter Glen Annie Creek. Note asphalt protruding from under coir. Brian Trautwein. 2019.

Remove the dumped soil, debris, and trash. Eradicate invasive nonnative such as tree tobacco (*Nicotiana glauca*) and eucalyptus. Restore and protect a minimum one-hundred-foot buffer from the eastern edge of the riparian corridor. Replace nonnative plants with native riparian species including coast live oak (*Quercus agrifolia*), western sycamore (*Platanus racemosa*), and riparian and oak woodland understory species such as wild blackberry (*Rubus ursinus*), hummingbird sage (*Salvia spathacea*), and mugwort (*Artemisia douglasiana*) propagated from seeds and/or cuttings collected at the site.

Retain a smaller but sufficient staging area located outside of the one-hundred-foot buffer for authorized City and County Public Works projects. Fence both the restored creek buffer and the City-County staging area with post and rail fencing to prevent private vehicle entry. Install locked gates for use by SBCFCWCD and SBCFD, and post “No Dumping” signs.³³³

³³² See e.g., Do it Yourself Website, *How to Install a Silt Fence* available at <http://www.co.forest.wi.gov/docview.asp?docid=23022&locid=145> (April 2, 2021).

³³³ EDC (2019).

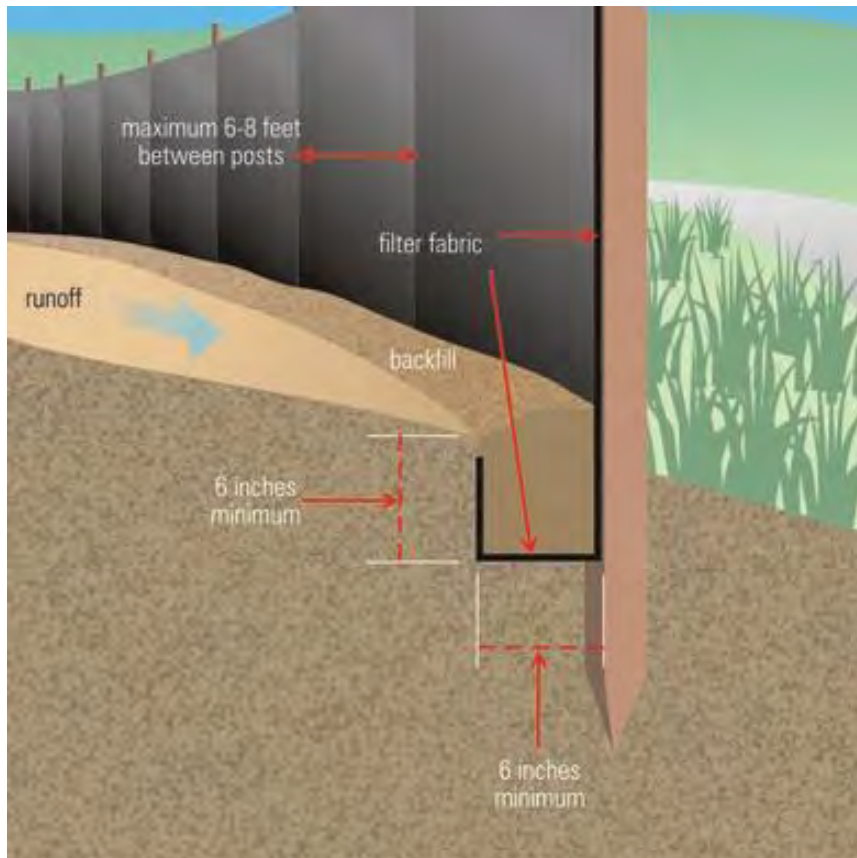


Figure 95. Install silt fencing trenched underground to ensure soil, water, asphalt, or other stockpiled materials do not wash underneath fence. Pinterest.

Wikipedia.

<https://www.pinterest.com/pin/502221795917374267/> January 31, 2021.

- **Community Benefits:** The replacement of eucalyptus trees with native riparian trees would reduce fire hazards in the WUI and enhance the riparian forest health. Cleaning up the staging area and planting native oak and riparian forest trees in the buffer would improve the aesthetic quality of the area, increase filtration of pollutants, reduce sedimentation, improve water quality, and enhance bird and wildlife habitat. The one-hundred-foot setback would protect Glen Annie Creek from encroachment, litter, sedimentation, and asphalt runoff. The fence would prevent trespassing and dumping. Relocating the asphalt to the County Roads maintenance yard, or alternately, moving it away from the creek, tarping it, and installing silt fencing would prevent asphalt and polluted runoff from entering Glen Annie Creek and its buffer.

- **Next Steps:** Identify the landowners on both sides of the Creek. Coordinate with the owner(s) and SBCPW Transportation Division to assess the feasibility of moving the staging area outside the Creek buffer, restoring Glen Annie Creek by replacing eucalyptus and nonnative plants with native species, fencing the buffer, and removing or relocating and stabilizing, containing, and covering the asphalt. Use EDC's oak tree planting project on Cieneguitas Creek, at a similar staging area at the northwest corner of Calle Real and El Sueno Road, as a model. (Figure 96) Coordinate with SBCFD, UC Coop, Conservancy, and CRCD regarding removal of eucalyptus to reduce fire hazards.



Figure 96. Five coast live oak saplings installed by EDC, UCC, and Goleta Valley Beautiful, in cooperation with SBCPWD Transportation Division, and wood-rail fence installed by SBCPWD east side of Cieneguitas Creek at El Sueno and Calle Real. Brian Trautwein. January 2021.

Los Carneros Creek Watershed

Middle Watershed near Edison Catway Road

- Problem Los Carneros 1:** A stand of invasive eucalyptus trees occurs in the WUI within Los Carneros Canyon.³³⁴ The stand exacerbates fire hazards, displaces native chaparral, riparian, and coast live oak forest habitat, and may reduce Creek flows due to eucalyptus trees' high levels of water usage and evapotranspiration. (Figure 109)

A water tank located in this area indicates that there may be water wells and/or creek diversions present. (Figure 109) Wells or diversions may potentially impact baseflows in Los Carneros Creek.



Figure 109. A stand of eucalyptus trees (red polygon) is present near Los Carneros Creek. An apparent water tank is located up-gradient from irrigated orchards near Los Carneros Creek indicating the potential presence of a stream diversion(s) and/or water wells near the Creek.

³³⁴ Santa Barbara County (2017b) at 5-12.

- **Jurisdiction:** USFS, County of Santa Barbara
- **Recommendation Los Carneros 1A:** Replace the eucalyptus trees in a phased manner with native coast live oak trees, native oak woodland vegetation, riparian forest vegetation, and chaparral.
- **Recommendation Los Carneros 1B:** Investigate if there is a Creek diversion(s) present, or a water well(s) tapping the Creek's underflow. Determine whether the water supply requires County, CDFW, or SWRCB permits.
- **Community Benefits:** Recommendation Los Carneros 1A would restore riparian forest and oak woodland habitat along Los Carneros Creek, reduce potential fire hazards and fire spread in the WUI, improve conditions for wildlife, and may increase the baseflows in Los Carneros Creek to benefit aquatic habitat and species, such as California red-legged frog (*Rana aurora draytonii*) and western pond turtle (*Emys marmorata pallida*).
- **Next Steps:** Identify and contact the landowner to assess the feasibility of replacing the eucalyptus trees. Coordinate with CRCDD, Conservancy, UC Coop, and SBCFD regarding potential replacement of the eucalyptus trees with less flammable native oak and riparian forest species.

Inquire with the landowners about the source of water for the water tank and orchards. Consider contacting CDFW and the SWRCB to ascertain whether permits are required for any Creek diversions and shallow riparian wells. Seek to ensure adequate baseflows to sustain riparian hydrology so that the riparian woodland may better inhibit east-west spread of fires in the Los Carneros Creek Watershed.

Cathedral Oaks Road to Highway 101

- **Problem Los Carneros 2:** Invasive blue gum eucalyptus trees present fire hazards in the WUI and are displacing riparian forest in Los Carneros Creek and a tributary to Tecolotito Creek within Bishop Ranch between Los Carneros Road and Cathedral Oaks Road.³³⁵ (Figure 110) Eucalyptus trees produce allelopathic chemicals which suppress native plant species, may reduce stream flow, and may harm water quality.³³⁶ The southern reach of Los Carneros Creek on Bishop Ranch is designated as Monarch Overwintering Site 2578 coinciding with the southeastern patch of eucalyptus trees.
 - **Jurisdiction:** City of Goleta
 - **Recommendation Los Carneros 2A:** Curtail the spread of eucalyptus trees at this location. Maintain conditions for monarch butterflies in Monarch Overwintering Site 2758.³³⁷ Manage eucalyptus trees as recommended in the City of Goleta CWPP.³³⁸ Plant native riparian trees and understory vegetation along the Creek, focusing on native species which enhance conditions for monarch butterfly overwintering.



Figure 110. Two stands of flammable eucalyptus trees are crowding out riparian forest in Los Carneros Creek (a monarch butterfly overwintering site) on the right side of the image. Eucalyptus trees are displacing the riparian forest in the unnamed tributary in the central part of the site. Google Earth. 2019.

³³⁵ Santa Barbara County (2017b) at 5-12.

³³⁶ Chaojun Chu, P.E. Mortimer, Hecong Wang, Yongfan Wang, Xubing Liu, Shixiao Yu, *Allelopathic effects of Eucalyptus on native and introduced tree species*, Forest Ecology and Management, Volume 323, 2014, Pages 79-84, ISSN 0378-1127, <https://doi.org/10.1016/j.foreco.2014.03.004> (2014); See also John A. Stanturf, Eric D. Vance, Thomas R. Fox, Matias Kirst, *Eucalyptus beyond Its Native Range: Environmental Issues in Exotic Bioenergy Plantations*, International Journal of Forestry Research, vol. 2013, Article ID 463030, 5 pages, 2013. <https://doi.org/10.1155/2013/463030> (2013) (“Stanturf, et al (2013)”).

³³⁷ Western Monarch (2021); See also City of Goleta (2012).

³³⁸ City of Goleta (2012) at 70 - 72.

- **Community Benefits:** Recommendation Los Carneros 2A would reduce fire hazards in the WUI, enhance the native riparian forest and wildlife habitat, and may improve stream flows, water quality, and monarch overwintering conditions.
- **Next Steps:** Contact the landowner to gauge interest in managing the eucalyptus and planting native plants along Los Carneros Creek. Coordinate with City of Goleta, SBCFD, CRCD, the Conservancy, and UC Coop to identify funding to develop and implement a plan for managing the eucalyptus trees.

Cathedral Oaks Road near the Intersection with North Los Carneros Road

- **Problem Los Carneros 3:** Several flammable invasive plant species, including cape ivy (*Delairea odorata*), eucalyptus trees, artichoke thistle (*Cynara cardunculus*), and giant reed (*Arundo donax*) occur in the WUI on the north side of Cathedral Oaks Road west of Los Carneros Road and adjacent to Los Carneros Creek.³³⁹ (Figure 111) These plants, which were planted between 2002 and 2005, apparently to create a visual screen for a greenhouse operation.³⁴⁰ These invasive, flammable plants threaten to spread into Los Carneros Creek and the WUI.



Figure 111. Vegetation screening greenhouses from Cathedral Oaks Road poses a fire risk in the WUI and threatens to spread into Los Carneros Creek. Google Earth. 2019.

³³⁹ Santa Barbara County (2017b) at 5-12.

³⁴⁰ Google Earth (1994 – 2005).

- **Jurisdiction:** County of Santa Barbara
- **Recommendation Los Carneros 3A:** Replace the invasive and flammable plant species at this location with less flammable native riparian and oak woodland vegetation grown from seeds collected onsite, while retaining visual screening of the greenhouses.
- **Community Benefits:** Recommendation Los Carneros 3A would convert this area to native oak and/or riparian forest, improving wildlife habitat and reducing the threat of wildfires in the WUI and nearby neighborhood.
- **Next Steps:** Contact the landowner to gauge interest in replacing invasive plant species with native species. Coordinate with Santa Barbara County Weed Management Agency (“SBCWMA”), CRCDD, SBCFD, the Conservancy, UC Coop, and other potential partners, such as CIR, to investigate the feasibility of replacing the flammable invasive plant species with less flammable native riparian and/or oak woodland species in the WUI.
- **Problem Los Carneros 9:** A grove of invasive nonnative blue gum eucalyptus trees is encroaching into the riparian habitat of Los Carneros Creek in the WUI between Highway 101 and the UPRR tracks.³⁴¹ (Figure 124). This location is adjacent to the proposed Heritage Ridge housing project.
 - **Jurisdiction:** UPRR, City of Goleta, and Caltrans
 - **Recommendation Los Carneros 9A:** Replace the eucalyptus trees with native riparian forest trees, including western sycamore (*Platanus racemosa*) and coast live oak trees (*Quercus agrifolia*).
 - **Community Benefits:** Replacing eucalyptus trees near Los Carneros Creek with native riparian trees will enhance the health of the riparian forest habitat and reduce fire hazards in the WUI near the proposed Heritage Ridge project site.

³⁴¹ Santa Barbara County (2017b) at 5-12.

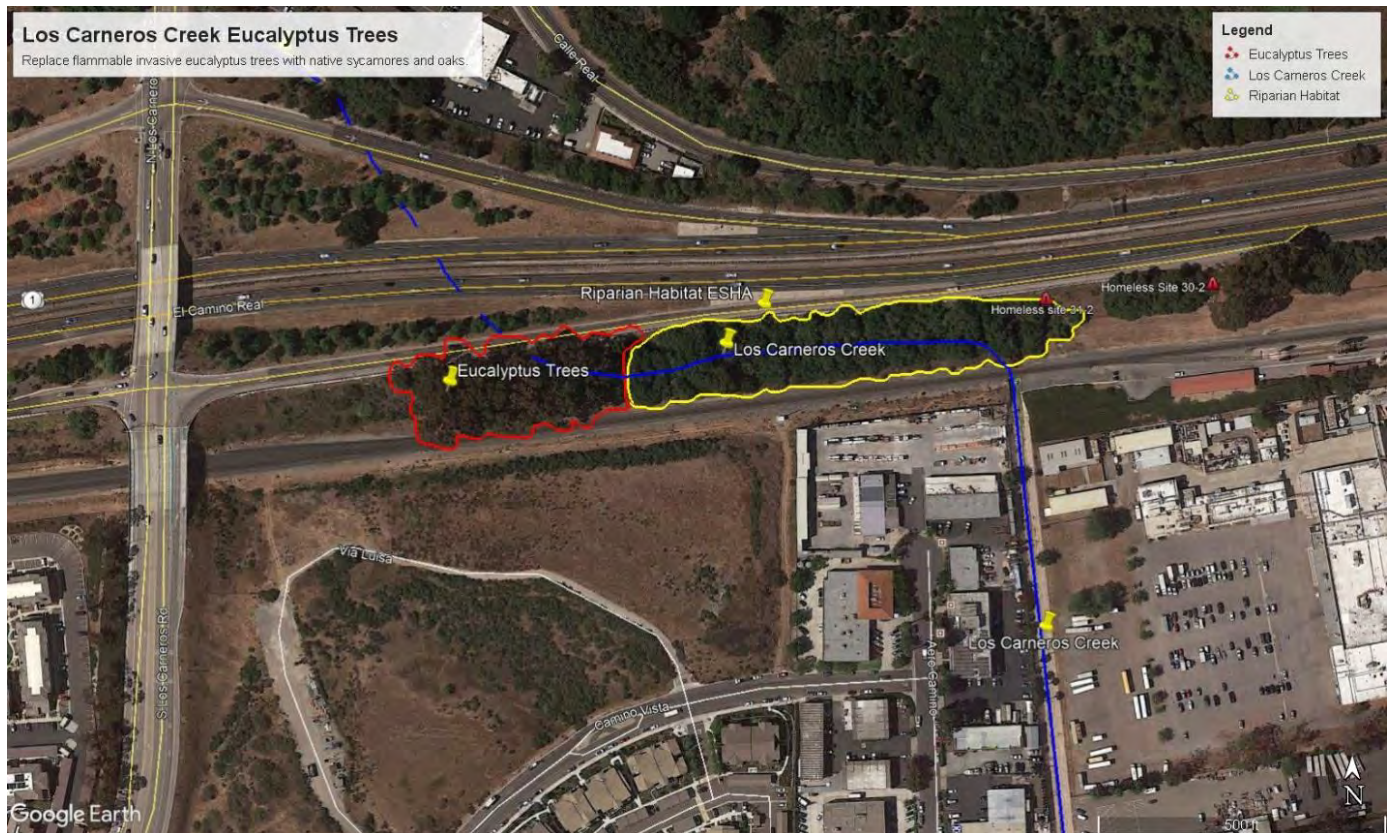


Figure 124. A grove of eucalyptus trees is encroaching into the native riparian woodland in the WUI between Highway 101 and the UPRR tracks. The flammable eucalyptus trees pose a fire hazard especially given homeless camps in the area and a proposed housing development to the south of the tracks.

- **Next Steps:** Determine which agencies have jurisdiction over this area. Meet with the agencies to present this recommendation. Upon concept approval, establish project lead agency, involve nonprofit habitat restoration groups, such as CIR, and seek grant funding from Caltrans, other partners, and grants to develop and implement a tree replacement plan.

San Pedro Creek Watershed

City of Goleta Stonebridge Open Space on San Pedro Creek at Cathedral Oaks Road

- Problem San Pedro 1:** The City of Goleta's Stonebridge Open Space, located in the WUI³⁴² immediately south of Cathedral Oaks Road and east of San Pedro Creek, is landscaped with non-native pine trees including, some of which appear to be unhealthy, non-native oak trees, unmaintained carob trees (*Ceratonia siliqua*), and Peruvian pepper trees (*Schinus molle*). (Figures 125 and 126) These conditions increase the fire hazard in the WUI and surrounding neighborhoods.³⁴³

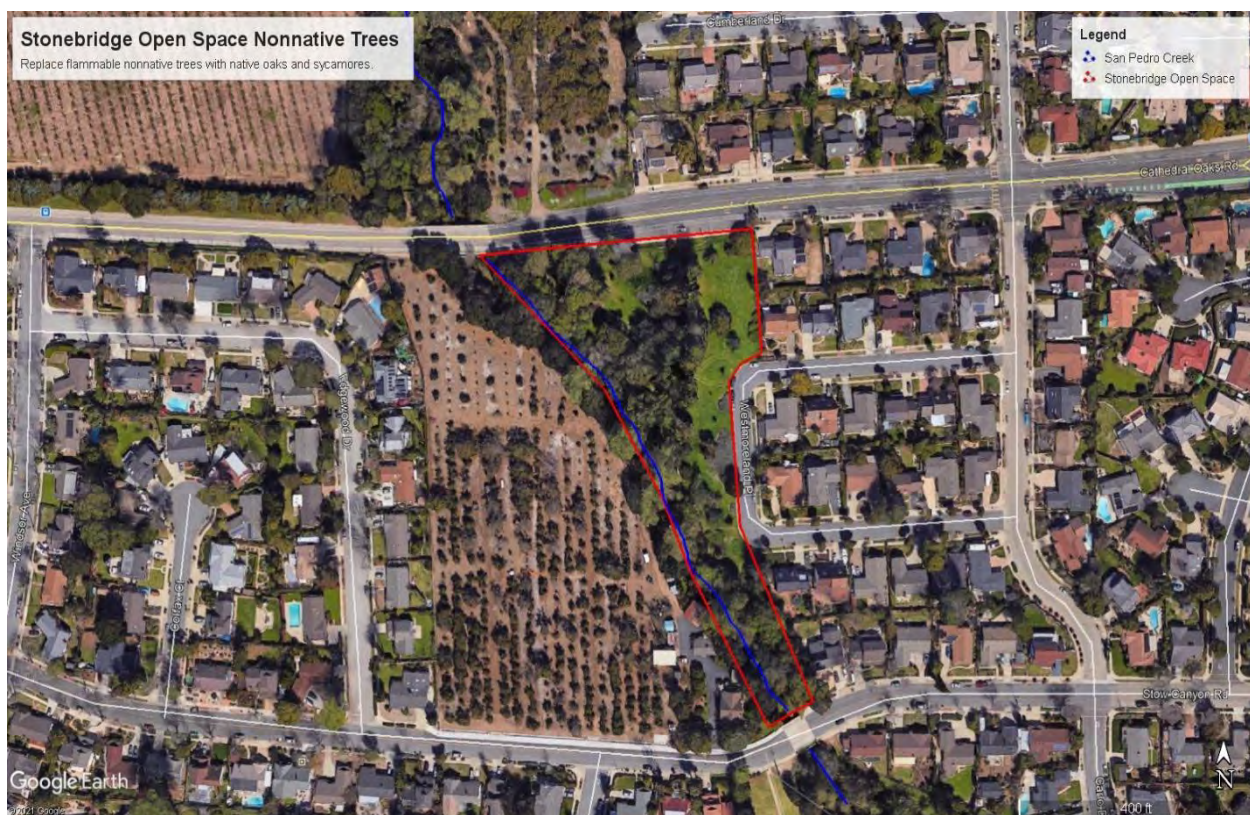


Figure 125. The terrace portion of the City of Goleta's Stonebridge Open Space along San Pedro Creek south of Cathedral Oaks is landscaped with nonnative pine trees, several of which appear to be unhealthy, nonnative oak trees, and nonnative carob trees. Several invasive species occur in the riparian habitat. Google Earth. 2019.

³⁴² Santa Barbara County (2017b) at 5-12.

³⁴³ EDC (2019) at 96.

The site supports nonnative Aleppo Pine trees, which appear to be propagating and spreading into San Pedro Creek’s riparian habitat, including, “about 9 saplings of *Pinus halepensis* (Aleppo Pine) in the NW area.”³⁴⁴ The oak trees may hybridize with coast live oaks.³⁴⁵ There are also “10 large and no observed saplings of *Pinus canariensis* (Canary Island Pine) starting in the NE area and continuing in a southerly direction.”³⁴⁶ Other non-native invasive plant species such as Algerian ivy (*Hedera canariensis*), Shamel ash (*Fraxinus uhdei*), umbrella plant (*Cyperus involucratus*), periwinkle (*Vinca major*), and mint (*Mentha* spp.) are present in and around the riparian woodland and creek bed, degrading the riparian woodland habitat.³⁴⁷

- **Jurisdiction:** City of Goleta



Figure 126. Twenty nonnative pine trees including Italian stone pines, occur along San Pedro Creek in City of Goleta’s Stonebridge Open Space south of Cathedral Oaks Road. Brian Trautwein. December 2020.

³⁴⁴ Dougal House, Certified Arborist, email to Brian Trautwein, Environmental Analyst/Watershed Program Coordinator, EDC (March 4, 2021) (“House (2021)”).

³⁴⁵ Oaktopia website available at <https://www.oaktopia.org/diversification-oaks> (February 26, 2021).

³⁴⁶ House (2021).

³⁴⁷ EDC (2019) at 96 -97.

- **Recommendation San Pedro 1A:** Develop a landscape plan for the Stonebridge Open Space. The plan should include replacement of the non-native oak trees, and phased replacement of the pine trees and with native coast live oak woodland and savannah species, including shrubs and understory plants, such as toyon (*Heteromeles arbutifolia*), coffee berry (*Frangula californica*), and hummingbird sage (*Salvia spathacea*) beneath and between coast live oak trees (*Quercus agrifolia*) in the terrace portion of the site. Native plants should be propagated from seeds or cuttings collected near San Pedro Creek and Cathedral Oaks Road. Prune and maintain, or remove, the carob trees. Plant, prune, and maintain coast live oak trees in a savannah setting to ensure visibility of the open space from Cathedral Oaks Road and from the neighborhood to the east (e.g., Westmoreland Place). Enhance existing trails with decomposed granite.

Replace nonnative invasive species, including Shamel ash, periwinkle, and Algerian ivy in the riparian woodland along San Pedro Creek with native species such as western sycamore (*Platanus racemosa*), wild rose (*Rosa californica*), bitter gooseberry (*Ribes amarum*), fuchsia-flowered gooseberry (*Ribes speciosum*), mugwort (*Artemisia douglasiana*), and wild blackberry (*Rubus ursinus*) grown from propagules collected in san Pedro Creek near the open space.
- **Community Benefits:** Recommendation San Pedro 1A would enhance San Pedro Creek’s riparian and oak woodland plant communities, including the adjoining terrace area. Replacing pine trees with native species in an oak savannah setting would reduce wildfire threats in the neighborhood located just south of the WUI. Replacing or pruning unmaintained carob trees and replacing unhealthy pine trees with native plant species would improve the aesthetic quality of the area. Replacement with native plants will increase the value of the site for birds and wildlife.³⁴⁸

³⁴⁸ San Pedro Creek is an important wildlife movement corridor, even serving mountain lions. City of Goleta (2020) Appendix E.3 at E.3-1 available at <https://www.cityofgoleta.org/home/showpublisheddocument?id=24461>.

- **Next Steps:** Contact City of Goleta Parks and Open Space Division regarding the feasibility of developing a fire-safe landscape plan, including phased replacement of pine trees and nonnative oak trees with coast live oak trees, pruning or removal of carob trees, and planting native trees, shrubs, and understory plants near the creek. Coordinate with City of Goleta, Conservancy, CRCDD, SBCFD, UC Coop, and CIR to develop a fire-safe landscape/restoration plan. Obtain estimates for implementing the plan. Identify grants and funding to develop and implement the plan.



Figure 127. Invasive nonnative plants, including Algerian ivy (*Hedera canariensis*) and Shamel ash (*Fraxinus uhdei*) should be removed from the riparian portion of the Stonebridge Open Space. Max Kalber. October 6, 2020.

- Problem San Pedro 3:** An old, wooden agricultural storage building is perched on piles dangerously above San Pedro Creek's west bank south of Cathedral Oaks Road. (Figures 129 and 130) Its wooden foundation is supported by piers within the riparian forest. The building may contain agricultural products, e.g., fertilizers, pesticides, gasoline, etc., that could harm fish and wildlife, and pollute the Creek and Goleta Slough if the building were to collapse into the Creek, e.g., during a storm, fire, or earthquake.³⁴⁹



Figure 129. An agricultural storage building (outlined in red) is perched over the west bank of San Pedro Creek (blue line). Google Earth 2019.

³⁴⁹ EDC (2013) at 59 – 60.



Figure 130. Wooden agricultural storage building perched within San Pedro Creek riparian forest. Brian Trautwein. 2013.

- **Jurisdiction:** City of Goleta
- **Regulatory Jurisdiction:** CDFW
- **Recommendation San Pedro 3A:** Work with the owner and interested parties on a voluntary project to remove and relocate the building away from the Creek, and, if possible, outside of the San Pedro Creek SPA.
- **Community Benefits:** Recommendation 3A would increase public safety, reduce liability, create an opportunity to restore the Creek bank, and remove an old, flammable, wooden structure from the Creek's riparian forest within the WUI, and eliminate a potential threat to clean water in San Pedro Creek. It would potentially prevent dangerous pollutants, such as fertilizers, pesticides, and fuel from being discharged into the Creek, the Goleta Slough, and local beaches.
- **Next Steps:** Contact the landowner and seek support for a voluntary project to relocate the building away from the Creek bank. Meet with the landowner, City of Goleta Public Works, Planning and Environmental Review, and Neighborhood Services Departments, the Conservancy, and the CRCDD. Other partners may include CDFW, County Agricultural Commissioner, SBCFCWCD, and UCC.

Old Tires Stacked on Creek Banks

- **Problem San Pedro 4:** The pipe and wire revetments located on the banks of San Pedro Creek are intended to reduce erosion of the Creek’s banks. These structures were not installed by the SBCFCWCD, and it is unclear what entity installed them.³⁵⁰ The revetments are being undercut by the Creek leading to bank erosion. Old car tires have been stacked behind the undercut pipe and wire revetment, potentially exposing the Creek, Goleta Slough, the Pacific Ocean, and fish and wildlife to pollution as the old tires break apart, sending small particles into the stream.³⁵¹ (Figure 131) Tires are flammable, occasionally starting dangerous “tire fires” that result in evacuations.³⁵² The tires in San Pedro Creek may fuel wildfires within the riparian forest in the WUI surrounding San Pedro Creek.
 - **Recommendation San Pedro 4A:** Remove and recycle pipe and wire revetments and tires and employ bioengineering where Creek bank stabilization is needed.
 - **Community Benefits:** Recommendation San Pedro 4A would eliminate a potential source of water pollution, and harm to aquatic and marine animals, and would beautify the Creek. Removing the tires will decrease the threat of wildfires traveling down the riparian corridor across the WUI. Use of biotechnical stabilization methods would enhance the riparian habitat on the creek banks, while stabilizing them. Removing the revetments would enhance wildlife movement.³⁵³

³⁵⁰ Email from Maureen Spencer, Operations and Environmental Manager, SBCFCWCD to Brian Trautwein, Environmental Analyst/Watershed Program Coordinator, EDC (August 19, 2020) (“Spencer (2020)”).

³⁵¹ Laura Tretheway, *When Rubber Hits the Road—and Washes Away* stating, “Tire particles in the water may harm aquatic and marine organisms—just as other microplastics do—including through chemical exposure, movement inside an animal’s body, and bioaccumulation of toxins through the food chain,” available at <https://www.hakaimagazine.com/features/when-rubber-hits-the-road-and-washes-away/> (November 24, 2020); See also EDC (2019) at 106-107.

³⁵² United States EPA. *Wastes - Resource Conservation - Common Wastes & Materials - Scrap Tires Tire Fires* Webpage available at <https://archive.epa.gov/epawaste/conserve/materials/tires/web/html/fires.html> (March 27, 2021).

³⁵³ San Pedro Creek is a significant wildlife movement corridor. City of Goleta (2020) Appendix E, Figures 2 and 3 and Photos 1 and 3.



Figure 131. Old tires stacked behind pipe and wire revetment on west bank of San Pedro Creek downstream from Cathedral Oaks Road. Brian Trautwein. 2019.

- **Next Steps:** Meet with the landowner(s), City Public Works staff, SBCFCWCD, SBCFD, the Conservancy, and UC Coop staff to assess feasibility and engineering.³⁵⁴ Consider implementing through SBCFCWCD Annual Maintenance Program, and/or identify funding for implementation.

³⁵⁴ Notifying SBCFCWCD would be a courtesy, and the agency's involvement voluntary, because the agency does not own these structures. Spencer (2020).

Homeless Community Members' Encampments between Highway 101 and UPRR Tracks

- **Problem San Pedro 10:** The well-known, occupied homeless community member camp located within San Pedro Creek's riparian woodland and SPA between Highway 101 and the UPRR tracks contains numerous structures and tents and supports a small community of individuals, some of whom have been living in Goleta creeks for over twenty years.³⁵⁵ (Figure 149) Homeless community member encampments are prevalent in and near San Pedro Creek between Highway 101 and Hollister Avenue. The lack of toilet facilities creates a potentially unsanitary situation and threatens the water quality in San Pedro Creek, the Goleta Slough, and Goleta Beach. Native vegetation has been removed and trampled, and understory vegetation is largely non-existent. Invasive nonnative plant species like pampas grass (*Cortaderia selloana*), castor bean (*Ricinus communis*), and giant reed (*Arundo donax*) are present and spreading. These camps displace and degrade riparian habitat, disturb wildlife, and interfere with nesting.

Human presence has led to numerous fires at these camps in recent years, creating safety concerns and requiring first responders to spend significant time and resources at this location.³⁵⁶ Extensive trash is accumulating at the site despite City and Caltrans cooperation with the residents, including providing trash bags and requesting occupants bag trash for Caltrans removal along Highway 101. There is frequently trash, including hazardous electronics, in the Creek bed at this location.³⁵⁷

The site's location next to Highway 101 and the UPRR tracks pose safety hazards.³⁵⁸ Proximity to the UPRR and Highway 101 pose air quality health risks

³⁵⁵ Randy Bull, Resident, Personal Communication with Brian Trautwein, EDC (November 2020).

³⁵⁶ EdHat Staff, *Multiple Brush Fires Near Homeless Camp on Highway 101 in Goleta* Available at <https://www.edhat.com/news/multiple-brush-fires-near-homeless-camp-on-highway-101-in-goleta> (November 27, 2020); See also EdHat Staff, *Brush Fire at Homeless Camp in Goleta* available at <https://www.edhat.com/news/brush-fire-at-homeless-camp-in-goleta> (December 20, 2020); See also Jean Yamamura, Santa Barbara Independent, *Homeless Camps and Fires a Challenge for Goleta During COVID* available at <https://www.independent.com/2020/07/17/homeless-camps-and-fires-a-challenge-for-goleta-during-covid/> (July 17, 2020); See also Joshua Molina, Noozhawk, *Homeless Camp Fire along Highway 101* https://www.noozhawk.com/article/fire_torches_homeless_encampment_shuts_down_lane_on_highway_101 (March 21, 2020).

³⁵⁷ Department of Toxic Substance Control website available at <https://dtsc.ca.gov/electronic-hazardous-waste/#:~:text=%E2%80%9CE%2Dwaste%E2%80%9D%20refers%20to,businesses%2C%20governments%2C%20and%20industries.> (February 26, 2021).

³⁵⁸ Staff Report, Lompoc Record, *Young man struck, killed by train in Goleta*, available at https://lompocrecord.com/news/local/young-man-struck-killed-by-train-in-goleta/article_717b87aa-185f-11e0-ad37-001cc4c002e0.html (January 4, 2011).

to occupants.³⁵⁹ The soil may also be contaminated here from prior industrial uses, proximity to Highway 101 and the UPRR tracks, and recent fires (Figure 150).³⁶⁰

The issue of homeless community encampments in Goleta-area creeks goes beyond environmental concerns and is a social justice issue. EDC's recommendations seek to mitigate environmental harm while promoting social justice by providing assistance, incentives, and opportunities for our homeless community members to transition away from living in Goleta's creeks.

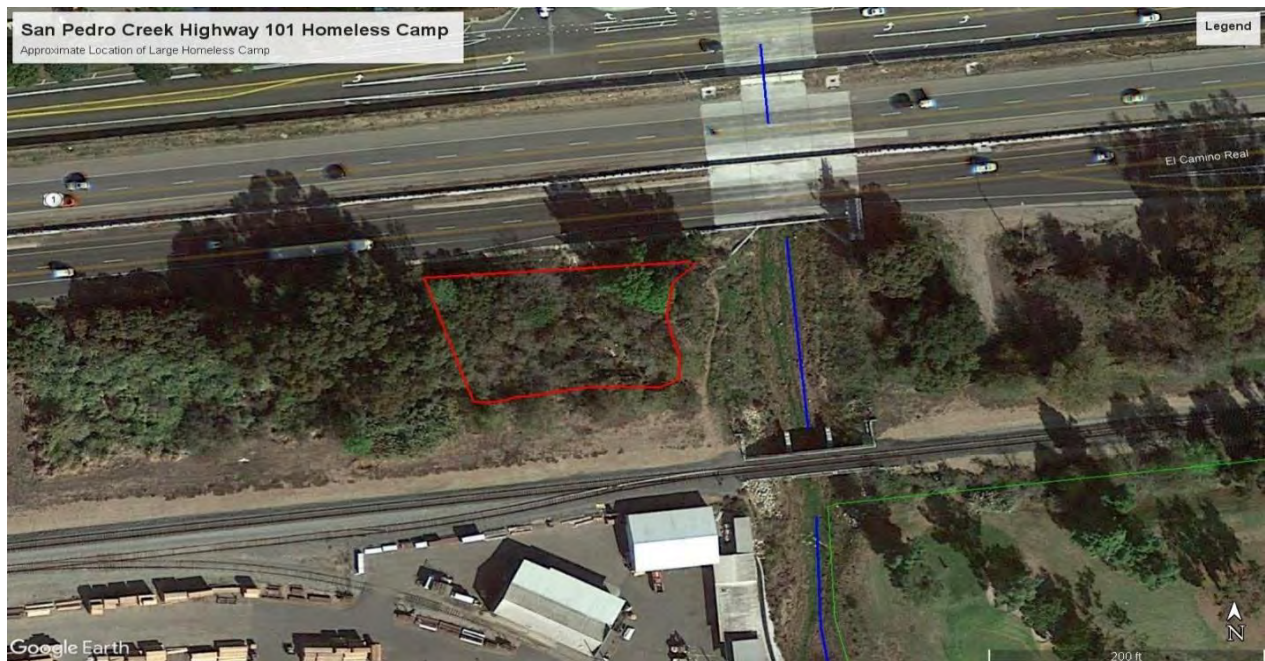


Figure 149. Several of the well-documented, long established homeless community member camps are located within San Pedro Creek's riparian woodland. Google Earth. 2020.

- **Jurisdiction:** City of Goleta, City of Santa Barbara, Caltrans, and UPRR

³⁵⁹ California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective* at 6, 9, and 10 (April 2005).

³⁶⁰ Alexandr K. Strelkov, Sergey V. Stepanov, Svetlana Yu. Teplykh, Ashot M. Sargsyan, *Monitoring pollution level in railroad right-of-way*, *Procedia Environmental Sciences* 32 at 147 – 154 (2016); *See also* Turer, D., Maynard, J.B. & Sansalone, J.J., *Heavy Metal Contamination in Soils of Urban Highways Comparison Between Runoff and Soil Concentrations at Cincinnati, Ohio*. From: *Water, Air, & Soil Pollution* 132, 293–314 available at <https://doi.org/10.1023/A:1013290130089> stating “Because metals do not degrade naturally, high concentrations of them in runoff can result in accumulation in the roadside soil at levels that are toxic to organisms in surrounding environments.” (2001).

- **Recommendation San Pedro 10A - Unoccupied Camps:** Clean up unoccupied camps. Test soil for the presence of contaminants and conduct soil remediation if necessary. Eradicate invasive species, including pampas grass, Arundo, and castor bean located within unoccupied camps and in the recently burned area west of the camp located between Highway 101 and the UPRR tracks. (Figure 150). Restore riparian woodland habitats in the vicinity of unoccupied camps by planting and establishing native understory plants including brambles such as wild rose (*Rosa californica*), wild blackberry (*Rubus ursinus*), and stinging nettles (*Urtica dioica*) to discourage future camping, restore the habitat, reduce erosion, and protect water quality in San Pedro Creek pursuant to the City of Goleta's draft Homelessness Strategic Plan.³⁶¹
- **Recommendation San Pedro 10B – Occupied Camps:** Continue to offer social services, medical services,³⁶² including Covid vaccinations, testing, and counseling, food support, and referrals to shelters for occupants. Provide regular mobile shower facilities. Install and service portable toilets near occupied camps at least one hundred feet from creeks. Provide trash bags and continue to remove trash bagged by occupants.

Support programs to provide housing opportunities to homeless community members. EDC recommends that the Cities of Goleta and Santa Barbara, Santa Barbara County, Caltrans, UPRR, and the State of California develop a permanent Roomkey Project using unoccupied rooms in the local motels such as the Super 8 Motel next to San Pedro Creek at Hollister Avenue. This approach is intended to help mitigate the social and environmental impacts of homeless camps along local creeks.³⁶³ Continue to promote PATH's (formerly Casa Esperanza) LeaseUp Program by working with landlords to provide rental opportunities for homeless community members. (See Recommendation Global 5A below.)

³⁶¹ City of Goleta, *Homelessness Strategic Plan* at 43 available at <https://www.cityofgoleta.org/home/showpublisheddocument?id=24465> (April 20, 2021) (“City of Goleta (2021)”).

³⁶² NCBI, Health Care Services for Homeless People available at <https://www.ncbi.nlm.nih.gov/books/NBK218235/> (March 10, 2021) (“NCBI (2021)”); See also Journal of Emergency Medical Services, *Burlington (VT) Group Purchases Van to Provide Medical Care to Homeless* available at <https://www.jems.com/news/burlington-vt-group-purchases-van-medical-care-homeless/> (October 21, 2020) (“JEMS (2020)”).

³⁶³ Jean Yamamura, Santa Barbara Independent *Goleta Super 8 May Become New Homeless Digs* available at <https://www.independent.com/2020/08/05/goleta-super-8-may-become-new-homeless-digs/> (August 5, 2020); See also Delaney Smith, Santa Barbara Independent, *Santa Barbara County to Quarantine More Homeless People After Biden's Order; Project Roomkey Gets Expansion from Feds* (February 23, 2021) (“Smith (2021)”).

- **Community Benefits:** Recommendation San Pedro 10A would decrease pollution and litter in San Pedro Creek, protect groundwater, promote clean water in San Pedro Creek, restore riparian habitat, reduce erosion, improve bird and wildlife habitat and wildlife movement corridors, reduce the threat of wildfires, and improve community aesthetics. Recommendation San Pedro 10B would promote a transition to permanent housing and decrease the number of our homeless neighbors living along San Pedro Creek. Housing homeless community members in motels and rental units would reduce homelessness and require fewer City services and resources.
- **Next Steps:** Develop a City-Caltrans-UPRR-SBCFD task force. Create a plan embodying Recommendations San Pedro 10A and 10B. Regularly visit the San Pedro Creek camps to establish a rapport with residents. Work with Showers-of-Blessings to provide showers. Offer COVID testing, vaccinations, other medical services, and social services. Install and maintain portable toilets outside the SPA.³⁶⁴

Provide information on housing opportunities. Identify funding and support for Project Roomkey and PATH's LeaseUp Program and provide educational brochures to residents. Discuss the concept with City of Goleta Neighborhood Services staff, the Goleta Mayor and City Councilmembers, Santa Barbara City Mayor and Councilmembers, Santa Barbara County Board of Supervisors, the City and County Fire Departments, and Caltrans. Request financial support for implementing Recommendations 10A and B, and for housing assistance programs.

³⁶⁴ Heal the Ocean is maintaining port-a-potties near camps to keep waste out of waterways and the ocean. Email from Hillary Hauser, Executive Director, Heal the Ocean, to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC (January 29, 2021).



Figure 150. A recent fire occurred west of the San Pedro Creek homeless community member encampment. Note the burnt vegetation, single willow sapling, resprouting *Arundo* and pampas grass, and metal debris. This area should be cleaned up and restored as riparian habitat. Brian Trautwein. October 6, 2020.

Las Vegas Creek Watershed

La Goleta Road near Fairview Avenue

- **Problem Las Vegas 1:** A roughly quarter-acre stand of invasive, flammable blue gum eucalyptus trees (*Eucalyptus globulus*) occurs on a tributary of Las Vegas Creek in the WUI at the southeast corner of La Goleta Road and North Fairview Avenue.³⁶⁵ (Figure 165 and 167) This stand is one hundred meters southwest of Monarch Overwintering Site 2807. The 2018 Holiday Fire scorched thirteen homes and fifteen other structures in this neighborhood underscoring the fire threat neighbors in the WUI.³⁶⁶ A roughly two-acre stand of blue gum eucalyptus trees dominates a different branch of Las Vegas Creek one hundred and thirty meters to the west, near the intersection of La Goleta Road and Las Cruces Court west of Fairview Avenue, and extends north along Franklin Ranch Road. (Figures 165 and 168) Although there are orchards in the general vicinity, multiple pathways could allow wind-driven wildfires into the WUI and eucalyptus stands, increasing fire risks in the residential neighborhood south of La Goleta Road. (Figure 166). A third stand of eucalyptus in the Creek occurs approximately forty meters to the west. (Figure 165) The stands support massive trees and some are less than twenty-five meters away from the nearest homes and residential neighborhoods lining the WUI. Other nonnative plant species, including papyrus (*Cyperus papyrus*), palm trees (*Arecaceae*), and pepper trees (*Schinus molle*) are present and degrade Las Vegas Creek's riparian woodland in this location and may contribute to wildfire threats in the WUI.
 - **Jurisdiction:** City of Goleta and Santa Barbara County
 - **Recommendation Las Vegas 1A:** Replace the eucalyptus trees in a phased manner to improve fire safety in the La Goleta neighborhood. Plant native riparian woodland species such willow (*Salix* spp.), coast live oak (*Quercus agrifolia*) and western sycamore (*Platanus racemosa*) trees to restore the riparian forest in these three areas. Maintain these tributaries of Las Vegas Creek free of exotic plants.

³⁶⁵ Google Earth (2019); See also Santa Barbara County (2017b) at 5-12.

³⁶⁶ Gabby Ferreira, The Tribune. *Holiday Fire in Goleta destroys 28 structures, 13 are homes*, available at <https://www.sanluisobispo.com/news/california/fires/article214523369.html>

The 2018 Holiday Fire driven by dry north winds consumed one hundred acres and burned twenty-eight structures including thirteen homes in this neighborhood. (July 8, 2018).



Figure 165. Three significant stands of eucalyptus trees along Las Vegas Creek increase fire hazards and degrade the riparian woodland in the WUI near Fairview Avenue and La Goleta Road. Google Earth. 2019.



Figure 166. Multiple pathways could facilitate downcanyon, wind-driven fire and ember movement from wildlands above San Pedro Creek to the eucalyptus stands along Las Vegas Creek in the La Goleta Neighborhood WUI. These potential fire paths may also represent important wildlife movement corridors and therefore should not be cleared or converted to orchards. Google Earth. 2019.



Figure 167 and 168. Large eucalyptus trees along Las Vegas Creek near Fairview Avenue and La Goleta Road displace native riparian vegetation and increase fire danger in the WUI. Brian Trautwein. October 1, 2020.

- **Community Benefits:** Recommendation Las Vegas 1A would improve fire safety in the Goleta WUI and restore riparian forest health along two branches of Las Vegas Creek.
- **Next Steps:** Discuss the concept with SBCFD. Coordinate with landowners, CRCD, SBCFD, UC Coop, the Conservancy, and habitat restoration-oriented groups such as CIR to seek funding for eucalyptus replacement to restore Las Vegas Creek and increase fire safety in the Goleta WUI.

La Goleta Open Space on Paseo Palmilla

- **Problem Las Vegas 2:** Non-native pine trees, grass, and weeds increase fire hazards and decrease riparian woodland health in the La Goleta Road Open Space located in a WUI west of Paseo Palmilla.³⁶⁷ (Figure 169) The grass and weeds require periodic mowing to reduce fire hazards. (Figure 170)
 - **Jurisdiction:** City of Goleta



Figure 169. Las Vegas Creek in the La Goleta Open Space offers an opportunity to restore the Creek and remove flammable exotic species such as pine trees from the WUI. Google Earth. 2019.

- **Recommendation Las Vegas 2A:** Expand the riparian corridor at this open space by planting twenty-five-foot vegetated buffers on both sides of the Creek, where space allows. Plant coast live oak trees (*Quercus agrifolia*), lemonade berry (*Rhus integrifolia*), toyon (*Heteromeles arbutifolia*), coffee berry (*Frangula californica*) in a coast live oak savannah setting. Install oak woodland understory species such as hummingbird sage (*Salvia spathacea*) and wild blackberry (*Rubus ursinus*). Plant willows (*Salix* spp.) and riparian understory plant species such as bitter gooseberry (*Ribes amarum*), mugwort (*Artemisia douglasiana*), and giant wild rye (*Elymus condensatus*), and wild blackberry (*Rhus integrifolia*) on the east bank. (Figure 171) Mulch the annual weeds to control their growth and retain moisture.

³⁶⁷ Google Earth (2019); See also Santa Barbara County (2017b) at 5-12.



Figure 170. Las Vegas Creek at the La Goleta Open Space lacks sufficient native vegetation in the SPA and offers opportunities for riparian and oak savannah restoration. Flammable pine trees in riparian corridor and flammable mowed weeds could be replaced with less flammable native species. Brian Trautwein. October 1, 2020.



Figure 171. Las Vegas Creek at La Goleta Open Space. Brian Trautwein. October 1, 2020.

- **Community Benefits:** Recommendation Las Vegas 2A would improve riparian and oak woodland health, wildlife habitat, and water quality, and reduce bank erosion, and long-term maintenance (i.e., mowing) costs, fuel use, and greenhouse gas emissions, and would increase carbon sequestration. This project may also reduce fire hazards by removing pine trees and annual weedy vegetation.
- **Next Steps:** Inquire with the City of Goleta Public Works Department Parks and Open Space Division about restoring riparian and oak savannah in the La Goleta Open Space. Identify a nonprofit habitat restoration group such as CIR. Coordinate with SBCFD, the Conservancy, CRCD, and UC Coop regarding replacement of pine trees to reduce fire hazards. Hold a neighborhood meeting to solicit input, ensure community support, and address neighbors' questions. Seek funding for project implementation and maintenance.

San Jose Creek Watershed

- **Problem San Jose 3:** Non-native, invasive vegetation, including blue gum eucalyptus trees (*Eucalyptus globulus*), threatens the health of the San Jose Creek Watershed by displacing native vegetation, and exacerbating the impacts of fires on native plant communities, and resulting erosion, flooding, and debris flows.³⁶⁸ (Figure 187) There are scattered eucalyptus trees in the riparian corridor and a dense stand on the east bank upstream from an Arizona-style road crossing on a ranch located in the WUI north of Vineyard Road.³⁶⁹ (Figure 187) Flammable exotic vegetation, such as eucalyptus and pine trees, increases fire hazards in the canyon and may increase fire risks in the WUI neighborhoods.³⁷⁰ (Figure 188) Eucalyptus trees consume a large quantity of water and may desiccate the Creek and riparian corridor, further exacerbating fire threats and adversely affecting several special-status fish and amphibian species in San Jose Creek including California red-legged frog, California newt, arroyo chub, and southern California steelhead.³⁷¹
 - **Jurisdiction:** Santa Barbara County and City of Goleta
 - **Recommendation San Jose 3A:** Work with the landowners in the San Jose Creek Watershed to remove eucalyptus and pine trees to incrementally lessen wildfire hazards in the wildlands, riparian corridors, and neighborhoods in the WUI. Replace the trees with less flammable native vegetation such as coast live oak trees (*Quercus agrifolia*), and/or agricultural crops (e.g., avocado or citrus).
 - **Community Benefits:** Recommendation 3A would reduce fire hazard in the foothills above the WUI and would enhance native oak and riparian woodlands. Replacing eucalyptus on San Jose Creek could increase baseflows and benefit steelhead and several other special-status species present in the Creek downstream from the eucalyptus stand.³⁷²

³⁶⁸ Stanturf, et al (2013).

³⁶⁹ Lawrence Hunt, Hunt and Associated Biological Consulting Services, *Results of Special-Status Surveys for Plants and Wildlife, Bosio/Cavaletto Ranches, Fish Passage Improvement Project, San Jose Creek, Goleta, Santa Barbara County, California* (September 8, 2017) (“Hunt (2017)”); *See also* Google Earth (2019); *See also* Santa Barbara County (2017b) at 5-12.

³⁷⁰ City of Mill Valley, *Vegetation – Fire for Fuel?* Available at <https://www.cityofmillvalley.org/community/preparedness/fire/fireprepmore/fuelorfire.htm> (December 29, 2020).

³⁷¹ Tree Club, *Eucalyptus* webpage, available at: <https://d3gxp3iknbs7bs.cloudfront.net/attachments/737ee80b-eb1f-453c-bc79-baf7e6d70c7e.pdf> (February 6, 2021); *See also* Hunt (2017) at 7.

³⁷² Hunt (2017); *See also* Tree Club (2021).



Figure 187. Eucalyptus trees growing within native oak woodland, chaparral, and riparian plant communities increase fire hazards. Google Earth. 2020.

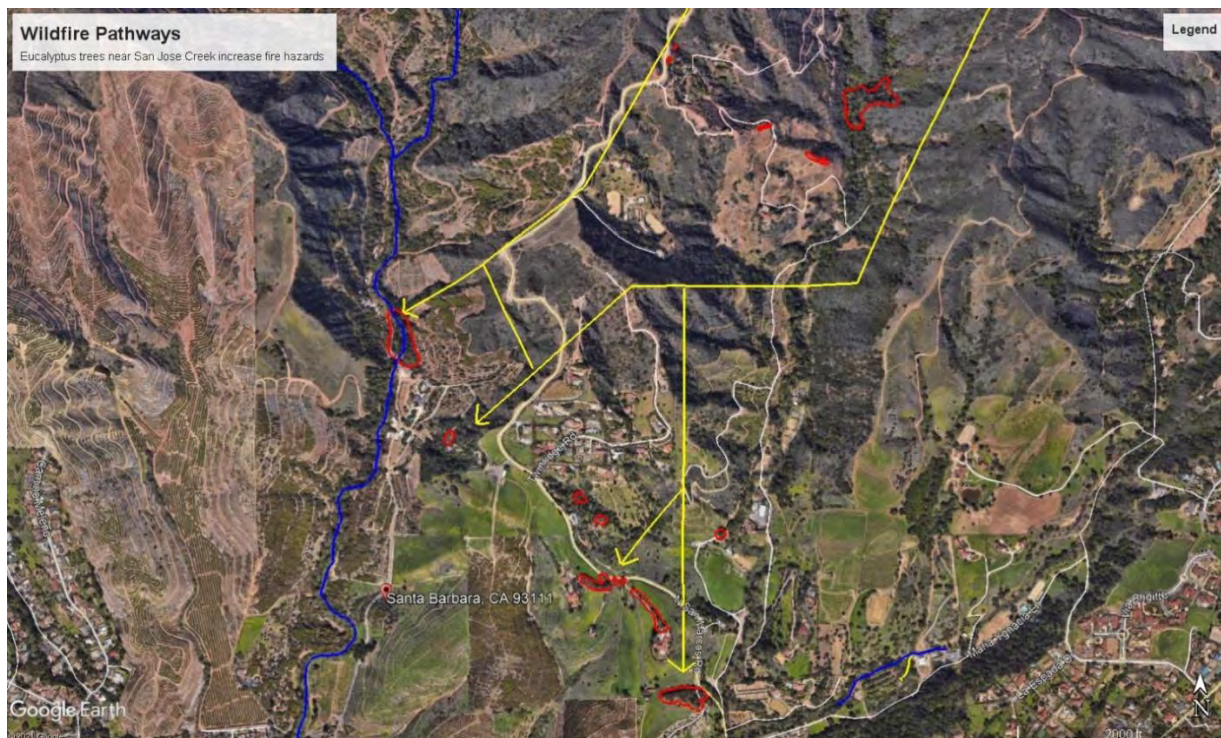


Figure 188. Wind-driven wildfires could reach two eucalyptus stands, sending embers into residential areas to the south or 150 meters to the east. Google Earth. 2019.

- **Next Steps:** Identify landowners with stands of eucalyptus or pines trees, coordinate with SBCFD, CRCD, the Conservancy, and UC Coop to discuss the benefits of Recommendation San Jose 3A. If landowners are supportive, seek grant funding to replace eucalyptus and pine trees with less flammable native trees, such as coast live oak (*Quercus agrifolia*), which can act as “fire-catchers,”³⁷³ or encourage installation of irrigated crops e.g., avocado, in place of eucalyptus and pine trees within existing agricultural operations.
- **Problem San Jose 7:** A degraded riparian area containing several BMX trails and jumps is present in the WUI adjacent to and within the San Jose Creek riparian corridor and Creek buffer between Vineyard Road and North Patterson Avenue.³⁷⁴ Native plants have been removed. Little to no understory vegetation or leaf litter are present in and around the BMX course. The cleared vegetation and woody debris have been left in piles, increasing fire hazards in the WUI near adjacent homes. (Figure 196).
 - **Jurisdiction:** Santa Barbara County
 - **Recommendation San Jose 7A:** Remove the BMX trails and jumps located in the riparian corridor and buffer west of the Creek. Plant native trees such as coast live oak (*Quercus agrifolia*) and western sycamore (*Platanus racemosa*), shrubs such as blue elderberry (*Sambucus nigra* L. ssp. *caerulea*), and coffeeberry (*Frangula californica*), and understory vegetation including wild blackberry (*Rubus ursinus*), wild rose (*Rosa californica*), mugwort, (*Artemisia douglasiana*), and fuchsia flowered gooseberry (*Ribes speciosum*). Retain access for SBCFCWCD and emergency vehicles. Chip and redistribute the woody debris as mulch and add seed-free mulch to establish two to four inches of duff to reduce erosion and restore topsoil.

³⁷³ Jeannette Marantos, *One year later: Homeowners share lessons learned from the deadly Woolsey fire*, Los Angeles Times Available at <https://www.latimes.com/lifestyle/story/2019-11-16/woolsey-fire-survivors-one-year-later> (December 29, 2020).

³⁷⁴ Santa Barbara County (2017b) at 5-12.



Figure 196. BMX jumps are built adjacent to San Jose Creek in the riparian corridor and buffer zone. Max Kalber. November 2020.

- **Community Benefits:** Recommendation San Jose 7A would improve fish, bird, and wildlife habitat, enhance the wildlife movement corridor in the riparian habitat, restore the natural landscape, improve aesthetics, reduce erosion and sedimentation, and improve the water quality of San Jose Creek. Removing piles of dead vegetation may reduce fire hazards in the WUI neighborhood.
- **Next Steps:** Determine the property owner(s), then inquire with the owner(s) about restoration of San Jose Creek's riparian corridor. Coordinate with SBCFD, CRCDD, SBCFCWCD, the Conservancy, and restoration-oriented non-profits such as CIR. Seek funding to plan and implement this project.

North Patterson Road Bridge Grouted Rock Embankment

- Problem San Jose 8:** An undercut, overhanging grouted rock embankment that stabilizes the west bank of San Jose Creek below the North Patterson Avenue Bridge prevents establishment of riparian vegetation along the west bank and may deflect high flows toward the east bank. (Figure 197) Invasive blue gum eucalyptus trees (*Eucalyptus globulus*) and Shamel ash (*Fraxinus uhdei*)³⁷⁵ are present in this portion of the creek in the WUI.³⁷⁶ The eucalyptus trees pose a fire hazard to nearby homes in the WUI.³⁷⁷ (Figure 198).



Figure 197. A grouted rock embankment lines the west bank of San Jose Creek at North Patterson Avenue. Note the overhanging bank below the structure provides fish habitat. Max Kalber. November 2020.

³⁷⁵ Sepulveda Basin Wildlife.org Website available at <https://sepulvedabasinwildlife.org/weeds.html> (November 24, 2020).

³⁷⁶ Santa Barbara County (2017b) at 5-12.

³⁷⁷ California Invasive Plant Council, *Eucalyptus Globulus* Webpage available at [https://www.cal-ipc.org/plants/profile/eucalyptus-globulus-profile/#:~:text=Eucalyptus%20globulus%20\(Tasmanian%20blue%20gum,%2C%20native%20plants%2C%20and%20wildlife](https://www.cal-ipc.org/plants/profile/eucalyptus-globulus-profile/#:~:text=Eucalyptus%20globulus%20(Tasmanian%20blue%20gum,%2C%20native%20plants%2C%20and%20wildlife). (December 22, 2020).



Figure 198. Invasive eucalyptus trees degrade San Jose Creek's riparian corridor and pose a fire hazard to nearby homes. Brian Trautwein. December 2020.

- **Jurisdiction:** Santa Barbara County
- **Recommendation San Jose 8A:** Remove the concrete embankment and widen the Creek to the west to restore riparian habitat downstream from the North Patterson Avenue Bridge. Plant the west bank with native riparian trees and install a live willow crib wall, willow poles, and install ungrouted rock protection at the toe of the bank, if needed to minimize bank erosion and protect bridge abutments. Reestablish the overhanging western Creek bank to maintain habitat for steelhead. Replace the exotic ash and fire-prone eucalyptus trees with native species in a phased manner to reduce fire hazards in the neighborhood and to enhance the riparian corridor.
- **Community Benefits:** Recommendation San Jose 8A would enhance riparian habitat, improve wildlife movement, restore natural channel geomorphology, and improve fire safety in the WUI.

- **Next Steps:** Contact SBCFCWCD about the feasibility of removing the grouted rock embankment and installing a live willow crib wall, willow poles, and, if needed, ungrouted rock protection at the toe of the bank downstream from the Patterson Avenue Bridge. Coordinate with SBCFD, CRCD, UC Coop, and Conservancy regarding replacement of eucalyptus and ash with native riparian trees.

Cathedral Oaks Road and North Kellogg Avenue

- **Problem San Jose 9:** Invasive lemon-scented gum trees (*Eucalyptus citriodora*) occur within the riparian corridor in the northeast quadrant of the intersection of Cathedral Oaks Road and North Kellogg Avenue, west of the Creek, and pose an elevated fire hazard to nearby homes in the WUI.³⁷⁸ (Figure 199) In the southeast quadrant, east of the Creek, the County-approved UCC San Jose Creek Restoration Project Site 1A established by UCC's restoration consultants and neighborhood volunteers between 1991 and 2000³⁷⁹ was partially cleared by the adjoining landowner/Homeowners Association circa 2010, resulting in degraded habitat with a proliferation of non-native, annual weedy vegetation which increases the fire ignition risk.



Figure 199. Eucalyptus trees (red polygon) increase the fire hazard in this area. Restoration sites should be planted with native perennial understory vegetation such as wild blackberry and maintained to reduce flammable nonnative weeds in understory. Google Earth. 2019.

³⁷⁸ Santa Barbara County (2017b) at 5-12.

³⁷⁹ UCC, *San Jose Creek Restoration Project Memorandum of Understanding* ("MOU") signed by UCC, SBCFCDWCD, SBCFD, Santa Barbara County Counsel, and Santa Barbara County Parks Department (1991) ("UCC (1991)").

- **Jurisdiction:** Santa Barbara County
- **Recommendation San Jose 9A:** Replace the invasive eucalyptus trees in a phased manner with tall native riparian tree species, including western sycamores (*Platanus racemosa*) and black cottonwoods (*Populus trichocarpa*) north of Cathedral Oaks Road and west of San Jose Creek. Pursuant to UCC’s Memorandum of Understanding (“MOU”)³⁸⁰ signed by SBCFD, SBCFCWCD, and other County departments, coordinate with neighbors and SBCFCWCD to remove weeds and replant native riparian understory species such as wild blackberry (*Rubus ursinus*) in the creek restoration area to the southeast of the intersection. (Figure 199)
- **Community Benefits:** Recommendation San Jose 9A would enhance riparian vegetation, improve bird and wildlife habitat and wildlife corridor, reduce fire hazards in the WUI, and improve aesthetics.
- **Next Steps:** Determine who owns the parcels of land. If Santa Barbara County owns this parcel, then contact the County Parks Department. Collaborate with the Parks Department, the SBCFD, SBCFCWCD, CRCD, Conservancy, UC Coop, the Second District County Supervisor’s Office, and nearby homeowners to restore native vegetation in this area pursuant to the MOU. Work with landowners and City and County agencies to reduce fire hazards and enhance the riparian forest.

Merida Drive to Calle Real

- **Problem San Jose 17:** Invasive blue gum and lemon-scented gum trees (*Eucalyptus globulus* and *Eucalyptus citriodora*) constitute Monarch Butterfly Overwintering Site 2763.³⁸¹ The exotic eucalyptus dominate portions of San Jose Creek’s riparian habitat between Calle Real and Somerset Drive near the Maravilla Assisted Living Community.³⁸² (Figure 219) Homeless camps in and near the eucalyptus trees along the Creek in this area are well documented by the City and create a potentially significant fire hazard.³⁸³ (Figure 218) Substantial trash is accumulating in and near the homeless camps, and native vegetation has been damaged. (Figure 218)

³⁸⁰ UCC (1991).

³⁸¹ Western Monarch (2021).

³⁸² Google Earth (2019).

³⁸³ Roger Reports, EdHat, *Brush Fire on Calle Real* available at <https://www.edhat.com/news/brush-fire-on-calle-real> (July 26, 2020).



Figure 218. Trash is accumulating at abandoned homeless community camps near the east bank of San Jose Creek by the Maravilla Assisted Living Community. Note the damaged coast live oak tree in left side of photo, exposed, barren soil in encampment, and invasive nonnative Catalina Island cherry in center of photo. Brian Trautwein, October 23, 2020.



Figure 219. This substantial eucalyptus grove once served as a monarch butterfly overwintering site and turkey vulture roost. It creates a fire hazard near the Maravilla Assisted Living Community. Google Earth. 2019.

- **Jurisdiction:** City of Goleta
- **Recommendation San Jose 17A:** Retain mature eucalyptus trees which are part of the documented monarch butterfly overwintering site, designated as ESHA.³⁸⁴ This site boasted 2,046 monarchs in 2016.³⁸⁵ (Figure 219) Monarch overwintering sites have been shown to be changing in distribution across the landscape in Santa Barbara, and western Monarchs have declined by 99%, so it is vital to protect sites where this species is known to congregate.³⁸⁶ It is also important to halt the spread of invasive eucalyptus into creeks and riparian habitats, which are designated as ESHA and SPAs.³⁸⁷ Remove eucalyptus saplings and seedlings which are spreading into native riparian habitat as part of ongoing habitat maintenance. Clean up downed eucalyptus wood and bark that poses a fire hazard, prune eucalyptus trees, and thin smaller eucalyptus trees to control fire hazards pursuant to Goleta's CWPP.³⁸⁸ Plant native riparian trees and understory plants where compatible with retaining the monarch overwintering site. Avoid work during raptor and bird nesting seasons.
- **Community Benefits:** Recommendation San Jose 17A would reduce fire hazards, maintain the monarch butterfly overwintering site, and may enhance riparian ESHA.
- **Next Steps:** Contact the landowner, City of Goleta Parks and Open Space, CRCD, Conservancy, UC Coop, and SBCFD about the recommended approach to maintaining ESHAs while reducing fire hazards.

³⁸⁴ City of Goleta (2006) Figure 4-1.

³⁸⁵ Xerces Society, *Western Monarch Thanksgiving Count* available at https://www.westernmonarchcount.org/wp-content/uploads/2020/09/WMTC-Data-1997-2019_1.14.2020_v2.pdf (1997 – 2019); *See also* Santa Barbara County *Goleta Community Plan* Figure 30 at 186 (1993).

³⁸⁶ Fisher A, Meade D, et al. 2018. *Climatic Niche Model for Overwintering Monarch Butterflies in a Topographically Complex Region of California*. *Insects Journal*. 9(167); *See also* Washington State University (2020).

³⁸⁷ City of Goleta (2006) Policies CE 1.2 at 4-6, CE 2.2 at 4-13, and CE 2.2 at 4-13.

³⁸⁸ City of Goleta (2012) at 70 – 72.

Fremont Creek Tributary to San Jose Creek

- **Problem Fremont 2:** A large private dam blocks flows and dewateres Fremont Creek. By reducing moisture levels in the riparian area, the dam may increase fire hazards in the WUI. The dam hinders fish and wildlife movement. If the dam were to fail, it could create flood concerns for residents living downstream in low-lying areas around Camino Rio Verde. (Figure 231)

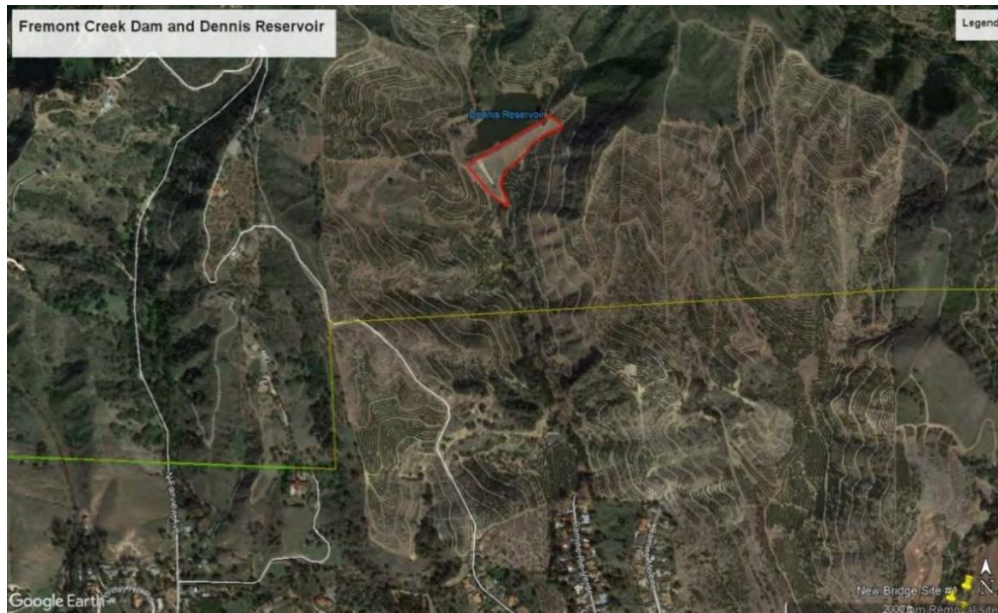


Figure 231. Dennis Reservoir Dam (red outline) blocks fish and wildlife movement and alters Fremont Creek's natural hydrology. Google earth. 2018.

- **Jurisdiction:** County of Santa Barbara, USFS
- **Recommendation Fremont 2A:** Remove the dam if feasible. If infeasible, ensure that the dam is operated correctly pursuant to Fish and Game Codes, including Code 5937, the ESA, and other regulations.
- **Community Benefits:** Recommendation Fremont 2A will restore natural hydrology and creek flows, reconnect Fremont Creek's riparian corridor upstream and downstream from the reservoir and dam, reconnect the wildlife movement corridor, improve public safety, increase moisture levels in the riparian corridor reducing wildfire threats, and may restore steelhead migration. Compliance with environmental laws would enhance the creek habitat and flows for fish and wildlife.
- **Next Steps:** Meet with CDFW and Santa Barbara County Water Agency staff to discuss concept; contact landowner to request site visit and discuss dam operations.

Maria Ygnacio Creek Watershed

Upper Watershed

- **Problem Maria Ygnacio 1:** Several stands of eucalyptus trees located near North San Marcos Road, Painted Cave Road, and East Camino Cielo heighten the fire hazard near the community of Painted Cave and numerous rural residences in the WUI and in the Maria Ygnacio Creek Watershed, threatening life, property, natural habitats, and species including numerous special-status species that occur in the creek and riparian habitat.³⁸⁹ (Figure 232) “*Eucalyptus globulus* (Tasmanian blue gum) is a tree (family *Myrtaceae*) found throughout California, but has primarily escaped to become invasive along the coast. It has effects on fire danger, native plants, and wildlife.”³⁹⁰ Eucalyptus growing near streams, such as the stand along Maria Ygnacio Creek at 1900 North San Marcos Road, may reduce stream flow due to high water uptake.³⁹¹ “Several studies from other countries have demonstrated that expansions of Eucalyptus plantation adversely affect water resources. For example, reduction in streamflow can be attributed to the high water use rates of Eucalyptus for transpiration in coordination with the fast growth.”³⁹²
 - **Jurisdiction:** Santa Barbara County and LPNF
 - **Recommendation Maria Ygnacio 1A:** Remove blue gum and lemon-scented eucalyptus (*Eucalyptus citriodora*) from the Maria Ygnacio Creek Watershed wildlands and WUI. Where appropriate, replace eucalyptus with native trees and plants grown from seeds or cuttings collected adjacent to the eucalyptus trees to enhance oak woodland, riparian, and chaparral habitats in appropriate locations, e.g., outside of residences’ defensible space.

³⁸⁹ Google Earth (2019); *See also* Santa Barbara County (2017b) at 5-12.

³⁹⁰ California Invasive Plant Council, *Eucalyptus globulus* webpage, available at [https://www.cal-ipc.org/plants/profile/eucalyptus-globulus-profile/#:~:text=Eucalyptus%20globulus%20\(Tasmanian%20blue%20gum,%2C%20native%20plants%2C%20and%20wildlife.](https://www.cal-ipc.org/plants/profile/eucalyptus-globulus-profile/#:~:text=Eucalyptus%20globulus%20(Tasmanian%20blue%20gum,%2C%20native%20plants%2C%20and%20wildlife.) (February 7, 2021).

³⁹¹ Wenfei Liu, Jianping Wu, Houbao Fan, Honglang Duan, Qiang Li, Yinghong Yuan, and Hao Zhang, *Estimations of evapotranspiration in an age sequence of Eucalyptus plantations in subtropical China*, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5388327/> (April 11, 2017).

³⁹² *Id.*

- **Community Benefits:** Removing and/or replacing flammable, invasive, nonnative eucalyptus trees with native vegetation would reduce the fire threat in the Painted Cave community and within other rural residential areas in the WUI. It would also limit the spread of these dangerous trees in the Maria Ygnacio Creek Watershed, protecting native vegetation communities, including coast live oak woodlands and riparian forests. Removing or replacing eucalyptus would help protect special-status wildlife species, such as California red-legged frog (*Rana aurora draytonii*) and southern California steelhead (*Oncorhynchus mykiss*), and California newt (*Taricha torosa*), by reducing the severity and spread of wildfires. This recommendation would also incrementally reduce loss of aquatic habitats and potential flow impairment due to eucalyptus' high evapotranspiration rates.³⁹³ Recommendation Maria Ygnacio 1A could lessen the frequency and severity of fire-induced erosion, sedimentation, flooding, and debris flows, and their effects on vegetation communities, special-status species, fish, and wildlife habitat which occur in Maria Ygnacio Creek.³⁹⁴ Enhancement of oak woodlands, riparian woodlands, and chaparral communities will improve conditions for fish and wildlife.



Figure 232. Several stands of eucalyptus in the Painted Cave, San Marcos Pass, San Jose Creek, and Maria Ygnacio Creek areas increase fire hazards and decrease native forest quality. Google Earth. 2019.

³⁹³ *Id.*

³⁹⁴ SBCFCWCD (2019) at 4 and 6.

- **Next Steps:** Contact the Painted Cave community, Wildland Residents Association, SBCFD, Firesafe Council, Painted Cave Volunteer Fire Department, the Conservancy, CRCD, and UC Coop to discuss a collaborative approach to identifying, prioritizing, and removing eucalyptus trees, and replacing them with native vegetation, where appropriate, based on community values such as fire safety, aesthetics, and habitat. Conduct neighborhood outreach to address concerns and gather input. Engage agencies such as SBCFD, CRCD, and UC Coop, and non-profit partners including Los Padres Forest Watch, CIR, Santa Barbara Firesafe Council, and Santa Barbara Audubon to focus on community education regarding fire safety, watershed health, and habitat enhancement.

Calle Barquero Open Space near University Drive

- **Problem Maria Ygnacio 11:** A large stand of invasive eucalyptus trees encompasses the riparian corridor of Maria Ygnacio Creek at the Calle Barquero Open Space, extending 330 meters upstream from University Drive, and 285 meters downstream from University Drive. (Figure 254) These trees increase the fire hazard in the residential neighborhood.³⁹⁵ They also constitute Monarch Overwintering Sites 2788 and 3216.³⁹⁶ (Figure 254 and 255) Brazilian pepper trees (*Schinus terebinthifolius*) (Figures 252 and 256) and Shamel ash trees (*Fraxinus uhdei*), which are naturalized and invasive in the wild, (Figure 253) are present in the riparian corridor.³⁹⁷ Some native coast live oak trees (*Quercus agrifolia*) (Figure 254) and black cottonwood (*Populus trichocarpa*) trees (Figure 258) have been planted, and Foothill Elementary School students have planted native coastal sage scrub plants, including California sage and giant wild rye grass south of University Drive (Figure 257). However much of the open space south of University Drive is dominated by nonnative weeds, requiring frequent mowing. (Figure 258)
- **Jurisdiction:** County of Santa Barbara

³⁹⁵ EDC (2019) at 135-137.

³⁹⁶ Western Monarch (2021).

³⁹⁷ Calflora website at https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=7379 (January 11, 2021); See also: Sepulveda Basin Wildlife.org website, *Common Weeds And Exotic Plants In The Sepulveda Basin Wildlife Reserve* webpage available at <https://www.sepulvedabasinwildlife.org/weeds.html> (January 11, 2021).



Figure 253. Shamell ash tree invading Maria Ygnacio Creek in the Calle Barquero Open Space north of University Drive. Right. Max Kalber. November 5, 2020.



Figure 254. Eucalyptus trees are present in the riparian corridor at the intersection of Ribera Drive and University Drive. Note fourteen coast live oaks planted on the west side of the open space next to Calle Barquero. Google Earth. 2019.

- **Recommendation Maria Ygnacio 11A:** Control the spread of eucalyptus trees and other exotic plant species, consistent with the City of Goleta CWPP.³⁹⁸ Replace eucalyptus trees that die or fall with native trees. (Figure 258) Continue planting coast live oak (*Quercus agrifolia*), black cottonwood (*Populus trichocarpa*), western sycamore (*Platanus racemosa*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and other coast live oak woodland and riparian species on the terrace of the Barquero Open Space west of the eucalyptus grove. Continue planting coastal sage scrub species to restore native upland habitats on the upper slopes of the open space outside of the monarch butterfly overwintering site. (Figure 257) Plant native shrubs such as narrow leaf milkweed (*Asclepias fascicularis*),³⁹⁹ and fall-flowering nectar plants such as coyote bush (*Baccharis pilularis*) and mulefat (*Baccharis salicifolia*) which benefit overwintering monarch butterflies.⁴⁰⁰



Figure 255. A stand of eucalyptus trees on the east bank of Maria Ygnacio Creek at Calle Barquero Open Space south of University Drive. Figure 256. Invasive Brazilian pepper trees are present in Maria Ygnacio Creek at the Calle Barquero Open Space. Max Kalber. November 5, 2020.

³⁹⁸ City of Goleta (2012) at 70 - 72.

³⁹⁹ EDF (2021); See also CalFlora Narrow-leaf milkweed webpage available at https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=747 (February 5, 2021).

⁴⁰⁰ EDF (2021) Table 3 at 9.

- **Community Benefits:** Recommendation Maria Ygnacio 11A would reduce fire hazards, protect the monarch butterfly overwintering site, restore native oak woodland, riparian forest, and coastal sage scrub habitats, improve water quality, reduce rates of erosion and sedimentation, enhance neighborhood aesthetics, and benefit passive recreation, such as birding.
- **Next Steps:** Contact Santa Barbara County Parks Department about continuing restoration activities in the Calle Barquero Open Space. Coordinate with partners such as SBCFD, UC Coop, the Conservancy, and CIR regarding maintenance and potential replacement of eucalyptus trees to reduce fire hazards. Work with nonprofit organizations such as CIR, UCC, and Audubon Society to conduct neighborhood outreach and education.



Figure 257. Native coastal sage scrub plants, including California sage (*Artemisia californica*), installed by Foothill Elementary School students at Calle Barquero Open Space south of University Drive. This is an example of how the youth can get involved in restoring native habitats in public open spaces to benefit the community and learn about natural sciences. Brian Trautwein. November 5, 2020.

- Problem Maria Ygnacio 15:** Invasive plant species, including Shamel ash (*Fraxinus uhdei*), Brazilian peppertrees (*Schinus terebinthifolia*), and highly flammable blue gum eucalyptus trees (*Eucalyptus globulus*) are present in the riparian corridor of Maria Ygnacio Creek at Lassen Open Space and at the bike path footbridge. (Figures 267 and 268) The presence of these species degrades the riparian habitat and increases fire hazards in the neighborhood.



Figure 258. Eucalyptus trees in Monarch Butterfly Overwintering Sites 2788 and 3216 on the west bank of Maria Ygnacio Creek in the Calle Barquero Open Space should be managed pursuant to the City of Goleta Community Wildfire Protection Plan to reduce fire hazards and maintain monarch butterfly habitat. Continue to plant native riparian and oak woodland plant species (left side of photo) in areas outside of the monarch overwintering site, and where eucalyptus trees die or fall within the grove. Prevent the spread of eucalyptus trees within Maria Ygnacio and San Antonio Creek. Note nonnative weeds mowed in foreground. Max Kalber. November 5, 2020.



Figure 267. Shamel ash trees atop the east bank of Maria Ygnacio Creek at Lassen Open Space. Note the wood-rail fence at the top of bank and lack of a buffer vegetated with riparian plants. Max Kalber. November 5, 2020.

- **Recommendation Maria Ygnacio 15A:** Remove the invasive eucalyptus trees and saplings, Shamel ash, and other exotic vegetation from the riparian corridor. Plant native coast live oaks (*Quercus agrifolia*) and other oak woodland species in place of the exotic plants. Create a twenty-five-foot-wide vegetated riparian buffer along the west side of Lassen Open Space. Relocate the wood-rail fence twenty-five feet out into the lawn to encompass the buffer. Maintain the grassy field east of the proposed buffer.



Figure 268. Eucalyptus saplings indicate the eucalyptus trees are spreading in the Maria Ygnacio Creek riparian corridor. Removing them will halt the spread, reduce fire hazards, create an opportunity to restore oak woodland and riparian forest habitat, and provide public education. Brian Trautwein. November 5, 2020.

- **Recommendation Maria Ygnacio 15B:** Install educational signage in the Lassen Open Space and along the bike path. Examples could include signs explaining how eucalyptus trees increase fire hazards and degrade riparian habitats, describing native fish and wildlife, and the community benefits of native ecosystems and habitat restoration.



Figure 269. This bridge over Maria Ygnacio Creek at Lassen Open Space would be an ideal location for placing educational signage. Max Kalber. November 5, 2020.

- **Community Benefits:** Recommendation Maria Ygnacio 15A would restore the native oak woodland and riparian habitats, improve fish and wildlife habitat, improve water quality, and reduce fire hazards, and improve neighborhood aesthetics. Recommendation Maria Ygnacio 15B would expand public education.

- **Next Steps:** Contact the Santa Barbara County Parks Department about restoring Maria Ygnacio Creek's riparian and oak woodland habitats within the Lassen Open Space and along the bike path, removing the invasive plant species, relocating the wood-rail fence, and installing educational signage. Develop a restoration plan. Identify a nonprofit project lead, such as CIR or UCC. Coordinate with SBCFD, UC Coop, CRCDD, and Conservancy re replacement of eucalyptus with less flammable native plants. Conduct neighborhood outreach.

San Antonio Creek

Upper San Antonio Creek Watershed

- **Problem San Antonio 1:** A potentially unpermitted water diversion is present in San Antonio Creek's east fork along the Arroyo Burro Trail, approximately three-quarters of a mile south of East Camino Cielo. (Figure 282) The facility was operating and depleting the Creek of water in June 2020.⁴⁰¹ This diversion reduces and at times eliminates the flow in the east fork of the Creek, eliminating habitat for protected species such as California newt (*Taricha torosa*), California red-legged frog (*Rana aurora draytonii*), and southern California steelhead (*Oncorhynchus mykiss*).⁴⁰² It causes water quality concerns due to reduced flows and stagnant water. The diversion consists of an intake pipe that at times is covered by gravel, a gravity-flow water line, and two concrete cisterns located along the public trail west of the east fork of San Antonio Creek. (Figure 283). Desiccation of the riparian corridor may exacerbate wildlife fire threats due to a reduction in live fuel moisture levels in the riparian corridor in San Antonio Creek.
 - **Jurisdiction:** County of Santa Barbara and/or USFS
 - **Regulatory Jurisdiction:** SWRCB and CDFW
 - **Recommendation San Antonio 1A:** Investigate the streambed diversion to see if it is permitted. If it is not, work with regulatory agencies to halt diversions to enhance Creek flows, or to ensure permitting with conditions to protect instream flows and habitat for aquatic and riparian species.
 - **Community Benefits:** Recommendation San Antonio 1A would restore impaired instream flows, improve water quality. It would improve wildlife and riparian habitat. Rewatering the Creek would potentially increase groundwater recharge in the Goleta Groundwater Basin and may increase moisture levels in riparian habitat which could lessen wildfire spread.⁴⁰³

⁴⁰¹ Email from Brian Trautwein, Environmental Analyst / Watershed Program Coordinator to CDFW (August 17, 2020).

⁴⁰² California red-legged frog and California rough-skinned newt have been recorded in San Antonio Creek within the LPNF (see e.g., Figures 5a and 5b). Anadromous and resident southern California steelhead have been documented in San Antonio Creek near Highway 154 in the 1970s and 1980s. CEMAR (2008) at 285.

⁴⁰³ City of Goleta (2020) at 184.

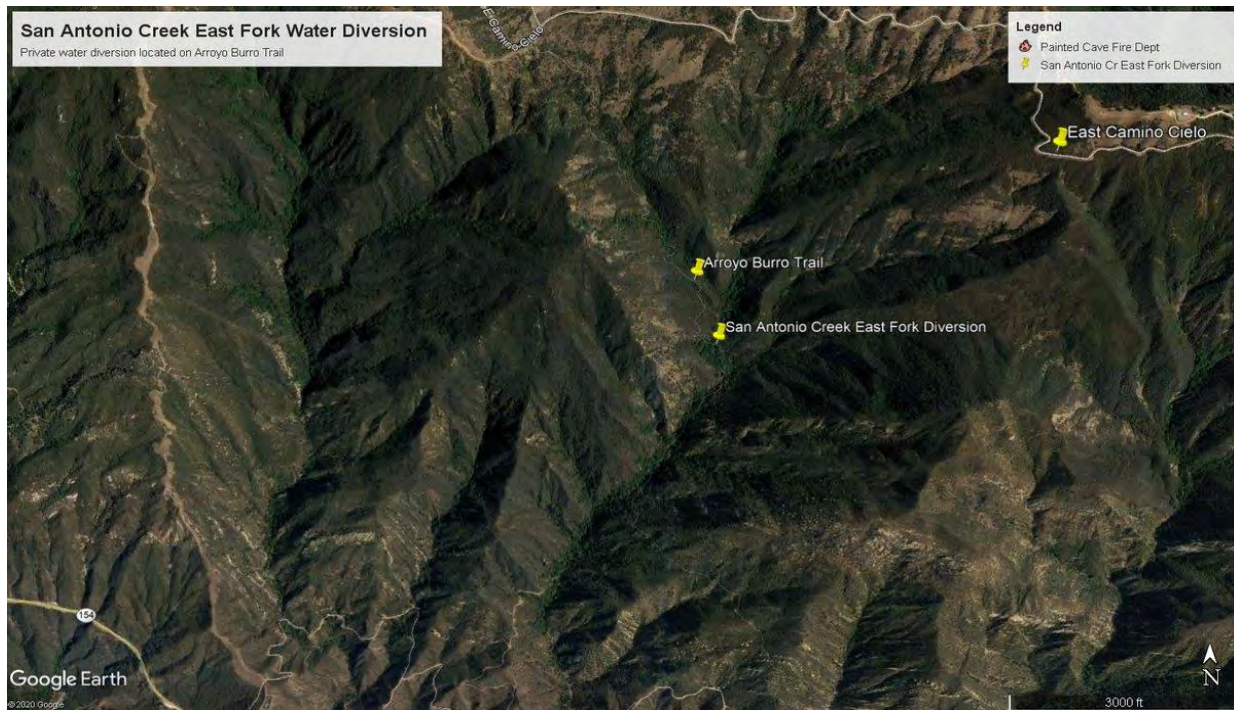


Figure 282. The San Antonio East Fork Diversion is in the Santa Ynez Mountains along Arroyo Burro Trail. Google Earth, 2019.

- **Next Steps:** Report the streambed diversion to CDFW, SWRCB, and the County of Santa Barbara to determine the permitting status of the diversion. Pursue remediation of impacts caused by the diversion if it is unpermitted, or if permit conditions are inadequate to comply with Fish and Game Code 5937 and the Public Trust Doctrine.



Figure 283. These cisterns along Arroyo Burro Trail near San Antonio Creek are filled with water from a streambed diversion. Brian Trautwein. June 2020.

Windy Gap Firebreak North of Highway 154

- **Problem San Antonio 2:** The Windy Gap Firebreak located in the WUI on a ridge west of the San Antonio Creek Watershed is periodically cleared to provide access and safe space for firefighters and to reduce wildfire spread across the Santa Ynez Mountains. Clearing and maintaining the firebreak has increased erosion and the spread of invasive annual weedy vegetation, which is easily ignitable during summer and fall after the growing season. (Figures 284 - 287) The firebreak failed to stop the wind-driven 2009 Jesusita Fire, but still offers protection for firefighters as well as a location to initiate backburns and prevent wildfire spread.⁴⁰⁴ (Figure 287) “On the west end of the fire, winds picked up in the later afternoon, causing the fire to overrun the Windy Gap Fire Break along much of the middle section of the break.”⁴⁰⁵

Despite erosion control water bars installed after the Cave Fire in 2019, the denuded landscape within the firebreak is subject to accelerated erosion. (Figure 288) Erosion may increase sedimentation in the west fork of San Antonio Creek, which serves as breeding habitat for protected species such as California newt (*Taricha torosa*) and southwestern pond turtle (*Emys marmorata pallida*),⁴⁰⁶ which are species of special concern in California, and federally threatened California red-legged frog (*Rana aurora draytonii*).

The disturbed land acts as a corridor along which annual nonnative invasive weeds are spreading through the National Forest.⁴⁰⁷ The firebreak has also become a trail for hikers, some of whom may smoke while on the trail.⁴⁰⁸ Since the weeds are annual plants, they die and dry out completely each year, increasing the fire ignition hazard which is magnified by human presence on the Windy Gap Firebreak Trail. While the firebreak serves an important purpose for fighting fires and protecting firefighters, it may increase fire ignitions.

⁴⁰⁴ Ray Ford, *Jesusita Fire Begins to Settle Down*, Santa Barbara Independent available at <https://www.independent.com/2009/05/10/jesusita-fire-begins-settle-down/> (May 10, 2009).

⁴⁰⁵ *Id.*; See also Melinda Burns, *Saving Mountain Dwellers from Wildfire*, Santa Barbara Independent, <https://www.edhat.com/news/saving-mountain-dwellers-from-wildfire> (August 16, 2018).

⁴⁰⁶ The southwestern pond turtle is currently being considered for listing as a threatened or endangered species under the federal Endangered Species Act. U.S. Department of Interior, U.S. Fish and Wildlife Service, *50 CFR Part 17, Endangered and Threatened Wildlife and Plants; 90-day Findings on 10 Petitions* at 2, stating, “the petitioned actions may be warranted,” available at <https://s3.amazonaws.com/public-inspection.federalregister.gov/2015-07837.pdf> (March 30, 2015); See also, Los Padres ForestWatch, *Southern Pacific Pond Turtle* webpage, available at <https://lpfw.org/our-region/wildlife/pacific-pond-turtle/> (February 9, 2021).

⁴⁰⁷ EdHat Reader, *Hiking in the Burn Area*, available at <https://www.edhat.com/news/hiking-in-the-burn-area> (December 8, 2019).

⁴⁰⁸ *Id.* at cover photo.



Figure 284. The Windy Gap Firebreak before it was cleared (2016) and Figure 285 after it was cleared (2018), exposing the soil to erosion. Google Earth. 2016 and 2018.



- **Jurisdiction: USFS**



Figure 286. The Windy Gap Firebreak located between the west fork of San Antonio Creek and Maria Ygnacio Creek should be seeded with native grasses and fire-resistant native vegetation to mitigate erosion.

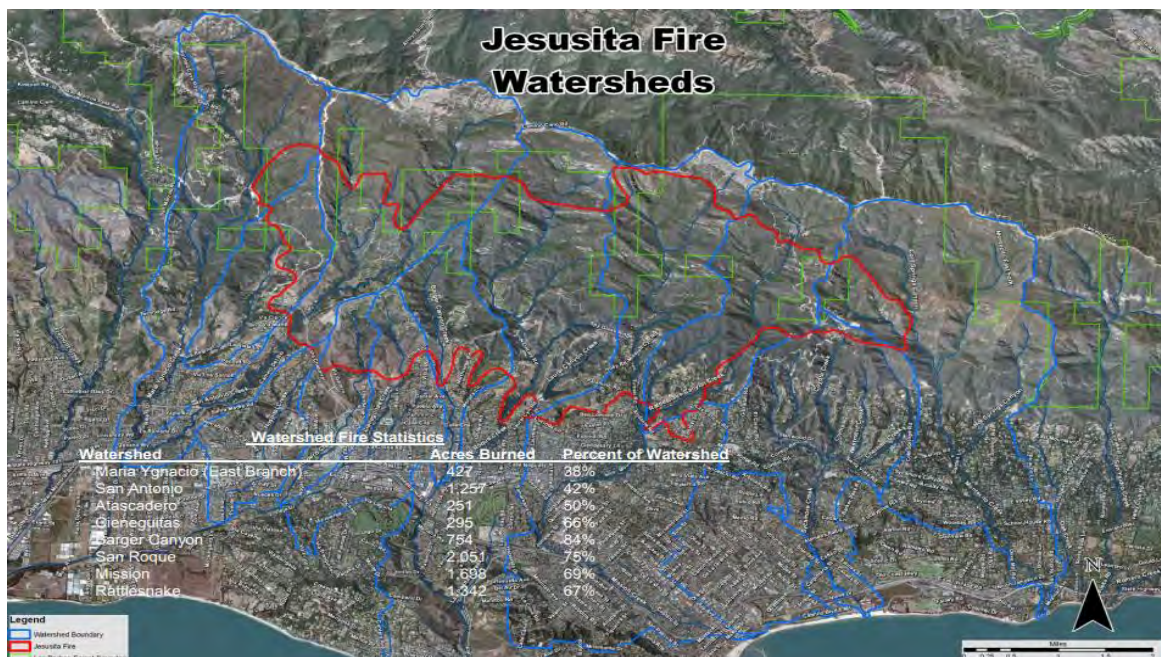


Figure 287. The 2009 Jesusita Fire (red polygon) burned across the Windy Gap Fire Break shown as a north-south trending light colored linear feature in the upper left quadrant of this image.

<https://missioncanyon.org/pdfs/Jesusita%20Fire%20hydromulch.pdf>

- **Recommendation San Antonio 2A:** Maintain the firebreak as needed to enhance fire safety and provide access for firefighters. Seed or plant the firebreak with fire-resistant low-growing native chaparral, grasses, and shrubs, such as California fuchsia (*Epilobium canum*),⁴⁰⁹ yucca (*Yucca whipplei*), buckwheat (*Eriogonum fasciculatum*),⁴¹⁰ lemonade berry (*Rhus integrifolia*),⁴¹¹ and California brome (*Bromus carinatus*) to reduce erosion and sedimentation, and to mitigate the invasion of fire-prone nonnative annual plants within the disturbed corridor.



Figure 288. Erosion gullies or rills were present on the Windy Gap Firebreak in 2019 despite the installation of erosion control water bars. Google Earth. 2019.

- **Community Benefits:** Recommendation San Antonio 2A would help reduce wildfire spread, maintain access for firefighter safety, provide locations to conduct backburns, improve habitat, and reduce erosion, sedimentation, and the spread of highly ignitable nonnative annual weeds.

⁴⁰⁹ See Cal Fire website for list of Fire-Resistant Plants:

<https://www.readyforwildfire.org/prepare-for-wildfire/get-ready/fire-resistant-landscaping/>.

⁴¹⁰ Summer Winds Nursery, *Protect Your Home by Landscaping with Fire Resistant Plants* webpage

<https://summerwindsnursery.com/blog-ca/protect-your-home-by-landscaping-with-fire-resistant-plants> (August 5, 2019) (“Summer Winds (2019)”).

⁴¹¹ *Id.*

- **Next Steps:** Coordinate with SBCFD, USFS, CRCD, The Conservancy, and UC Coop about maintaining the Windy Gap Firebreak with low-growing native grasses and fire-resistant shrubs to help reduce erosion and sedimentation while providing access for firefighters and lines to conduct backburns.

Vala Drive and La Ramada Drive South of Cathedral Oaks Road

- **Problem San Antonio 9:** A swale conveys stormwater runoff to a storm drain which discharges runoff from Cathedral Oaks Road, North San Marcos Road, and nearby parking lots directly into San Antonio Creek near the intersection of Yapple Avenue and Vala Drive. (Figures 302 and 303) A three hundred and ninety-foot long unvegetated swale collects runoff from the streets and parking lots and directs it into a storm drainpipe. The pipe then continues underground for sixty linear feet from the swale near Vala Drive to the creek, reducing stormwater infiltration and riparian moisture levels. (Figure 305)



Figure 302. The bioswale would be constructed where the existing swale and culverts are located along Vala Drive and would extend southward, then eastwards until it reaches the west bank of San Antonio Creek. Brian Trautwein. November 24, 2020.



Figure 303. The red line depicts the storm drainpipes, and the light blue line is the existing 390 foot-along swale paralleling Vala Drive. The southern storm drainpipe should be daylighted, and, along with the existing swale should be converted into a bioswale and planted with high uptake native vegetation to filter pollutants from stormwater runoff before discharging into San Antonio Creek. Google Earth. 2019.

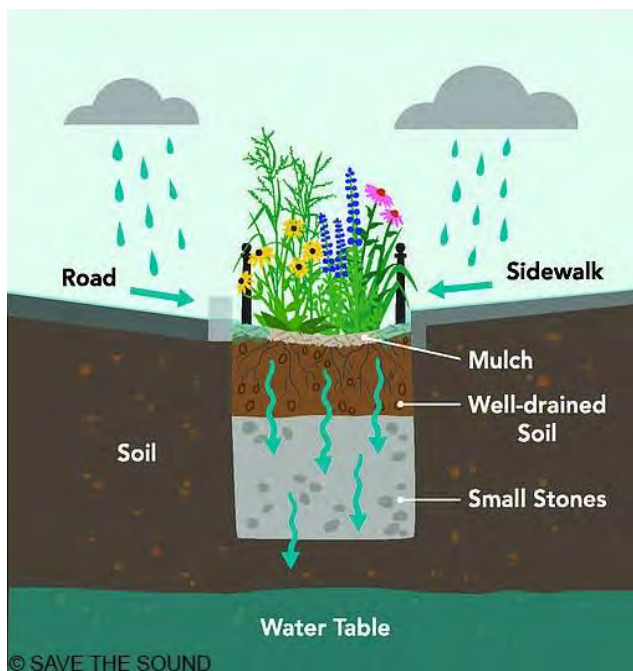


Figure 304. Bioswales collect stormwater runoff, infiltrate runoff through soil and into sand, gravel, or small rock substrate, allow water to recharge the water table, and convey water to nearby drainage courses. Save the Sound. (February 10, 2021).

- **Jurisdiction:** County of Santa Barbara
- **Recommendation San Antonio 9A:** Daylight the southern storm drainpipe and install a four hundred and fifty-foot long bioswale that would help filter out pollutants from runoff discharging to San Antonio Creek. To create the bioswale, first remove the sixty-foot-long pipe to daylight the channel and establish earthen swale with a sand and gravel substrate. (Figure 304) Second, excavate the existing three hundred and ninety-foot-long swale along Vala Drive and install a sand and gravel substrate. Third, plant the four hundred and fifty-foot-long swale with high-uptake native wetland and upland plant species, like and rushes (*Juncus* spp.), wild rose (*Rosa californica*), blue-eyed grass (*Sisyrinchium bellum*), and giant wild rye grass (*Elymus condensatus*)⁴¹² propagated from plants occurring in the San Antonio Creek Watershed. (Figures 306 and 307) Fourth, key-in boulders at the base of the bank where the storm drain is currently located to dissipate energy from the water discharging from the bioswale and to improve bank stability and reduce erosion.
- **Community Benefits:** Recommendation San Antonio 9A would improve wildlife habitat and native plant communities, increase groundwater recharge, increase creek baseflows, increase live fuel moisture levels in riparian plants, reduce fire hazards, improve water quality, and may reduce flooding, erosion, sedimentation. The bioswale would also enhance neighborhood aesthetics.
- **Next Steps:** Collaborate with the landowners, Santa Barbara County Project Clean Water, SBCK, and CIR, and other potential partners to design and seek funding for construction of the bioswale.

⁴¹² CASQA, *Central California Coast Technical Assistance Memo, LID Plant Guidance for Bioretention* available at https://www.casqa.org/sites/default/files/downloads/central_coast_bioretention_plant_guidance_press.pdf (February 10, 2021).



Figure 305. This storm drain has no mechanism for filtering pollutants that eventually discharge into San Antonio Creek. We recommend removal of the pipe and installation of a bioswale. Brian Trautwein. November 24, 2020.



Figures 306 and 307. Examples of completed bioswales.
 306. Phillippi Creek.
<https://www.phillippicreek.org/how-to-build-a-rain-garden-or-bioswale/>;
 307. Pinterest
<https://www.pinterest.com/pin/17592254771200039/> (February 10, 2021).

La Ramada Drive and Turnpike Avenue

- **Problem San Antonio 10:** A stand of eucalyptus trees at La Ramada Drive and North Turnpike Road increases fire hazards to homes nearby. (Figures 308 and 309) The riparian forest habitat is significantly degraded by the presence of the eucalyptus and resulting scarcity of native plants.⁴¹³



Figure 308. The red outline depicts a large stand of eucalyptus at La Ramada Drive and North Turnpike Ave. The green polygons depict native riparian forest along San Antonio Creek. Google Earth. 2019.

- **Jurisdiction:** County of Santa Barbara

⁴¹³ EDC (2019) at 145 - 147.

- **Recommendation San Antonio 10A:** Remove the eucalyptus trees around La Ramada Drive, where they occur outside of Monarch Butterfly Overwintering Site 3225, in a phased manner to minimize disturbance to wildlife and neighbors.⁴¹⁴ Remove eucalyptus leaf litter to remove the eucalyptus trees' seeds and allelopathic chemicals⁴¹⁵ which limit the growth of native plants. Plant native species, such as western sycamores (*Platanus racemosa*), coast live oaks (*Quercus agrifolia*), and riparian understory species throughout in the riparian corridor outside the monarch overwintering site, including the largely denuded western creek bank north of the La Ramada Drive Bridge, where the Cootamundra wattle (acacia) tree is growing. (Figure 310)

Avoid removing mature trees inside Monarch Overwintering Site 3225 near La Ramada. Instead, manage the eucalyptus trees in the overwintering site by removing dead bark, downed wood, and young trees as part of the protocol set forth in the Goleta CWPP.⁴¹⁶ Remove other identified invasive plant species, like the Cootamundra Wattle (*Acacia baileyana*) sapling, Shamel ash (*Fraxinus uhdei*), and California peppertrees (*Schinus molle*).

- **Community Benefits:** Recommendation San Antonio 10A would reduce fire hazards, restore native riparian habitat, enhance bird and wildlife habitat, including the wildlife movement corridor, and may improve water quality in San Antonio Creek.
- **Next Steps:** Coordinate with CRCD, SBCFD, UC Coop, the Conservancy, Xerces Society, and CIR to develop a fire-safe landscaping/restoration plan. Conduct neighborhood outreach to receive input and help shape the plan and to acquire community support for restoring this site. Identify grants and funding to develop and implement the plan.

⁴¹⁴ Western Monarch (2021) Box 3225 for the monarch overwintering site at the intersection of La Ramada and Turnpike Avenue.

⁴¹⁵ Science Direct website available at <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/allelopathy> "Allelopathy is a biological phenomenon by which an organism produces one or more biochemicals that influence the germination, growth, survival, and reproduction of other organisms from the same community" (February 28, 2021).

⁴¹⁶ City of Goleta (2012) at 70 - 72.



Figures 309 and 310. Eucalyptus trees (left) and a Cootamundra wattle (acacia) sapling (right) at La Ramada Drive near Turnpike Avenue are invasive and create a fire hazard to homes nearby. Max Kalber. November 24, 2020.

Tabano Hollow Open Space on University Drive and Tabano Way

- Problem San Antonio 13:** GWD operates one or more wells adjacent to San Antonio Creek about two hundred meters east of the Tabano Hollow Open Space dog park. When the well(s) extract water from this riparian site, a cone of depression may form, leading to an overall reduction in the water table, reduced flows in the creek, and reduced live plant fuel moisture levels in the riparian forest.⁴¹⁷ Desiccation of riparian habitats increases fire hazards in the WUI.⁴¹⁸

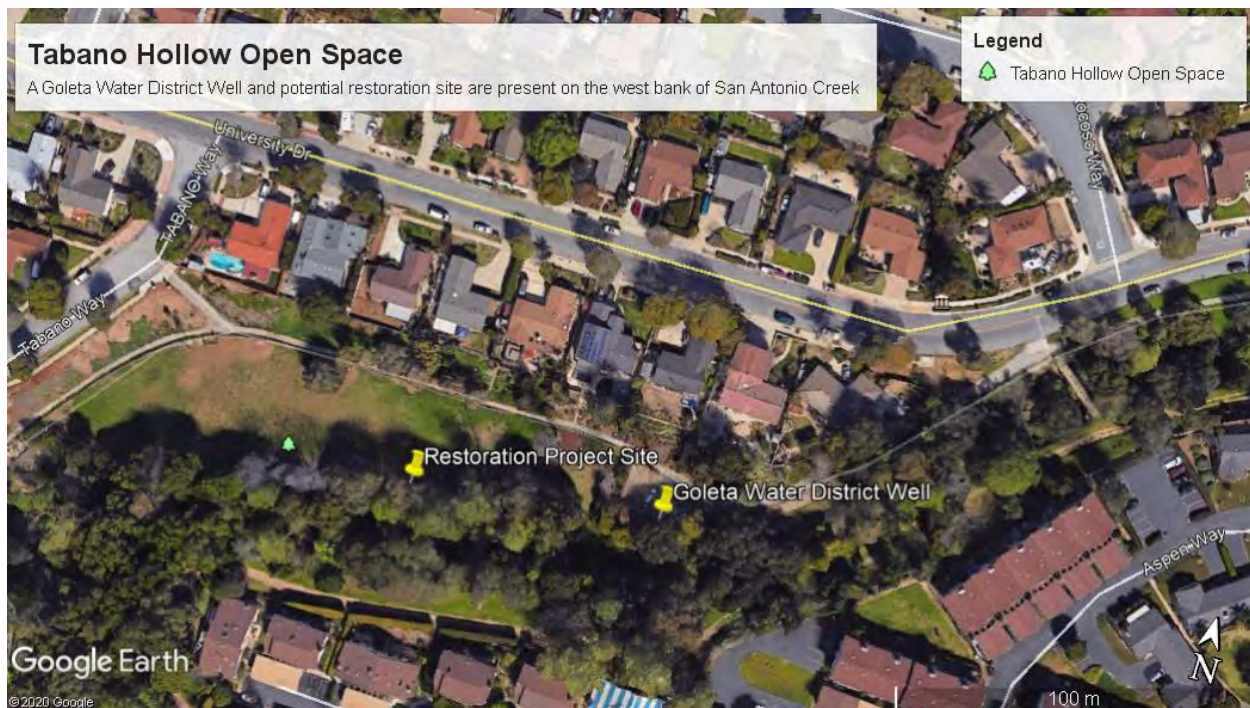


Figure 313. The GWD wells pump water from near San Antonio Creek, potentially causing the water table to be lowered and impairing stream flow. Google Earth. 2019.

- Jurisdiction:** County of Santa Barbara

⁴¹⁷ USGS *Cone of depression: Pumping a well can cause water level lowering* website available at: <https://www.usgs.gov/media/images/cone-depression-pumping-a-well-can-cause-water-level-lowering> (February 28, 2021).

⁴¹⁸ City of Goleta (2020) at 221.

- **Recommendation San Antonio 13A:** When water from Cachuma Reservoir is available, inject it into the groundwater basin to recharge the basin. This recommendation would redirect the flow of water from Cachuma Reservoir via the South Coast Conduit, or GWD's distribution system to the current well site for injection underground to increase storage in the groundwater basin and potentially increase stream flows.⁴¹⁹ (Figure 314).
- **Community Benefits:** Recommendation San Antonio 13A would increase groundwater recharge, increase moisture levels in the riparian habitat reducing the threat of wildfires, store water underground to reduce evaporation losses associated with storage in Cachuma Reservoir, and may increase stream flows, and improve water quality.



Figure 314. The GWD wells operating adjacent to San Antonio Creek reduce the water table and may impair stream flows. The wells should double as a groundwater recharge facility. Max Kalber. November 24, 2020.

- **Next Steps:** Meet with representatives from the GWD to discuss the concept of this plan in greater detail.

⁴¹⁹ Mojave Water Agency, *Recharge Facilities* webpage available at <http://www.mojavewater.org/recharge-facilities.html> (February 10, 2021.)

Atascadero Creek Watershed⁴²⁰

Vieja Valley Elementary School

- Problem Atascadero 11:** Several invasive nonnative plants, including blue gum eucalyptus trees (*Eucalyptus globulus*), Shamel ash trees (*Fraxinus uhdei*), palm trees (*Arecaceae* spp.), and Catalina Island cherry (*Prunus ilicifolia* spp. *lyonii*) are present in the Cieneguitas Creek riparian corridor at Vieja Valley Elementary School. (Figures 349 and 350) This area is within the WUI.⁴²¹ (Figure 351) The eucalyptus and palm trees increase the fire hazard in this area which abuts a largely wooded area of Hope Ranch, where eucalyptus and coast live oak trees are the dominant vegetation.⁴²²

Figure 5.6 Wildland-Urban Interface (WUI)

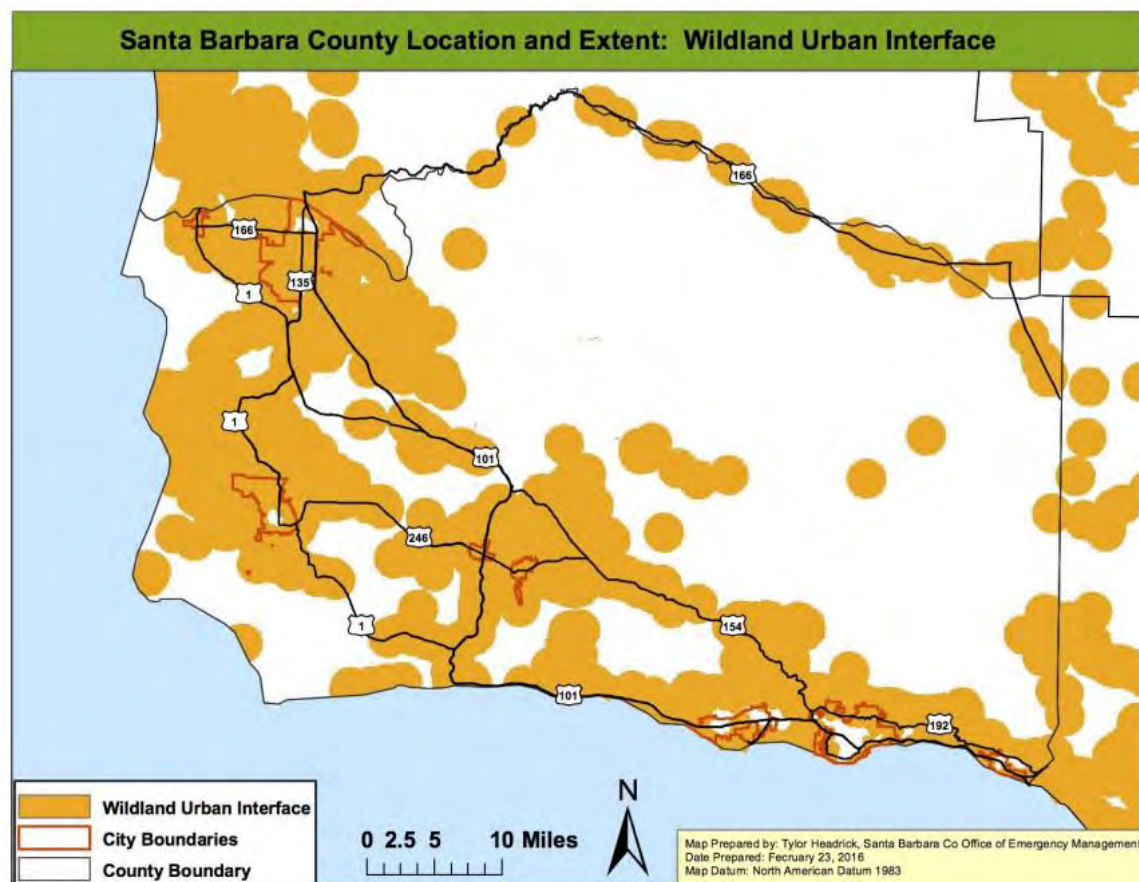


Figure 351. The site is located within the Wildland-Urban Interface. Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (2017).

⁴²⁰ The Atascadero Creek Watershed includes Cieneguitas Creek and Hospital Creek.

⁴²¹ Santa Barbara County (2017b) at 5-12.

⁴²² Google Earth (2019).

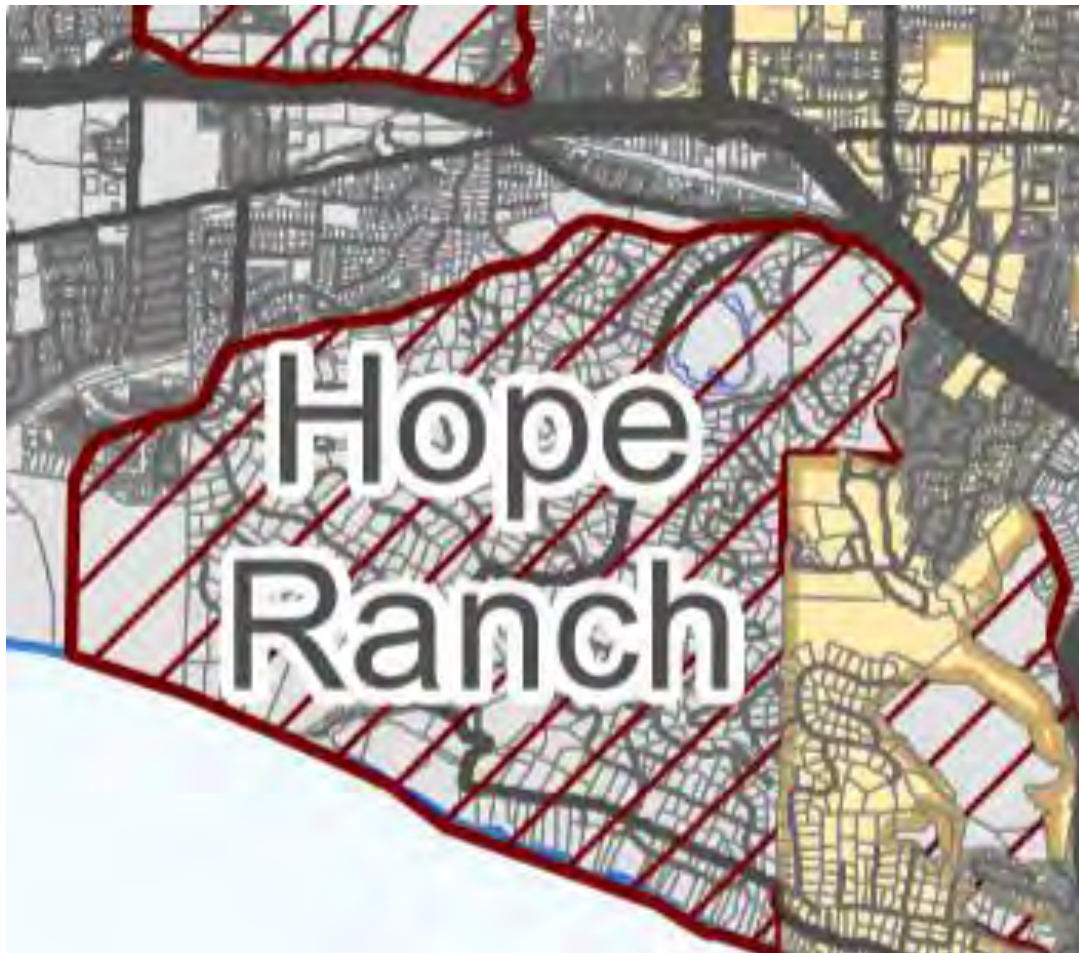


Figure 352. Santa Barbara County High Fire Hazard Areas Map. Vieja Valley School is in the top center portion of the map, above the “p” in Hope Ranch, north of and adjacent to the High Fire Hazards Area (red crosshatchings). Santa Barbara County Fire Department. Undated.

Cieneguitas Creek north of the School was the location of a Creek restoration/revegetation project done by Santa Barbara Audubon in 1998.⁴²³ Audubon worked with Vieja Valley School in the Hope Elementary School District to remove large eucalyptus trees and plant native riparian species along Cieneguitas Creek to reduce the danger of trees falling onto the school’s field and to restore native riparian habitat. (Figures 346 and 347) The project was largely successful, and today there is a well-developed native riparian habitat present. However, there are still several invasive trees and shrubs present, which pose a threat of spreading within the restored riparian habitat and which may increase the threat of fire in the WUI adjacent to a high fire hazard area. (Figure 348 and 349).

⁴²³ Email from Stephanie Langsdorf, Project Manager, Cieneguitas Creek Restoration Project, to Brian Trautwein, Environmental Analyst/Watershed Program Coordinator, EDC (April 2, 2021).

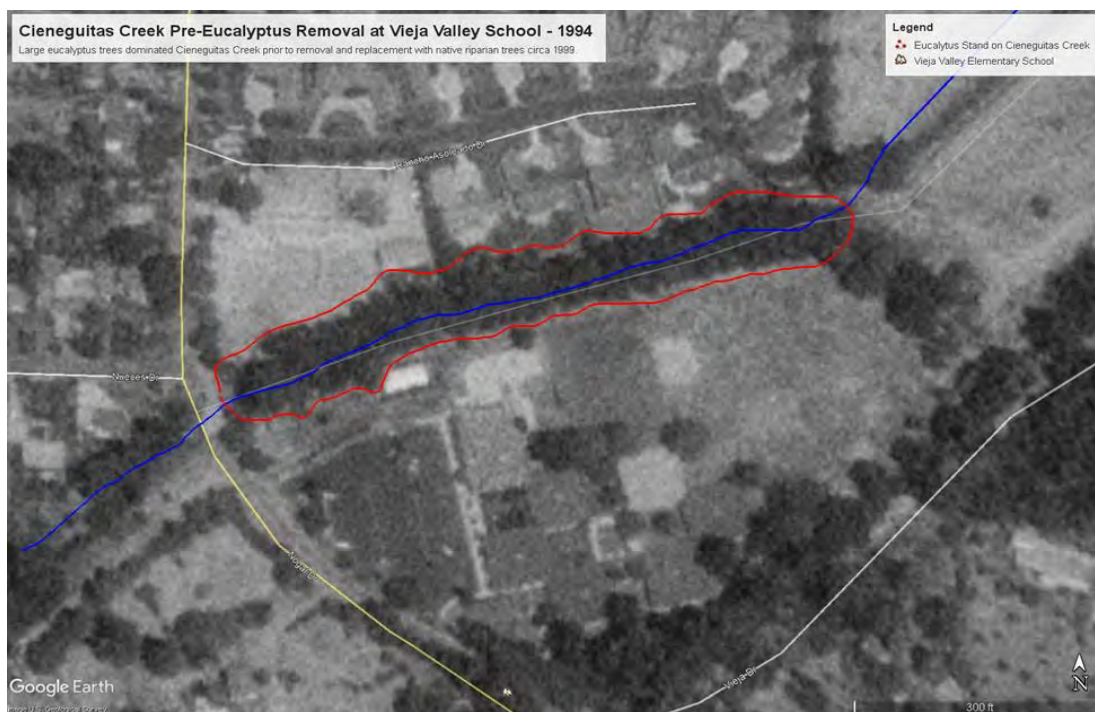


Figure 346. Eucalyptus trees (red outline) dominated the Cieneguitas Creek riparian corridor in 1994 before the Audubon Society and Vieja Valley School's Cieneguitas Creek Restoration Project in 1998. Google Earth. 1994.

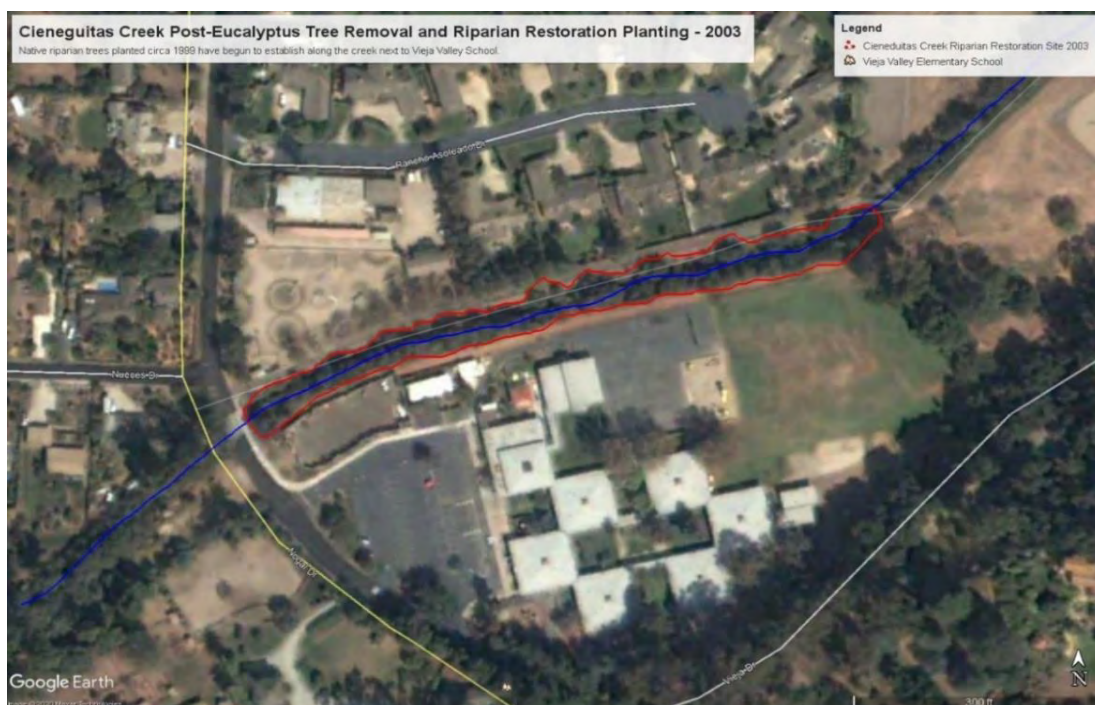


Figure 347. Cieneguitas Creek Riparian Restoration Site in 2003. Note the riparian saplings cover a much smaller area (red outline) than the large eucalyptus trees covered in 1994 (Figure 346 above) before they were removed and replaced with native plants. Google Earth. 2003.

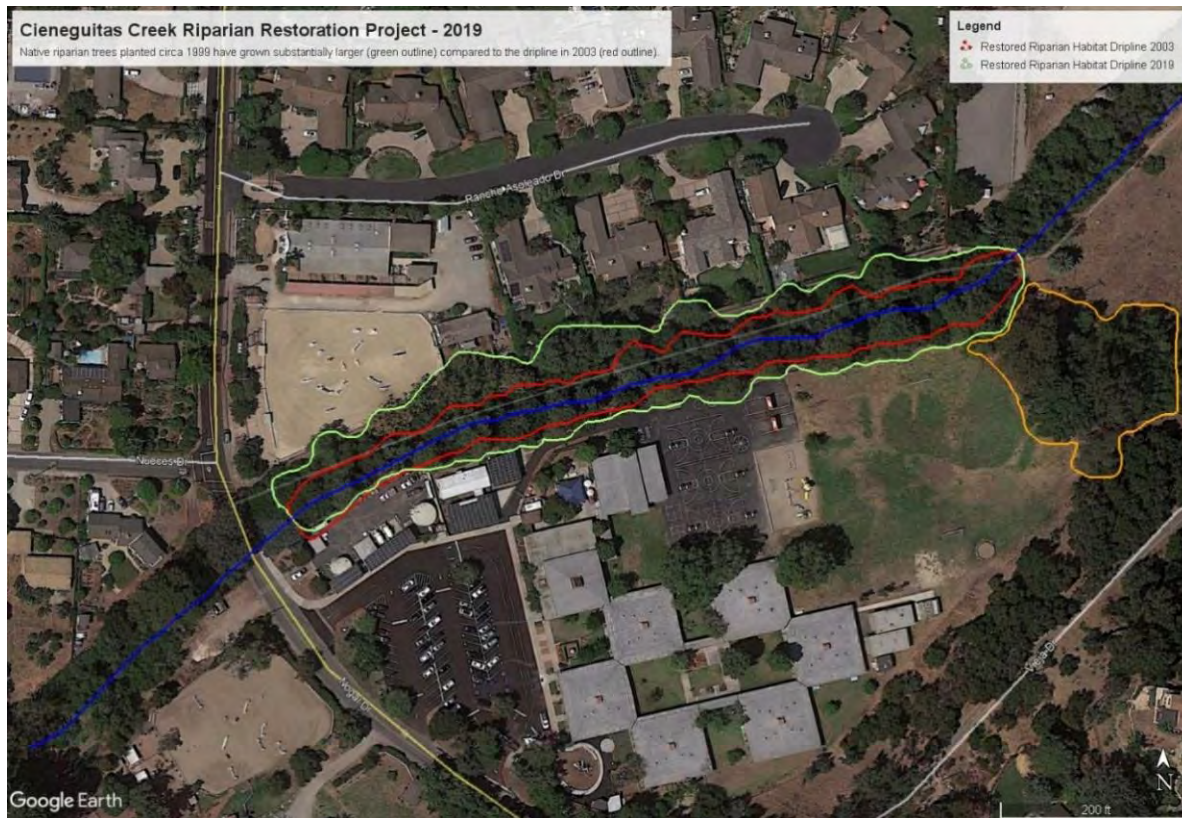


Figure 348. Vieja Valley Elementary School and Audubon Cieneguitas Creek Restoration Project. The restored riparian habitat along Cieneguitas Creek in 2019 (green outline) was considerably larger than the riparian habitat in 2003 (red outline), four years after it was planted. Remaining nonnative plants within riparian forest and within the adjacent woodland east of lawn (orange outline) should be replaced with natives. Google Earth. 2019.

- **Jurisdiction:** County of Santa Barbara
- **Recommendation Atascadero 11A:** Replace the remaining invasive nonnative plants present within the riparian corridor of Cieneguitas Creek and within the woodland directly east of the School's lawn (orange polygon in Figure 348) with native riparian and oak woodland plants. Prioritize the removal of eucalyptus trees and saplings to reduce fire hazards and prevent their spread. Also remove Shamel ash, palms, and Catalina Island cherry. Plant native vegetation, including arroyo willows (*Salix lasiolepis*), black cottonwoods (*Populus trichocarpa*), and riparian understory vegetation in the gaps created where nonnative plants are removed from the riparian woodland corridor to enhance the riparian woodland. Install additional understory vegetation, including wild blackberry (*Rubus ursinus*) and mugwort (*Artemisia douglasiani*) within the riparian corridor.

- **Community Benefits:** Recommendation Atascadero 11A would continue to improve the restored riparian woodland habitat and wildlife movement corridor, improve water quality, reduce fire hazards, and increase safety for students and faculty using the lawn area by removing additional eucalyptus trees which may pose tree fall as well as fire hazards.
- **Next Steps:** Contact the Vieja Valley School and Hope Elementary School District Administration about continued restoration of the riparian habitat of Cieneguitas Creek adjacent to the school. Potential partners include CIR, Audubon, SCHR, UC Coop, Conservancy, and SBCFD.



Figure 349. A eucalyptus tree and palm tree depicted here are among several invasive species still present within the restored Cieneguitas Creek riparian corridor at Vieja Valley Elementary School. Max Kalber. December 15, 2020.



Figure 350. The Cieneguitas Creek riparian corridor features mature riparian trees planted as part of the Creek restoration project beginning in 1998. Several invasive nonnative plants remain and should be removed to further restore the riparian forest and reduce tree fall and fire hazards. Brian Trautwein. December 15, 2020.

Tributary of Cieneguitas Creek at La Cumbre Road South of Foothill Road

- Problem Atascadero 15:** Flammable and dead plants and woody debris are present in an oak woodland along a tributary of Cieneguitas Creek east of La Cumbre Road, north of Pueblo Avenue. (Figure 358) This site is in the WUI.⁴²⁴ (Figure 351) Nonnative invasive plants, such as eucalyptus trees (*Eucalyptus citriodora*), pine trees, vinca (*Vinca major*), castor bean (*Ricinus communis*), Shamel ash trees (*Fraxinus uhdei*), and olive trees (*Olea europea*) surround the tributary. (Figures 360 and 361)

⁴²⁴ Santa Barbara County (2017b) at 5-12.



Figure 358. The red outline depicts a degraded oak woodland along an unnamed tributary to Cieneguitas Creek where invasive nonnative trees pose a threat to the oak woodland and increase fire hazard in the WUI east of La Cumbre Road between Foothill Road and Pueblo Avenue. Google Earth. 2019.

- **Jurisdiction:** County of Santa Barbara



Figure 359. This rusted barrel sitting alongside the creek bed below La Cumbre Road may reflect past dumping of hazardous material into the Creek and could indicate a need to test the soil for hazardous materials. Max Kalber. December 17, 2020.



Figure 360. Invasive eucalyptus trees, downed dead wood, and invasive castor bean are present in this tributary to Cieneguitas Creek east of La Cumbre Road and north of Pueblo Avenue. Max Kalber. December 17, 2020.



Figure 361. Eucalyptus trees invading the oak riparian woodland, and pine trees increase neighborhood fire hazards in the WUI. Max Kalber. December 17, 2020.

- **Recommendation Atascadero 15A:** Remove the woody debris, pine, eucalyptus, castor bean, vinca, and other invasive plants. Remove the barrel and test the soil. Replant the valley floor and lower slopes with native coast live oak woodland vegetation, including coast live oaks (*Quercus agrifolia*), toyon (*Heteromeles arbutifolia*), coffeeberry (*Frangula californica*), wild blackberry (*Rubus ursinus*), and hummingbird sage (*Salvia spathacea*). Plant fire-resistant low-growing native grasses and shrubs, such as California fuchsia (*Epilobium canum*),⁴²⁵ buckwheat (*Eriogonum fasciculatum*),⁴²⁶ lemonade berry (*Rhus integrifolia*),⁴²⁷ and California brome (*Bromus carinatus*) to reduce erosion and sedimentation below La Cumbre Road. Suppress exotic annual weed growth with a thick layer of woodchips.
- **Community Benefits:** Recommendation Atascadero 15A would reduce fire hazards in this WUI neighborhood, contribute to a restored coast live oak riparian woodland habitat, and may abate soil contamination.
- **Next Steps:** Coordinate with SBCFD, Santa Barbara City Fire Department, CRCD, the Conservancy, and UC Coop, to develop a fire-safe oak riparian restoration plan. Work with non-profit groups such as CIR and the Santa Barbara County Firesafe Council to conduct neighborhood outreach, to acquire community support for removing flammable exotic trees and restoring this oak woodland. Identify grants and funding to develop and implement the plan.

Atascadero Creek at Highway 154 Foothill Road On-ramp

- **Problem Atascadero 16:** A stand of blue gum eucalyptus trees (*Eucalyptus globulus*) surrounding the Southern California Edison substation east of the northbound onramp to Highway 154 at Foothill Road, next to Atascadero Creek, poses an elevated fire hazard to the nearby Village Green Neighborhood, powerlines, and the substation located in the WUI. (Figures 351 and 362) These exotic plants degrade the Creek's riparian woodland plant community. (Figures 362) Other invasive species, such as ice plant (*Carpobrotus edulis*) and California peppertrees (*Schinus molle*), are also present and degrading the riparian area. (Figure 374).

⁴²⁵ See Cal Fire website for list of Fire-Resistant Plants:

<https://www.readyforwildfire.org/prepare-for-wildfire/get-ready/fire-resistant-landscaping/>.

⁴²⁶ Summer Winds (2019).

⁴²⁷ *Id.*



Figure 362. Eucalyptus trees planted as a visual screen around the Edison substation at Foothills Road and Highway 192, and other invasive species displace native riparian vegetation along Atascadero Creek (blue line) and increase fire threats in nearby apartments and the Edison substation in the WUI. Google Earth. 2019.

- **Jurisdiction:** County of Santa Barbara
- **Recommendation Atascadero 16A:** Remove the blue gum eucalyptus and California pepper trees, ice plant, and other exotic vegetation along the Creek and Creek buffer, and the eucalyptus trees surrounding the Edison substation, and replant the Creek area with more mesic, less flammable native riparian species such as western sycamore (*Platanus racemosa*), arroyo willow (*Salix lasiolepis*), and coast live oak trees (*Quercus agrifolia*), and riparian understory species such as wild blackberry (*Rubus ursinus*), wild rose (*Rosa californica*), hummingbird sage (*Salvia spathacea*), and mugwort (*Artemisia douglasiana*) propagated from seeds and cuttings collected along the creek in this location. Plant native trees or shrubs such as coast live oak and toyon grown from seeds collected at the site to screen the substation.
- **Community Benefits:** Recommendation 16A would reduce fire hazards in the WUI near the Village Green Neighborhood, may better protect power lines and the substation from wildfire, and would restore the health of the riparian forest along Atascadero Creek.

- **Next Steps:** Meet onsite with Edison, Caltrans, CRCD, UC Coop, the Conservancy, SBCFD, County Public Works, and CIR to discuss the proposed fire reduction / riparian woodland habitat enhancement project. Conduct outreach and education in the Village Green Neighborhood on Cieneguitas Road and Foothill Road. Seek funding to develop and implement the project.

- **Problem Atascadero 17:** A roughly 13.25-acre area within the WUI supports a rich mix of oak woodland, coastal sage scrub, and riparian habitat bounded by on the west by the Highway 154 northbound onramp at Foothill Road, on the north by Calle Caridad which dead-ends into a private ranch road, on the south by the Edison substation in Problem Atascadero 16 above, and by Atascadero Creek and Village Green Apartments on the east. (Figure 365) The property contains a six-acre coast live oak woodland, (Figures 365 and 366) The site includes patches of Santa Barbara honeysuckle (*Lonicera subspicata subspicata*), which is a rare local species growing only on the southern flanks of the Santa Ynez Mountains between Gaviota and Santa Barbara.⁴²⁸ The oak woodland understory vegetation was recently cleared degrading the oak woodland habitat. (Figure 366) Non-native vegetation, including anise (*Pimpinella anisum*) is also present. This site is designated Design Residential at 4.6 units per acre under the 2018 Eastern Goleta Valley Community Plan.⁴²⁹

Given the residential zoning, the site may have been cleared in anticipation of future development. Development of sites in the WUI, such as this location, is ill-advised due to its location in the dangerous high fire hazard area. (Figure 367) The oak woodland, coastal sage, and riparian habitat likely qualify as ESHA given the presence of Santa Barbara honeysuckle.⁴³⁰ Therefore, the recent clearing may trigger permits and environmental review pursuant to the County's ESH Ordinance.
- **Jurisdiction:** County of Santa Barbara

⁴²⁸ California Native Plant Society, *Santa Barbara Honeysuckle* webpage, showing that this species is a California Rare Plant Ranking of 1B.2 indicating the species is "rare or endangered in California and elsewhere," and "fairly endangered in California." The State Rank is "S2: Imperiled." <http://www.rareplants.cnps.org/detail/1945.html> (January 25, 2021). Resprouting branches were observed with binoculars from the fence line.

⁴²⁹ Santa Barbara County (2017) at 26-27.

⁴³⁰ Santa Barbara County (2017) EGVCP Policy ECO-EGV-2.3 at 132. While not mapped as ESHA in the EGVCP, Policy CE 2.3 states, "Where sensitive plant species and sensitive animal species are found pursuant to the review of a discretionary project, the habitat in which the sensitive species is located shall be preserved to the maximum extent feasible. For the purposes of this policy, sensitive plant species are those species that appear on the County's list of locally rare, generally rare, or endangered plants, and the California Native Plant Society's Inventory of Endangered Vascular Plants of California."



Figure 365. The yellow outline depicts the land that should be acquired for coastal sage scrub, oak woodland, and riparian forest restoration, to avoid future development and reduce long-term fire hazards in the WUI, and to create a public park or open space complementing the nearby San Marcos Foothills Preserve located north of the site. Google Earth, 2019.

- **Recommendation Atascadero 17A:** Short-term action: Document the presence of any special-status vegetation communities, plants, or wildlife species. If the site may qualify as ESHA, investigate potential requirements for protection or restoration pursuant to the Santa Barbara County ESH Ordinance.



Figure 366. This residential-zoned parcel of land in the WUI south of Calle Caridad would be an ideal site for acquisition of a public park or open space to avoid development in the WUI, and to restore the coastal sage scrub, coast live oak savannah, and riparian forest communities and reduce fire hazards. Max Kalber. January 6, 2021.

As a longer-term strategy, acquire this parcel of land as a County park or open space and connect it to the San Marcos Foothills Preserve by a trail from Via Gaitero. (Figure 365) Restore the coastal sage scrub, oak woodland, honeysuckle population, and Atascadero Creek riparian forest. Remove invasive species and replant with native oak woodland shrubs and understory vegetation in a savannah setting including toyon (*Heteromoles arbutifolia*), mugwort (*Artemisia douglasiana*), Santa Barbara honeysuckle (*Lonicera subspicata subspicata*), and wild blackberry (*Rubus ursinus*).

- **Community Benefits:** Recommendation Atascadero 17A could trigger restoration if unpermitted removal of ESHA occurred. Recommendation Atascadero 17B would prevent future development in the WUI, reducing the wildfire threat to future structures and residents, would establish a public park or open space providing for new recreational opportunities such as hiking, walking, birding, photography, nature appreciation, disk golf, and picnicking, could conserve special-status vegetation communities and plant and animal species, would improve riparian habitat and a wildlife movement corridor, would protect water quality, and would preserve community aesthetics.
- **Next Steps:** Report the clearing to County zoning enforcement, including any evidence of special-status species or plant communities. Identify and contact the landowner. Coordinate with potential purchasing, funding, and

management partners, potentially including SB Land Trust, Trust for Public Land, Santa Barbara County Parks, Southern California Edison, California Native Plant Society, and CIR. Coordinate this effort with Caltrans, which owns the adjacent Highway 154, and with CRCD, UC Coop, the Conservancy, and SBCFD to discuss plans for acquiring this parcel to lessen wildfire threats and creating a fire-safe habitat enhancement program.



Figure 367. The site is within the High Fire Hazard Zone, north of the intersection of Highway 154 and Foothill Road in the center of Figure 367. Santa Barbara County Fire Department. Undated.

Global Watershed and WUI Recommendations

Invasive and Flammable Exotic Vegetation

- **Problem Global 1:** Invasive nonnative plants, including but not limited to the following species, are proliferating within riparian and upland communities within Goleta Valley watersheds. These species are degrading the riparian forests, oak woodlands, and chaparral stands, and several are increasing fire hazards in the WUI. (Figures 374 – 382)
 - Shamel (or evergreen) ash trees (*Fraxinus uhdei*)
 - blue gum eucalyptus trees (*Eucalyptus globulus*)
 - lemon-scented eucalyptus trees (*Eucalyptus citriodora*)
 - giant reed (*Arundo donax*)
 - castor bean (*Ricinus communis*)
 - pampas grass (*Cortaderia jubata*)
 - tree tobacco (*Nicotiana glauca*)
 - umbrella plant (*Cyperus involucratus*)
 - vinca (*Vinca major*)
 - yellow star thistle (*Centaurea solstitialis*)
 - fennel (*Foeniculum vulgare*)
 - ice plant (*Carpobrotus edulis*)
 - English and Algerian ivy (*Hedera helix*)
 - Himalayan blackberry (*Rubus armeniacus*)
 - tamarisk (*Tamarix* spp.)
 - cape ivy (*Delairea odorata*)
 - Mexican fan palm (*Washingtonia robusta*)
 - Spanish broom (*Spartium junceum*)
 - French broom (*Genista monspessulana*)
 - fountain grass (*Cenchrus setaceus*)⁴³¹

These invasive species - many of which are documented in preceding sections - continue to proliferate from the uppermost elevations in Goleta Valley watersheds along East and West Camino Cielo, to the coastal estuaries including Goleta Slough and Devereux Slough.

Many of these pest plants increase wildfire ignition and wildfire spread, consume valuable water, impair stream baseflows, reduce live fuel moisture levels in riparian forests, outcompete and displace native plant species, eliminate and degrade wildlife habitats, force wildlife into shrinking native plant communities

⁴³¹ Epic Gardening, *The 39 Most Invasive Plant Species in California* available at <https://www.epicgardening.com/invasive-plant-species-in-california/> (May 20, 2019) (“Epic Gardening (2019)”).

increasing pressure on them, increase the potential for flooding, denigrate recreational opportunities such as wildlife viewing, photography, hunting, and fishing, adversely impact water quality and soil quality, and cause significant economic damage.⁴³² “Invasive plants cost California at least \$82 million each year.”⁴³³ In one study, seventy-three “percent of the threatened and endangered species reviewed are threatened by exotic species.”⁴³⁴ “Nationally, invasive species are the second-greatest threat to endangered species, after habitat destruction.”⁴³⁵



Figure 374. Highway ice plant on Atascadero Creek bank at Foothill Road. Max Kalber. January 6, 2021.

⁴³² California Department of Fish and Wildlife, *Native Plants and Invasive Species* webpage, available at <https://wildlife.ca.gov/Conservation/Plants/Invasives#:~:text=Invasive%20plants%20not%20only%20crowd,to%20California's%20native%20plant%20species>. (January 27, 2021); See also California Invasive Plant Council, *About Invasive Plants* Webpage available at <https://www.cal-ipc.org/plants/impact/> (January 27, 2021) (“Cal-IPC (2021)”).

⁴³³ (*Id.*)

⁴³⁴ Lawler JJ, Campbell SP, Guerry AD, et al. *The scope and treatment of threats in endangered species recovery plans*. *Ecol Appl* 12: 663–67 (2002) available on CDFW’s website at <https://wildlife.ca.gov/Conservation/Plants/Invasives#:~:text=Invasive%20plants%20not%20only%20crowd,to%20California's%20native%20plant%20species> (January 27, 2021).

⁴³⁵ Cal-IPC (2021).



Figure 375. Algerian ivy climbing twenty feet up into riparian woodland and smothering native vegetation. San Miguel Open Space. Bell Canyon Creek. Brian Trautwein. December 13, 2020.



Figure 376. Giant reed (*Arundo donax*) in riparian corridor. Note also Algerian ivy along wood-rail fence. San Miguel Open Space on Bell Canyon Creek. Brian Trautwein. December 13, 2020.



Figure 377.
Tamarisk in
Devereux Creek
Watershed. Glen
Annie Golf Club
on Cathedral Oaks
Road. Brian
Trautwein.
December 13,
2020.



Figure 378.
Fountain grass on
San Pedro Creek.
South Fairview
Avenue. Brian
Trautwein. October
7, 2020.



Figure 379
Brazilian
pepper tree.
Maria
Ygnacio
Creek at Calle
Barquero
Open Space,
University
Drive. Max
Kalber.
November 5,
2020.



Figure 380. Shamel ash trees (two tallest trees near center of image) on Maria Ygnacio Creek. Lassen Open Space. Brian Trautwein. November 5, 2020.



Figure 381. Catalina Island Cherry on San Jose Creek at southern terminus of Merida Drive. Max Kalber. October 23, 2020.



Figure 382. Castor bean plant in San Jose Creek below Hollister Avenue. Max Kalber. November 18, 2020.

- **Jurisdictions:** City of Goleta, County of Santa Barbara, City of Santa Barbara, and USFS
- **Recommendation Global 1A:**
 - (1) Physically remove the most invasive, fire-prone, and detrimental plant species where feasible, including Arundo and eucalyptus. Solarization,⁴³⁶ herbicides, and manual control are methods for eradicating and controlling these harmful species in the Goleta area. Where complete removal is infeasible, or where the community wishes to retain nonnative plants due to their role in maintaining native bird and wildlife species (e.g., eucalyptus supporting raptor nests and monarch butterfly overwintering sites) control the spread of invasive species, e.g., by removing saplings to reduce adverse effects of nonnative plants on the native plant communities associated with Goleta's watersheds, including riparian forest, oak woodland, native grasslands, coastal sage scrub, and chaparral

⁴³⁶ Andrew Harrison Fraser, University of Washington Master of Science Thesis, *Use of Solarization to Kill the Root Crown and Reduce the Seed Bank Viability of Rubus armeniacus Focke and Cytisus scoparius (L.)* Link available at https://depts.washington.edu/uwbg/research/theses/Andrew_Fraser_2013.pdf (2013).

communities. Where eucalyptus serve as important habitat for monarch butterflies or raptors, and eradication is infeasible, take actions to reduce their proliferation and reduce fire hazards and other impacts, for instance by removing downed wood and bark in eucalyptus groves.⁴³⁷ Where large invasive plants (e.g., pine and eucalyptus trees) are prominent, phase removals to reduce visual disturbance.

(2) Replant native plants from local seed sources to restore habitat, prevent re-establishment of exotic plants, and control erosion.

(3) Implement a highly visible, community-wide education campaign to train residents to avoid buying and planting invasive plant species. Create, update, and maintain a list of invasive nonnative pest plants specific to Goleta Valley (or Santa Barbara County) watersheds and use the list to proactively educate residents about the harm caused by invasive exotic pest plants.⁴³⁸ Urge people not to plant such species. For example, the CDFW actively discourages Californians from planting invasive exotic plant species.⁴³⁹

(3) Create, update, and maintain a working map of locations of exotic invasive species in the Goleta Valley (or Santa Barbara County). Establish and publicize a method for field biologists to contribute newly identified patches of invasive nonnatives, e.g., utilizing I-Naturalist.⁴⁴⁰ Prioritize sites based on fire hazard and ecological threat levels. Report locations of invasive plant species to Santa Barbara County Weed Management Agency (“SBCWMA”).⁴⁴¹

(4) Ban the sale of the most fire-prone and ecologically problematic species by local nurseries, and/or educate and incentivize nursery owners to stop purchasing and propagating these species.⁴⁴² Provide educational materials to nurseries, including posters, brochures and the invasive plant

⁴³⁷ City of Goleta (2012) at 21.

⁴³⁸ See e.g., Epic Gardening (2019).

⁴³⁹ California Department of Fish and Wildlife, *Don't Plant Me* webpage, available at <https://wildlife.ca.gov/Conservation/Plants/dont-plant-me> (January 27, 2021).

⁴⁴⁰ iNaturalist webpage, available at: <https://www.inaturalist.org/>

⁴⁴¹ “The Santa Barbara County Weed Management Area is an association of state and local public agencies, non-governmental organizations, non-profit groups, and private citizens who are concerned about the problem of invasive and noxious weeds in Santa Barbara County and California. Invasive and noxious weeds are plants that are non-native and lower the value of agriculture, threaten natural habitats, and create flood and fire risks for infrastructure.” Santa Barbara County Agricultural Commissioner’s Office, *Weed Management Area* webpage available <http://www.countyofsb.org/agcomm/WMA/> (March 1, 2021).

⁴⁴² John Seewer, Associated Press, *Plant lovers want nurseries to stop selling invasive plants*, available at https://www.nwintimes.com/lifestyles/home-and-garden/plant-lovers-want-nurseries-to-stop-selling-invasive-plants/article_64b1c19e-5bc5-5d2b-b325-99bc9c41894a.html (May 31, 2017).

list and map that can be displayed at nurseries. Create a “Wildlife Friendly Nursery” program that rewards nurseries to halt the sale of invasive nonnatives, including an online registry of such nurseries, assistance with advertising participating nurseries’ actions to combat invasive exotic plant proliferation, and stickers for the businesses’ windows highlighting their cooperation and qualification as a “Wildlife Friendly Nursery.”

- **Community Benefits:** Recommendation Global 1A would reduce fire hazards, protect, and enhance riparian forest, wetland, oak woodland, coastal sage scrub, chaparral, and native grasslands in Goleta Valley watersheds, preserve and improve habitats for wildlife and native plant species, including rare, threatened, and endangered species, protect creeks’ baseflows, preserve water resources, and benefit water quality and soil health. Recommendations Global 1A (#2 - #4) would slow the decline of natural habitats and reduce invasive plant infestations. These measures would help improve fire safety in the WUI, protect agricultural operations, and preserve and enhance nature-based recreational opportunities, and minimize economic costs caused by pest plants.
- **Next Steps:** Meet with the SBCWMA, CRCD, UC Coop, the Conservancy, and nonprofit partners such as Santa Barbara Botanic Garden, Audubon Society, and CIR to coordinate efforts and seek funding. Develop an interactive online nonnative pest plant map, and other resources,⁴⁴³ establish educational and incentive-based programs, and conduct outreach to nurseries.

Develop a cooperative working relationship with the Santa Barbara County Agricultural Commissioner, SBCWMA, Santa Barbara City Creeks staff, Goleta Parks and Open Space Division, SBCFD, CRCD, UC Coop, Conservancy, nonprofits such, and local nurseries. Devise regulatory and/or incentive-based programs to curtail sales of invasive exotic plant species. Monitor nursery sales, and nonnative plant infestations.

Contact SBFCWCD, City of Goleta Public Works, City of Santa Barbara Creeks Restoration and Water Quality Improvement, CDFW, and USACOE to discuss expanding or redirecting SBCFCWCD’s annual maintenance plans to include mitigation involving removing the invasive plant species identified above, such as Shamel Ash. Work with SBCFCWCD to identify and map exotic species during annual creek

⁴⁴³ For example, the CRCD, which staffs the SBCWMA, has a website entitled *Invasive Plant Assistance Program* available at <https://www.rcdsantabarbara.org/invasive-plant-assistance-program> (March 1, 2021). This site has information on pest plants to avoid planting, alternatives to invasive pest plants, a *Guide to Native and Invasive Streamside Plants*, and a *Kids Invasive Weeds Book*.

walks, and remove plants, patches, and stands during annual creek maintenance implementation. Update SBCFCWCD's CDFW permit conditions and EIR mitigation measures to include invasive species removal as mitigation to offset the impacts of creek maintenance on native plants and habitats. Solicit support from regulatory agencies, such as CDFW, seek funding for community education programs and invasive species eradication efforts, and enlist nonprofit groups, such as CIR.

Homeless Community Member Encampments

- **Problem Global 5:** Homeless community members' camps have proliferated significantly along Goleta's creeks during the past six years of EDC surveys.⁴⁴⁴ (Figures 218 and 389) The rate of homelessness and occurrence of encampments has substantially increased in the last year during the COVID-19 pandemic.⁴⁴⁵ Impacts include frequent fires caused by warming and cooking fires.⁴⁴⁶ Other problems resulting from homelessness include increased litter and fecal matter in and near campsites and creeks, increased water pollution in creeks, estuaries, and the ocean and related public health concerns, discarded drug paraphernalia, vegetation and habitat removal, deterrence of wildlife and bird use of riparian areas, increased noise, nighttime lighting, and a perceived decrease in public safety.⁴⁴⁷
 - **Jurisdictions:** City of Goleta, City of Santa Barbara, County of Santa Barbara, Caltrans, and UPRR
 - **Recommendation Global 5A:** Remove the accumulated trash and fecal material from unoccupied camps. Plant and establish native brambles such as wild blackberry (*Rubus ursinus*), California rose (*Rosa californica*), and poison oak (*Toxicodendron diversilobum*) at unoccupied homeless community encampments to deter future camping and restore damaged riparian habitats.⁴⁴⁸

⁴⁴⁴ EDC (2019) at 51-52

⁴⁴⁵ Heal the Ocean, *Homeless Camp Map* (January 2021).

⁴⁴⁶ Jean Yamamura, Santa Barbara Independent *How to House Goleta's Homeless? Housing Workshop Asks Residents for Comment* available at <https://www.independent.com/2019/12/10/how-to-house-goletas-homeless/> (December 10, 2019) ("Yamamura (2019)"); *See also* EDC (2019) at 109; *See also* Smith (2021).

⁴⁴⁷ During EDC's December 2020 San Jose Creek survey, there was a loud argument and sounds of breaking glass emanating from a camp located west of Merida Drive near the Maravilla Senior Community. Hypodermic needles have been found on EDC's creek cleanups beginning in 2018. EDC has received reports of drug deals at homeless camps.

⁴⁴⁸ City of Goleta (2021) at 43.



Figure 389. Some of the garbage at a San Pedro Creek homeless camp has fallen into the Creek channel. Brian Trautwein. 2019.

Provide housing opportunities to homeless community members living in riparian areas by expanding and permanently establishing Project Roomkey.⁴⁴⁹ Expand People Assisting the Homeless (“PATH”) of Santa Barbara’s LeaseUp Program, which is working with landlords to incentivize and enable transition of homeless community members into permanent housing.⁴⁵⁰ Following the COVID-19 pandemic, work with homeless community members, local government, and homeless advocacy groups to incentivize permanent housing solutions, and relocation of camps currently located in creeks throughout the Goleta Valley.

- **Recommendation Global 5B:** Regularly monitor occupied camps. Develop a rapport with homeless community members. Work with social service agencies, medical,⁴⁵¹ and nonprofit organizations to canvass creek-side homeless encampments to educate and offer services to our homeless neighbors. Identify needs and services that can be provided to assist homeless community members to help transition them out of homelessness. Install and service port-a-potties on public lands near creeks with homeless camps. Work with Showers of Blessing to provide regular opportunities for homeless community members to bathe.⁴⁵² Expand programs to provide medical assistance. Develop a program to provide Covid testing and vaccinations. Continue to provide bags for homeless residents to bag trash for collection and disposal by Caltrans and other agencies.

⁴⁴⁹ Yamamura (2019); *See also* Jean Yamamura, Santa Barbara Independent, *Project Roomkey Gains \$1 Million in Santa Barbara County Temporary Program Leads Successfully to Permanent Housing for Homeless People*, available at <https://www.independent.com/2020/08/19/project-roomkey-gains-1-million-in-santa-barbara-county/> (August 19, 2020); *See also* Smith (2021); *See also* Problem San Pedro 10 above.

⁴⁵⁰ Delaney Smith, Santa Barbara Independent, *PATH of Santa Barbara Launches a ‘Zillow for Homeless People’ LeaseUp Website to Connect Landlords and Housing Caseworkers*, available at [https://www.independent.com/2019/07/26/path-of-santa-barbara-launches-a-zillow-for-homeless-people/#:~:text=People%20Assisting%20the%20Homeless%20\(PATH,willing%20to%20rent%20to%20them.&text=LeaseUp%20is%20not%20a%20public.all%20rental%20website%20like%20Craigslist](https://www.independent.com/2019/07/26/path-of-santa-barbara-launches-a-zillow-for-homeless-people/#:~:text=People%20Assisting%20the%20Homeless%20(PATH,willing%20to%20rent%20to%20them.&text=LeaseUp%20is%20not%20a%20public.all%20rental%20website%20like%20Craigslist) (July 26, 2019).

⁴⁵¹ NCBI (2021); *See also* JEMS (2020).

⁴⁵² Showers of Blessing. <https://showersofblessingiv.org/> (January 28, 2021).

- **Community Benefits:** Recommendations Global 5A and 5B would help support homeless community members and transition them toward permanent housing. It will also reduce fires, litter, and biohazards, improve the health and well-being of homeless community members, improve public health, enhance aesthetics, rehabilitate riparian woodland habitats, and improve water quality in creeks and at local beaches by reducing the amount of human feces in local creeks.
- **Next Steps:** Meet with City Council members to further implement actions to fill “service gaps” outlined in the Homelessness Strategic Plan.⁴⁵³
- **Problem Global 15** Residential Development in Rural, Existing Rural Developed Neighborhoods, and WUI Areas, Increases Fire Hazards and Threatens Goleta Valley Watersheds.
 - **Jurisdiction:** Santa Barbara County and City of Goleta
 - **Recommendation Global 15A:** Acquire or downzone rural and WUI areas to lessen buildout. For example, see Problem Atascadero Creek 17.
 - **Community Benefits:** Rezoning WUI and high fire hazard sites to open space or recreation, securing conservation easements, and/or acquiring sites for parks or natural open spaces, and creating passive recreational opportunities, would reduce fire hazards to existing and future WUI residents, properties, creeks, watersheds, species, and vegetation communities, and enhance passive recreation.
 - **Next Step:** Discuss concern with City and County decision-makers, SBCFD, Santa Barbara County Planning and Development Department, land conservancies, City and County park and open space agencies, and other partners. Request general plan amendments to downzone undeveloped WUI and rural properties located in or adjacent to high fire hazard areas. Coordinate with partners to initiate and support downzones, easements, and acquisitions, and to raise funds to acquire properties and easements from willing landowners. Conduct outreach to state and federal funding agencies and legislators.

⁴⁵³ City of Goleta (2021) at 43 - 48.

Chaparral Type-Conversion



Figures 391(a).
A masticator
clears old
growth chaparral
in the Maria
Ygnacio
Watershed near
Painted Cave.
Brian
Trautwein.
2009.

- Problem Global 16:** Chaparral is the most common plant community in most of Goleta’s watersheds and support numerous rare plant and animal species. “Of the 4846 native vascular plant species found in the California, 24% (1177 spp.) occur in chaparral (Table 2) and 44% (516 spp.) of these are considered rare (Keeley, 2005).”⁴⁵⁴ Chaparral in the Goleta area supports many rare plant and animal species, including the Santa Ynez Mountains walking stick (*Timema cristanae*) (Figure 392), late-flowered Mariposa lily (*Calychortus fimbriatus*) (Figure 393), Santa Barbara honeysuckle (*Lonicera subspicata subspicata*), mountain lion (*Puma concolor*), and ringtail cat (*Bassariscus astutus*).⁴⁵⁵ (Figure 15)

⁴⁵⁴ RW Halsey, California Chaparral Institute, Escondido, CA, United States, and JE Keeley, U.S. Geological Survey, Three Rivers, CA, United States *Conservation Issues: California Chaparral* available at https://www.californiachaparral.org/_static/fea8c75bc95c015706d40af2bf07f8aa/halsey_and_keeley_chaparral_diversity_-2016-b-1.pdf?dl=1 (2016).

⁴⁵⁵ CalFlora website, *Calochortus fimbriatus* webpage identifying late-flowered Mariposa lily as “California Rare Plant Rank 1B.3 (rare, threatened, or endangered in CA and elsewhere)” available at <https://www.calflora.org/app/taxon?crn=11230> (April 16, 2021).

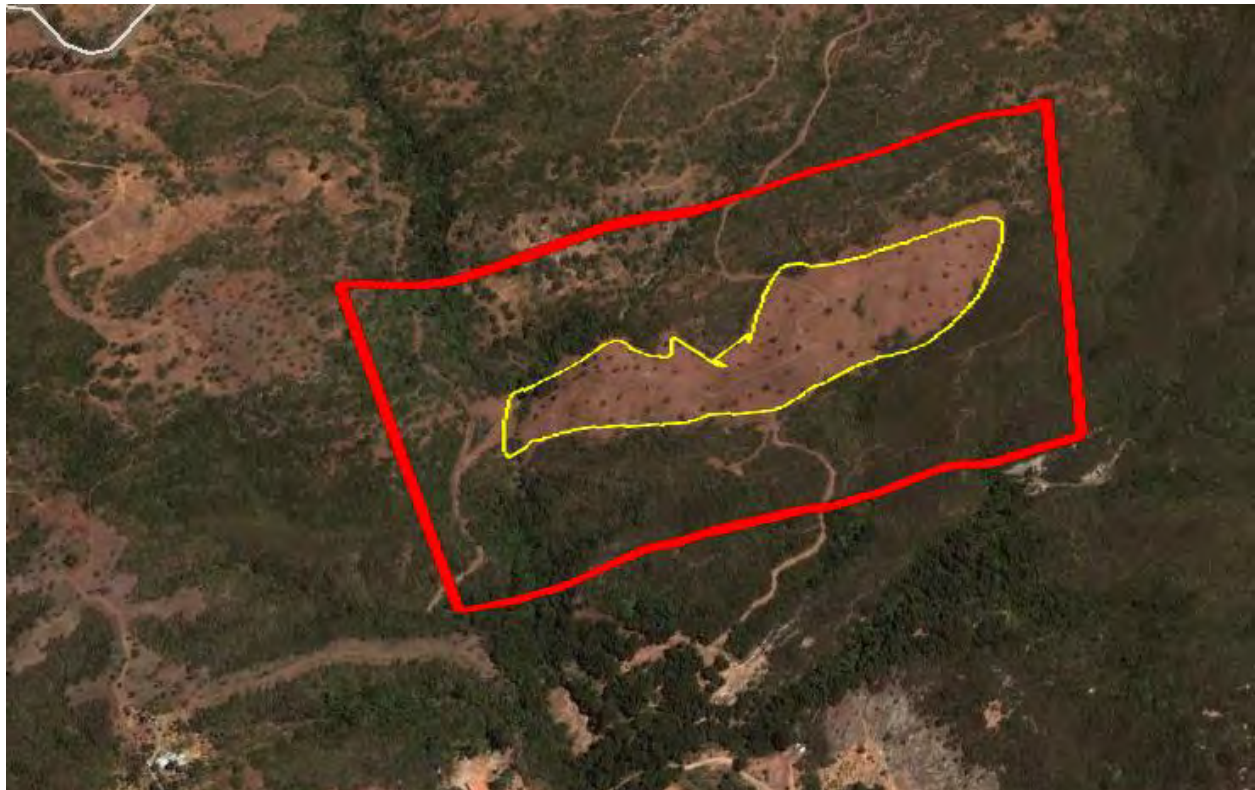


Figure 391(b). Aerial view of the same location as Figure 391(a). Google Earth. 2020.

Chaparral is protected as ESHA (or ESH) where it contains rare or vulnerable native plant alliances or sensitive native plant and/or animal species.⁴⁵⁶ The Santa Barbara County Eastern Goleta Valley RC/ESH Map maps chaparral as ESH only where it supports mapped rare or vulnerable plant communities.⁴⁵⁷ Despite being considered ESHA/ESH where it supports rare vegetation or plant or animal species, chaparral is rarely protected pursuant to the County’s Environmentally Sensitive Habitat Ordinance (ESH-GOL Ordinance).⁴⁵⁸ Chaparral is frequently cleared. (Figures 391(a) and (b) and 394 – 395(a) and (b)) EDC’s 2014 Report, *Chaparral Removal Projects – Southern Santa Barbara County* identified twelve recent clear cuts, and EDC’s 2016 *Chaparral Clear Cut Report* identified six newer clearings.⁴⁵⁹

⁴⁵⁶ Santa Barbara County Planning and Development Department, Eastern Goleta Valley Community Plan, Objective ECO-EGV-5, and Policies ECO-EGV-5.1, ECO-EGV-5.2, and ECO-EGV 5.4 at 145 – 149 available at https://www.countyofsb.org/uploadedFiles/plndev/Content/Code_and_Policy/EGVCP%20Adopted%20w%20CCC%20Modifications%20FINAL%20Online%20Version.pdf (December 14, 2017).

⁴⁵⁷ Santa Barbara County Planning and Development Department RC/ESH Map” available at <https://cosantabarbara.app.box.com/s/qwppv2xaikmoxtnluozn4z0nqzw3x89o> (April 16, 2021).

⁴⁵⁸ Santa Barbara County, *Land Use Development Code*, Section 35.28.100 at 2-149 – 2-158, available at <https://cosantabarbara.app.box.com/s/6hrqg4blorc7zjyh2hklhsl3pv2j2tad> (January 2021).

⁴⁵⁹ Jacob Hesse, EDC Chaparral Program Intern, *Chaparral Removal Projects Southern Santa Barbara County* (September 2014); *See also* Will Buddu, Chaparral Program Intern, *EDC Chaparral Clear Cut Report* (October 3, 2016).

Increased fire frequency brought about by climate change, combined with chaparral clearing, is eliminating chaparral in southern California through the process of type-conversion.⁴⁶⁰ Chaparral is being replaced by a community of mostly nonnative annual species such as thistles and exotic annual grasses.⁴⁶¹ Loss of chaparral destroys habitat for birds and wildlife and eliminates a vast diversity of plant and animal species, and it threatens humans. Loss of the deep-rooted plants such as ceanothus, chamise, and manzanita decreases infiltration and ground water recharge, increases erosion,⁴⁶² sedimentation, flooding, and potential debris flows, and may decrease baseflows in Goleta's streams. Weedy annual vegetation that replaces chaparral increases the fire ignition threat by reducing live fuel moistures and allowing greater access to high fire hazard areas.⁴⁶³



Figure 392. Santa Ynez Mountain walking stick (*Timema cristanæ*). Getty images.

⁴⁶⁰ Syphard *et al* (2019); *See also* Goleta (2020) at 33; *See also* Chaparral Institute (2021).

⁴⁶¹ *Id.*

⁴⁶² US Forest Service, *Publication gtr-067* available at <https://www.fs.fed.us/psw/publications/documents/gtr-067/gtr-67-section1.pdf> (April 29, 2021).

⁴⁶³ California Chaparral Institute (2021).



Figure 393. Late-flowered Mariposa lily (*Calochortus fimbriatus*). Aanjelae Rhoads. 2018.

- **Jurisdiction:** Santa Barbara County and USFS
- **Recommendation 16A:** Protect chaparral. Require new development and vegetation clearing to avoid impacts to chaparral whenever feasible.⁴⁶⁴ Require habitat compensation whenever avoidance is infeasible and chaparral is removed, e.g., for defensible space around existing homes and roadside vegetation management. Require a minimum 3:1 onsite replacement ratio where three acres of chaparral are created or restored for every acre removed. If onsite replacement is not feasible, require replacement offsite in the same watershed or as close as feasible to the area of impact.⁴⁶⁵ If restoration or creation is not feasible for a given project, mitigation should entail permanent preservation of existing chaparral at a 4:1 or higher ratio (for each acre removed permanently preserve four acres of existing chaparral by deed restriction or in a conservation easement held by a third-party conservation organization).

⁴⁶⁴ Santa Barbara County (2008) at 32 – 33.

⁴⁶⁵ *Id.*

- **Community Benefits:** Recommendation 16A will protect diverse plant communities and many special-status species, maintain infiltration, groundwater recharge, fog drip, and baseflows in Goleta's creeks, reduce erosion, sedimentation, flooding, and debris flows, and protect the scenic backdrop for Goleta's watersheds. Preventing type-conversion of chaparral to weedy annual plants will reduce fire ignition threats.
- **Next Steps:** Create a working group, including the County Planning and Development Department, SBCFD, USFS, Caltrans, the California Chaparral Institute, Santa Barbara County Planning and Development Department, UCSB Botanists and ecologists, UC Coop, Wildland Residents Association, and local conservation groups such as CIR and Los Padres Forest Watch. Strive to develop a conservation program that ensures no net loss of chaparral.

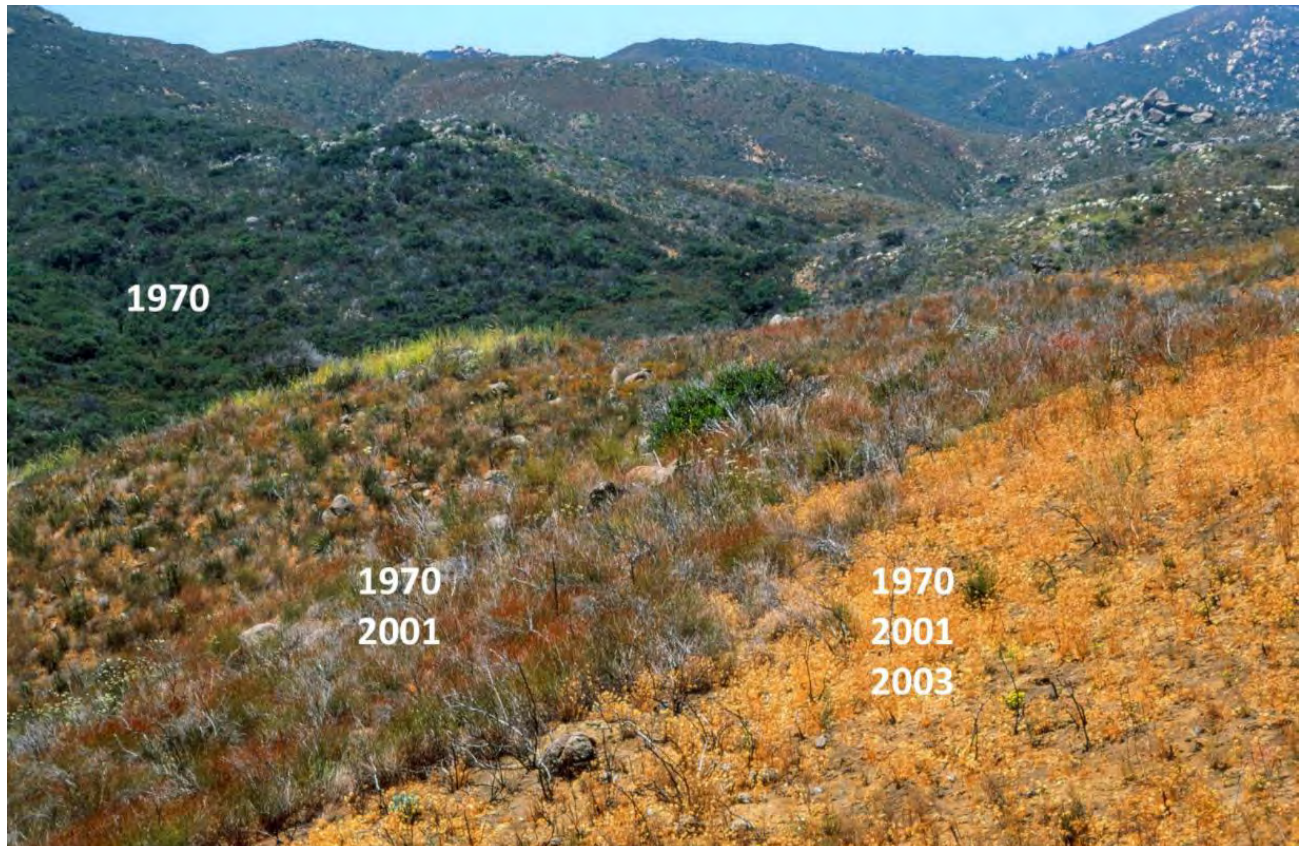


Figure 394. Frequent chaparral fires can replace chaparral with nonnative weeds through the process of type-conversion. California Chaparral Institute. <https://www.californiachaparral.org/threats/too-much-fire/#:~:text=Type%20conversion%20is%20the%20ecological,to%20a%20non%2Dnative%20grassland.&text=Chaparral%20is%20not%20a%20simple%2C%20homogenous%20ecosystem>.

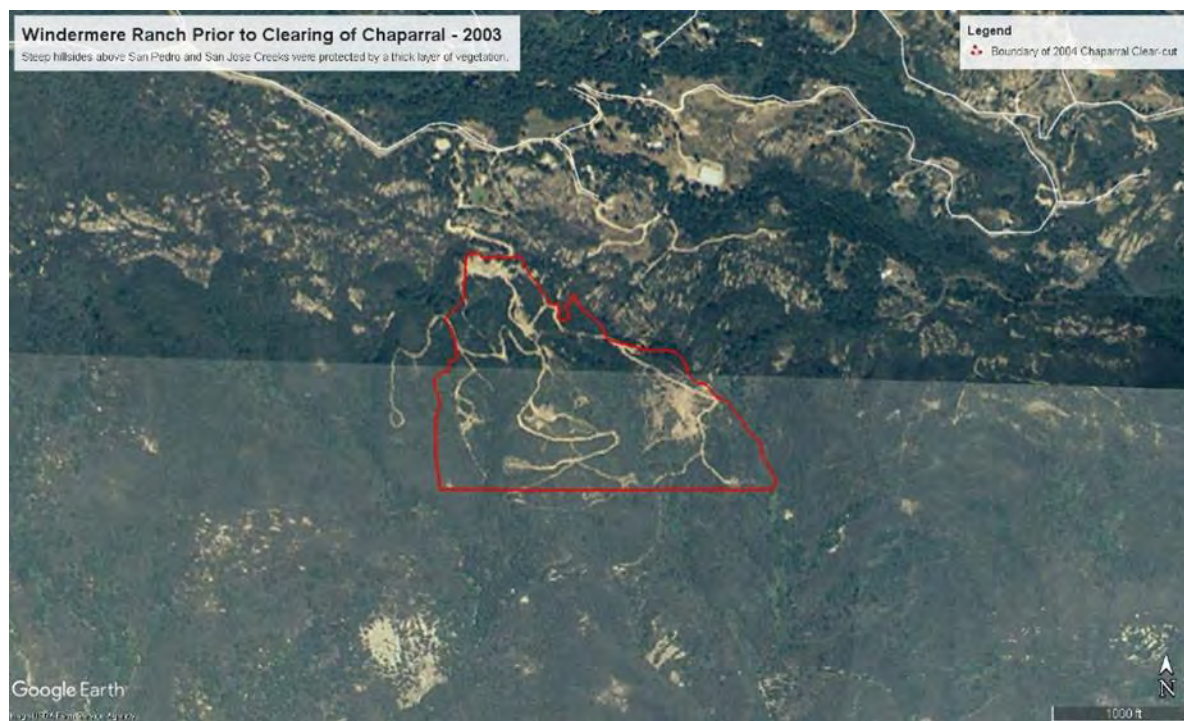


Figure 395(a). Windermere Ranch in the San Pedro and San Jose Creek Watersheds prior to 2004 chaparral clear-cut. Google Earth. 2003.



Figure 395(b). Windermere Ranch after 2004 chaparral clear-cut. Google Earth. 2018.



Figure 396. State Highway 78 between Escondido and Ramona. Nearly the entire California sage scrub and chaparral ecosystem that once existed here has been eliminated and replaced by non-native weeds. The Witch Creek Fire swept through this area in 2007. It was burned again in 2018. California Chaparral Institute.

<https://www.californiachaparral.org/threats/too-much-fire/#:~:text=Type%20conversion%20is%20the%20ecological,to%20a%20non%2Dnative%20grassland.&text=Chaparral%20is%20not%20a%20simple%2C%20homogenous%20ecosystem>.

- Problem Global 17:** Current funding for SBCFD to annually inspect and enforce defensible space requirements is sufficient to achieve compliance on up to only ninety percent of the approximately 14,000 properties that require defensible space maintenance.⁴⁶⁶ Given recent fires, more prevention and suppression is needed now to allow for recovery of watersheds and vegetation.⁴⁶⁷ Current funding supports insufficient staffing, equipment, and fire stations to most effectively prevent, respond to, and limit spread of all wildfires that threaten life, property, watersheds, fish, wildlife, habitat, and native plant communities such as

⁴⁶⁶ SBCFD has funding and staff to inspect approximately seventy-nine to ninety percent of the 14,000 properties that require defensible space maintenance. The County achieves “really good compliance” as demonstrated by “the low structure loss on the most recent fires.” Increasing the number of inspections would be valuable to helping reduce wildfire threats. Email from Rob Hazard, Division Chief/Fire Marshall, Fire Prevention Division, SBCFD to Brian Trautwein, Environmental Analyst / Watershed Program Coordinator (April 8, 2021); *See also* Rob Hazard, SBCFD, phone call with Brian Trautwein, Environmental Analyst / Watershed Program Coordinator, EDC, (August 9, 2021).

⁴⁶⁷ *Id.*

chaparral. There has been a decrease in the use of inmates to fight fires, further reducing available resources to suppress wildfires, increasing the need for more hand crews.⁴⁶⁸ SBCFD may not have sufficient funds to provide grants or incentives to property owners to conduct hardening of structures to reduce the risk associated with wildfire spread to homes in WUIs. County property tax funding was increased from 13% and is locked in at 17% and unlikely to change in the near future.⁴⁶⁹ However, funding from CalFire could potentially be increased, which would help prevent and suppress wildland and WUI fires, augment hand crews, and fund operation of the County's new Blackhawk helicopter.⁴⁷⁰

- **Jurisdiction:** Santa Barbara County
- **Recommendation Global 17A:** Support increased CalFire and grant funding for SBCFD to (1) hire dedicated staff to conduct defensible space inspections for all properties in the WUI and rural areas before the height of fire season, (2) increase resources, including money for hand crews to work fire lines, and to fund operation of Blackhawk helicopter, (3) implement a home-hardening program in rural and WUI areas, (4) work with landowners to acquire grants and/or low interest loans for WUI defensible space maintenance and home hardening projects, and (5) systematically remove invasive flammable nonnative vegetation such as eucalyptus and trees and Arundo stands in rural, wildland, and WUI areas, consistent with many of the recommendations in this report.
- **Community Benefits:** Recommendation Global 17A could reduce fire ignitions and fire spread into rural, wild, and WUI areas, protecting life and property, while simultaneously reducing the effects of fire and subsequent sedimentation, floods, and debris flows in creeks in the Goleta Valley. Recommendation Global 17A would reduce impacts on water quality, air quality, vegetation communities, and fish and wildlife including endangered species, and retain scenic vistas. By lessening the frequency and extent of wildfires and WUI fires, this recommendation could lessen economic impacts of fires in the Goleta Valley, protecting tourism-related businesses, property values, jobs, and watersheds.
- **Next Steps:** Meet with SBCFD and partners to discuss strategies for increasing funding and wildfire preparedness. Meet with and lobby state legislators to seek increased CalFire and grant funding for the above purposes.

⁴⁶⁸ *Id.*

⁴⁶⁹ *Id.*

⁴⁷⁰ *Id.*

- **Problem Global 18:** Stream diversions and wells are dewatering creeks and watersheds, threatening riparian habitats, and aquatic and amphibious wildlife such as steelhead, CRLF, two-striped garter snakes, California newts, western pond turtles, and increasing wildfire threats by decreasing moisture levels in vegetation and landscapes.
 - **Jurisdiction:** Santa Barbara County, City of Goleta, GWD, CDFW, SWRCB, and Goleta Sanitary District (“GSD”).
 - **Recommendation Global 18A:** Curtail groundwater pumping near Goleta Valley creeks and tributaries and water diversions within Goleta Valley creeks and tributaries. Use recycled water whenever feasible for greenbelt and agricultural areas in the WUI.
- Develop alternative water supplies which do not deplete watersheds or adversely affect creeks. This could include tertiary wastewater treatment and recycling powered by solar photovoltaic or wind energy to conserve freshwater resources. Recycled water could be injected into the Goleta-area groundwater basins to increase groundwater levels, protect and enhance creeks and riparian woodlands, and reduce fire hazards.⁴⁷¹ The Montecito water District and Montecito Sanitary District are teaming up to explore wastewater recycling as an alternative water supply.⁴⁷² Indirect potable reuse has been ongoing in California for over fifty years, including the Montebello Forebay Spreading Grounds in Los Angeles County and the Talbert Gap in Orange County.⁴⁷³ The first two projects to supplement surface water with potable reuse are planned in San Diego “in the 2022 timeframe.”⁴⁷⁴ Numerous laws including SB 918, SB 322, and SB 574 define and seek to advance direct potable reuse in California.⁴⁷⁵
- **Community Benefits:** Recommendation Global 18A will increase dry season flows in Goleta Valley creeks, enhance riparian and oak woodlands, and increase fire safety in wildlands, WUIs, and neighborhoods.

⁴⁷¹ State Water Resources Control Board, *A Proposed Framework for Regulating Direct Potable Reuse in California* available at https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/direct_potable_reuse/dprframewk.pdf (2018).

⁴⁷² Montecito Water District *Montecito Water and Sanitary Districts Team Up*, EdHat, available at <https://www.edhat.com/news/montecito-water-and-sanitary-districts-team-up> (October 16, 2021).

⁴⁷³ *Id.* at 1.

⁴⁷⁴ *Id.* at 2.

⁴⁷⁵ *Id.* at 2 – 5.

- **Next Steps:** Document private and public wells and water diversions located in and near creeks. Ascertain the status of permitting for each well and diversion. Assess the effects of wells and diversions on streamflow. Report unpermitted wells and diversions to CDFW, SWRCB, and local planning agencies. Work with landowners and agencies to reduce the effects of permitted wells and diversions on stream flows. Meet with the GSD, GWD, and City of Goleta to pursue tertiary treatment and identify funding sources.

B. Implementation Funding and Partners

1. Restoration, Acquisition, and Fire Safety Project Grant Funding Sources⁴⁷⁶

Cachuma Resource Conservation District

The Cachuma Resource Conservation District (“CRCD”) works in partnership with the USDA Natural Resource Conservation Service, a branch of the federal government, and many other agencies, organizations, business, and landowners. One of our primary purposes is to support and promote economically viable and environmentally sustainable farming and ranching operations. We have a dedicated team of partners, staff, and professional experts available to assist the community. The CRCD is almost entirely self-supporting, relying on grants and fee-for-service work to fund operations. As a special district of the State, we can also accept private, tax-deductible donations. Our Office is located in the USDA Service Center in Santa Maria.

Mission

The mission of the Cachuma Resource Conservation District (CRCD) is to promote land ethics that results in long-term use of natural resources while protecting and enhancing its unique natural habitats. Founding principles include total resource management, effective technical services, diverse community partnerships, and strong grower relationships.

<https://www.rcdsantabarbara.org/what-we-do>

California Coastal Conservancy

The Conservancy funds projects that help it achieve the goals and objectives of its **Strategic Plan** (2018-2022). The goals are listed below; refer to the plan for additional detail on specific objectives. Projects that help achieve multiple objectives will receive higher priority for funding. The Conservancy will fund most stages of a project, including pre-project feasibility studies, property acquisition, planning (for large areas or specific sites) and design, environmental review, construction, monitoring, and, in limited circumstances, maintenance.

Strategic Plan Goals (partial list)

- Expand the system of coastal public accessways, open-space areas, parks, and inland trails that connect to the coast.
- Revitalize coastal and inland waterfronts that provide significant public benefits and promote sustainable economic development.
- Expand environmental education efforts to improve public understanding, use, and stewardship of coastal resources.

⁴⁷⁶ City of Goleta (2020) Appendix J contains a list of grant sources to fund the establishment of a staffed City of Goleta Creeks and Watershed Program, and to implement specific projects.



- Protect significant coastal resource properties, including farmland, rangeland, and forests.
- Enhance biological diversity, improve water quality, habitat, and other natural resources within coastal watersheds.
- Enhance coastal working lands, including farmland, rangeland, and forests.
- Enhance the resiliency of coastal communities and ecosystems to the impacts of climate change.
- Ensure that the work of the Conservancy promotes environmental equity and justice.

California Coastal Conservancy Grant Program

Grant Opportunity: Forest Health & Wildfire Resilience Program

<https://scc.ca.gov/2021/04/14/grant-opportunity-forest-health-wildfire-resilience-program/>

Intent: The Conservancy's Forest Health and Wildfire Resilience Program will fund approximately \$12 million in grants for ready-to-implement projects that reduce the risk of wildfire on public and protected lands. There are no maximum or minimum grant amounts for this funding.

Eligible Applicants: Public Agencies, Nonprofit organizations with 501(c)(3) status, Federally-Recognized Indian Tribes.

Eligible Projects: The goal of these grants is to take immediate action to improve fire safety of California's communities and to restore the health and resilience of California forests, grasslands, and natural places. Proposed projects must be on public or protected lands. Planning projects are not eligible for this funding.

California Fire Safe Council

California Fire Safe Council administers U.S. Forest Service State Fire Assistance (SFA) Grant Programs and offers a variety of other federal and private funding opportunities.

<https://cafiresafecouncil.org/grants-and-funding/apply-for-a-grant/>

CAL FIRE Grant Program

CAL FIRE offers several grant opportunities each with its own scope and funding priorities.

- Fire Prevention or Forest Health Grants: [SharePoint User Guide](#)
- Forest Health Grants: <https://www.fire.ca.gov/grants/forest-health-grants/>
- Urban and Community Forestry Grants: <https://www.fire.ca.gov/grants/urban-and-community-forestry-grant-programs/>
- Fire Prevention Grants: <https://www.fire.ca.gov/grants/fire-prevention-grants/>



California Fire Foundation

The California Fire Foundation offers grant opportunities to fire departments, firefighter associations, fire safe councils and other community organizations, which are based in California and serve our state's residents in preventing, preparing and/or responding to major events including wildfires, floods, and climate-caused disasters.

<https://www.cafirefoundation.org/programs/fireprevention/>

California Ready-For-Wildfire

Many state and federal agencies have grant programs that administer funds for projects that help support their direct mission and the state of California's mission to reduce greenhouse gas emissions, improve public health and the environment.

<https://www.readyforwildfire.org/prevent-wildfire/landowners-assistance/grants/>

CDFW

CDFW plans to implement three new grant opportunities as passed by voters on Proposition 68 in 2018: The Rivers and Streams Grants, the Southern Steelhead Grants, and Fish and Wildlife Improvement Grants. The Rivers and Streams grant program will allocate funds for the restoration of rivers and streams. The Southern Steelhead grant program will allocate funds for the specific restoration of Southern California Steelhead habitat. The Fish and Wildlife Improvement grant program will allocate funds for the improvement of conditions for fish and wildlife in streams, rivers, wildlife refuges, wetland habitat areas, and estuaries. Each program is open to public agencies and local non-profit organizations. CDFW will award grants to planning, implementation and acquisition projects.

Proposition 68 Grant Guidelines:⁴⁷⁷

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161006&inline>

CDFW also offers the annual Fisheries Restoration Grant Program, providing funds to projects that restore, enhance, or protect anadromous habitat in California. The program awards funds to projects under four focuses: Fisheries Restoration Grant Program, Steelhead Report and Restoration Card Program, Forest Land Anadromous Restoration, and Commercial Salmon Stamp Program. Priority will be given to projects that address the threats of climate change and wildfires. Public agencies and non-profit organizations are eligible to apply.

Website: <https://www.wildlife.ca.gov/Grants/FRGP>

⁴⁷⁷ In addition to CDFW, several other state agencies disburse Proposition 68 funds.



California Department of Water Resources

Since 1985, the Urban Streams Restoration Program provided more than 270 grants in accordance with [California Water Code Section 7048](#), ranging from \$1,000 to \$1 million to communities throughout California. This [USRP table](#) (PDF) lists all projects funded partially or completely by the Program from 1986 to 2016.

The projects have included:

- Stream cleanups
- Bank stabilization projects
- Revegetation efforts
- Recontouring of channels to improve floodplain function
- Occasional acquisition of strategic floodplain properties or easements

Visit the USRP's [Grants Page](#) to learn about the Program or [contact us](#). Learn more about the current solicitation on the [Riverine Stewardship Program – Grants](#) webpage.

California Natural Resources Department Urban Greening Program

The Urban Greening Program funds projects that reduce greenhouse gases by sequestering carbon, decreasing energy consumption, and reducing vehicle miles traveled, while also transforming the built environment into places that are more sustainable, enjoyable, and effective in creating healthy and vibrant communities. These projects will establish and enhance parks and open space, using natural solutions to improving air and water quality and reducing energy consumption, and creating more walkable and bike-able trails.

In order to quantify GHG emission reductions, projects must include at least one of the following project activities:

- Sequester and store carbon by planting trees
- Reduce building energy use by strategically planting trees to shade buildings
- Reduce commute vehicle miles traveled by constructing bicycle paths, bicycle lanes, or pedestrian facilities that provide safe routes for travel between residences, workplaces, commercial centers, and schools.

<https://resources.ca.gov/grants/urban-greening>

California Wildlife Conservation Board

The California Wildlife Conservation Board provides several grant opportunities, including the Riparian Habitat Conservation Program, the Habitat Enhancement and Restoration



Program, and the Proposition 1 Stream Flow Enhancement Program. The Riparian Habitat Conservation Program aims to protect, preserve, restore, and enhance native riparian habitat in California. The Habitat Enhancement and Restoration Program is the Board's general restoration program. It includes funding for projects that remove fish passage barriers in streams. The Proposition 1 Stream Flow Enhancement Program provides funds to projects that protect enhanced stream flow especially in habitats of native, threatened fish species like steelhead. Each program is open to public agencies and non-profit organizations.

Riparian Habitat Conservation: <https://wcb.ca.gov/Programs/Riparian>

Habitat Enhancement and Restoration: <https://wcb.ca.gov/Programs/Habitat-Enhancement>

Prop 1 Stream Flow Enhancement: <https://wcb.ca.gov/Programs/Stream-Flow-Enhancement>

California Natural Resources Agency Department of Water Resources Division of Integrated Regional Water Management Implementation Grant

California State Proposition 1 recently allocated \$510 million for the Integrated Regional Water Management ("IRWM") grant program. Approximately \$400 million of this will fund the Implementation Grant Program. Statewide priority actions for this program include protecting and restoring important ecosystems, expanding water storage capacity, and improving groundwater management, and increasing flood protection. The IRWM grant program is open to public agencies and non-profits.

Website: <https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs/Proposition-1/Implementation-Grants>

California River Parkways Program

Projects must involve natural creeks, streams and/or rivers, even if they flow only during the rainy season, or channelized or culverted creeks, streams and/or rivers.

Please direct questions to (916) 653-2812 or riverparkways@resources.ca.gov

Caltrans Environmental Enhancement and Mitigation Program

The [Environmental Enhancement and Mitigation Program](#) (EEM) was established by the Legislature in 1989 to fund environmental enhancement and mitigation projects directly or indirectly related to transportation projects. EEM Program projects must fall within one of three categories: highway landscape and urban forestry; resource lands; or roadside recreation. Projects funded under this program must provide environmental enhancement and mitigation over and above that otherwise called for under CEQA.



For questions refer to the [FAQ](#) or contact the agency at eemcoordinator@resources.ca.gov or by calling (916) 653-2812 or (916) 654-2940.

David and Lucile Packard Foundation Conservation and Science Grants

Traditional philanthropy and government funding have played a key role in conserving and restoring our rivers and streams. Ultimately, however, this funding has not been sufficient to combat the depletion of these valuable resources which has taken place over the past several decades. In fact, it is unlikely that such funding will ever be adequate, making it critical to begin looking for new ways to pay for river and stream restoration.

<https://www.packard.org/grants-and-investments/for-grantseekers/>

Environmental Protection Agency (“EPA”) 5-Star Wetland and Urban Waters Restoration Grants

The Five Star and Urban Waters Restoration Program brings together students, conservation corps, other youth groups, citizen groups, corporations, landowners, and government agencies to provide environmental education and training through projects that restore wetlands and streams. The program provides challenge grants, technical support, and opportunities for information exchange to enable community-based restoration projects. Funding levels are modest, from \$10,000 to \$40,000, with \$20,000 as the average amount awarded per project.

For more information on the Five Star and Urban Waters Restoration Grant Program, see the [National Fish and Wildlife Foundation](#) webpage and the [Five Star Restoration Factsheet](#).

EPA Wetland Program Development Grants

Wetland Program Development Grants (“WPDGs”) assist state, tribal, local government agencies, and interstate/intertribal entities in developing or refining state/tribal/local programs which protect, manage, and restore wetlands. The primary focus of these grants is to develop and refine state and tribal wetland programs. A secondary focus is to develop and refine local (e.g., county or municipal) programs. Projects must be performed within one or more of the states of EPA Region 9 -- specifically California, Hawaii, Nevada, Arizona, and the Pacific Islands -- to be eligible to apply for funding. In the case of inter-jurisdictional watershed projects, they must be primarily implemented in EPA Region 9. This document describes the grant selection and award process for eligible applicants interested in applying for WPDGs under this announcement:

<https://www.epa.gov/wetlands/region-9-wetland-program-development-grant-request-applications>



FEMA

FEMA's Pre-Disaster Mitigation Grant Program provides funding to support hazard mitigation programs in local communities. Funding is awarded to planning and project proposals that aim to increase awareness of potential disasters like floods as well as develop a Hazard Mitigation Plan for future disasters.

FEMA's Flood Mitigation Assistance Grant Program awards grants to planning and project proposals that aim to reduce long-term flood damage risks in communities. Public agencies are eligible to apply.

Pre-Disaster Mitigation Grant Program: <https://www.fema.gov/pre-disaster-mitigation-grant-program>

Flood Mitigation Assistance Grant Program: <https://www.fema.gov/flood-mitigation-assistance-grant-program#>

Fire Safe California Grants Clearinghouse

The Fire Safe California Grants Clearinghouse (AKA Grants Clearinghouse) was created by the members of the California Fire Alliance (now called preventwildfireca.org) in order to facilitate the process of applying for Federal grants to do wildfire prevention projects on private lands in [California](#). This process is also referred to as "one-stop shopping."
https://en.wikipedia.org/wiki/Fire_Safe_California_Grants_Clearinghouse

FishAmerica Foundation

Since 1983, the FishAmerica Foundation has awarded \$12.1 million to 1,007 projects in all fifty states and Canada to enhance fish populations, restore fishery habitats, improve water quality, and advance fishery research to improve sportfishing opportunities and help ensure recreational fishing's future.

The FishAmerica Foundation has had tremendous success in leveraging a myriad of funding sources to support nationwide fisheries conservation and habitat restoration projects, especially grant dollars.

With each dollar being leveraged nearly nine times, the foundation demonstrates its important role in working with community-based conservation organizations, along with state and federal biologists, to help improve recreational fishing and boating opportunities. Additionally, the FishAmerica Foundation involves and educates community volunteers on the conservation and recreational benefits for each project awarded funding. Over the years, the foundation, along with its federal, regional, state and community partners, have made great



strides in both small and large, urban and rural communities to improve habitat for fisheries conservation, creating more recreational fishing opportunities along the way. For grants information or partnership opportunities, contact fafgrants@asafishing.org or (703) 519-9691.

Local Sales Taxes

Sales Tax can be earmarked for a City of Goleta CWMP. A sales tax has the benefit of being voter approved. Voters understand that the increase in sales tax is going toward enhancing their local communities.

Montecito Fire Department

During a wildfire, most homes burn from the inside out. This means embers make their way into the home through vents and other crevices and ignite combustible material inside the home and attic. The Montecito Fire Department and our partnering agencies stand ready to quickly respond to fires, but recent events have reinforced the importance of implementing as many wildfire mitigations as possible before an incident occurs. During post fire assessments, hardened structures proved to have over three times the likelihood of surviving compared to non-hardened structures. Watch [this video demonstrating windblown embers](#) to see how homes ignite during a wildfire.

In 2019, the Montecito Fire Department amended the Community Wildfire Protection Plan to include recommendations considering lessons learned from the 2017 and 2018 fire seasons. Two of these recommendations relate directly to structure hardening:

- Seek innovative structure hardening programs and methods to enhance structure defensibility.
- Consider seeking opportunities to develop a cost-share grant program to share the costs of structure hardening or replacing flammable vegetation with more fire-resistant vegetation.

To meet these recommendations, the Montecito Fire Department set aside funds from the 2021 Fire Defense Zone Budget to initiate a Home Hardening Assistance Program (HHAP). This year's HHAP will focus on vent replacement and upgrades. Ordinary vents are designed for ventilation through a simple mesh screen. This design allows flames, sparks, and embers to pass through the vent and enter the home. Vents designed specifically for homes in very high wildfire danger areas will offer protection against flames and embers while still providing adequate ventilation.

To learn more about the Vent Retrofit Program including how to apply, visit the programs webpage at <https://www.montecitofire.com/hhap-vent-retrofit> . Please contact one of



our Wildland Fire Specialists, Maeve Juarez or Nic Elmquist, at (805) 969-7762, if you have any questions or to schedule a complimentary property survey.

<https://www.montecitofire.com/hhap-vent-retrofit>

National Fish and Wildlife Foundation (“NFWF”)

NFWF provides funding on a competitive basis to projects that sustain, restore, and enhance our nation's fish, wildlife, and plants and their habitats.

As an example, NFWF’s “Bring Back the Natives” Program provides funding to efforts to “restore, protect and enhance native populations of sensitive or listed fish species across the United States.” Partners include the U.S. Fish and Wildlife Service, the Bureau of Land Management, the USFS, Bass Pro Shops, and the Brunswick Foundation. Priority funding may be given to native steelhead populations. The program funds activities such as the removal of passage barriers and riparian habitat restoration. Public agencies and non-profit organizations are eligible to apply.

[Search NFWF's conservation programs](#) and learn how to [apply for a grant](#).

National Oceanic and Atmospheric Association Community-based Restoration Program Coastal and Marine Habitat Restoration Grants

During [Habitat Month](#), NOAA is recommending \$8.2 million in funding to fifteen partners through the Community-based Restoration Program Coastal and Marine Habitat Restoration Grants. These investments will restore habitat in ten states and Puerto Rico and leverage a total of \$13 million of non-federal funds over the next three years to maximize the impact and lead to lasting results for communities, the economy, and the environment.

For more information see: <https://www.fisheries.noaa.gov/feature-story/noaa-announces-funding-sixteen-coastal-and-marine-habitat-restoration-projects>

Natural Resources Conservation Service

NRCS offers voluntary programs to eligible landowners and agricultural producers to provide financial and technical assistance to help manage natural resources in a sustainable manner. Through these programs the agency approves contracts to provide financial assistance to help plan and implement conservation practices that address natural resource concerns or opportunities to help save energy, improve soil, water, plant, air, animal and related resources on agricultural lands and non-industrial private forest land. NRCS provides America’s farmers and



ranchers with financial and technical assistance to voluntarily put conservation on the ground, not only helping the environment but agricultural operations too.

- NRCS
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/about/>
- Environmental Quality Incentives Program
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>
- Conservation Programs
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/>
- Wetland Reserve Program
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/null/?cid=nrcs143_008419

Santa Barbara County Coastal Resource Enhancement Fund

Santa Barbara County has awarded 297 grants for a total of approximately \$22.4 million from its Coastal Resource Enhancement Fund (“CREF”). The County established CREF in 1987 to help mitigate significant impacts of offshore oil and gas development to coastal aesthetics, coastal recreation, coastal tourism, and environmentally sensitive coastal resources. In effect, the County awards grants from CREF to enhance these specific coastal resources pursuant to the Board-approved [CREF Guidelines](#). A description of these and other grants can be found in the annual [CREF Status Report](#).

Santa Barbara County Fish and Game Commission

The Santa Barbara County Fish and Game Commission awards grants funded by code violations in Santa Barbara County to be utilized “for the protection, conservation, propagation, preservation, or education as they pertain to fish and wildlife.” Non-profit organizations are eligible to apply. Grants awarded are typically less than \$2,000.

As determined by the Fish and Game Code of the State of California, all fines, monies derived from code violations shall be equally divided between the Department of Fish and Game and the county in which the violation occurred. The Santa Barbara County Fish and Game Commission (SBCFGC) is charged with recommending expenditures of fine revenues to the Santa Barbara County Board of Supervisors. State law requires that grants of such monies must be utilized for the protection, conservation, propagation, preservation, or education as they pertain to fish and wildlife. Non-profit organizations with an IRS 501 (c) (3) tax-exempt status or purpose consistent with the definition of 501 (c) (3) status are eligible to apply. A proposed project or program must clearly qualify for funding under section 13103 of the California Fish and Game Code - (Please Refer to Attachment A). Projects funded under this Section must be expended for the protection, conservation, propagation, preservation, or education pertaining to fish and wildlife within or outside the County.

Grant Application Form:



https://www.countyofsb.org/uploadedFiles/plndev/Content/Hearing_Bodies/SBCFG%20grant%20application%20Final.pdf

Santa Barbara Foundation - Conservation, Environment, and Public Trails Grant Program

The Santa Barbara Foundation is excited to announce the creation of the Conservation, Environment, and Public Trails Grant Program made possible by the Hollis Norris Fund for Conservation, Environment, and Public Trails. This grant program will support conservation, environment, and public trails projects across Santa Barbara County, with a preference given to those on the South Coast of Santa Barbara County from Point Conception to the Ventura County line and the Santa Ynez Valley. Grant amounts: up to \$25,000.

<https://www.sbfoundation.org/nonprofits/grant-opportunities/>

State Wildlife Grant Program

The California State Wildlife Grant Program provides Federal grant funds to State fish and wildlife agencies for developing and implementing programs that benefit wildlife and their habitats including species that are not hunted or fished.

Grant funds may be used to address a variety of conservation needs--such as research, fish and wildlife surveys, species restoration, habitat management, and monitoring—that are identified within a [State's Wildlife Action Plan](#). These funds may also be used to update, revise, or modify a State's Plan.

Learn about State Wildlife Grant Program [accomplishments](#).
See more information here: <https://wsfrprograms.fws.gov/subpages/grantprograms/swg/swg.htm>

UCSB Coastal Fund

The Coastal Fund ("CF") is a student initiative dedicated to the conservation of the UCSB coastline. The student body recognizes that the coast is at the heart of the campus' culture and character and must be protected. In response, each undergraduate student contributes \$5.75 per quarter, and each graduate student \$3.00 per quarter, into a fund that provides over \$350,000 each year to protect and enhance our coastline. Since Fall of 1999, CF has allocated over \$3 million to countless local projects or programs. CF accepts proposals during three funding cycles throughout the year (one per academic quarter) and critically reviews them for consistency to the CF Mission Statement vision and principals, relevance to the student community, adherence to UCSB and Regental policy and benefit to the UCSB shoreline. Applicants present their proposals at regular meetings which gives Board Members opportunities to ask specific questions to each



applicant and learn about the project in detail. The proposals are denied, funded entirely, or modified as needed.

<https://coastalfund.as.ucsb.edu/>

University of California Cooperative Extension

The University of California's 64 Cooperative Extension ("CE") offices are local problem-solving centers. More than 400 campus-based specialists and county-based farm, home, and youth advisors work as teams to bring the University's research-based information to Californians. CE is a full partnership of federal, state, county, and private resources linked in applied research and educational outreach. CE tailors its programs to meet local needs. CE's many teaching tools include meetings, conferences, workshops, demonstrations, field days, video programs, newsletters, and manuals. Thousands of volunteers extend CE's outreach, assisting with the 4-H youth development and Master Gardener education programs.

<http://cesantabarbara.ucanr.edu/>

United States Department of Agriculture

The United States Department of Agriculture annually funds the Watershed Protection and Flood Prevention Program, providing financial assistance to local governments in the protection of their watersheds. The program aims to address issues like water quality, erosion, flood control, habitat restoration, etc. A watershed plan must be created and approved to access grant funding. The program requires that at least 20% of the total benefits of the plan must directly relate to and benefit agriculture in the region.

Watershed Protection and Flood Prevention Operations Program:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wfpo/>

United States Endowment for Forestry and Communities

The Healthy Watersheds Consortium is a partnership between the United States Endowment for Forestry and Communities, the Environmental Protection Agency, and the USDA Natural Resources Conservation Service. Their grant program aims to protect land within watersheds from deterioration, and awards grants in three categories: watershed action projects, building watershed protection capacity, and advancing the state of practice. The emphasis is on long-term watershed protection through the development of programs and procedures rather than short-term restoration or research. Non-profit organizations and public agencies are eligible to apply.

Website: <http://www.usendowment.org/rfps/healthywatersheds.html>



2019 Request for Proposals:

http://www.usendowment.org/images/HWC_RFP_Yr_4_2019_7.18.2018.pdf

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (“Service”) administers a wide variety of financial assistance through programs that are [authorized by Congress](#) and address the Service’s [mission](#). The Service issues financial assistance through grants and cooperative agreement awards to commercial organizations, foreign entities, Indian tribal governments, individuals, institutions of higher education, non-profit organizations, and state and local governments.

<https://www.fws.gov/grants/programs.html>

For questions related to Service financial assistance policy and oversight, contact us at fwsgrants@fws.gov

- National Coastal Wetland Conservation Grant Program:
<https://www.fws.gov/coastal/pdfs/NCWCGP-Factsheet-2019-12-10-508-compliant.pdf>
- Endangered Species Grants:
<https://www.fws.gov/endangered/grants/index.html>
- North American Wetlands Conservation Act Grants:
<https://www.fws.gov/birds/grants/north-american-wetland-conservation-act.php>
- Partners for Fish and Wildlife:
<https://www.fws.gov/grants/programs.html>

2. Potential Cooperating Partners

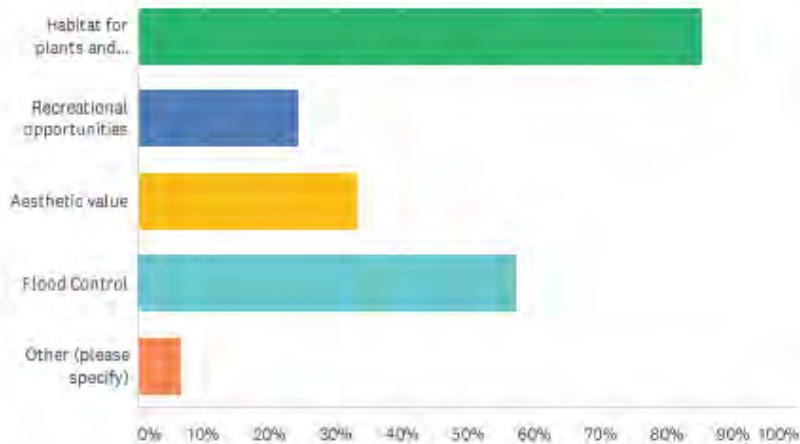
- Audubon Society
- Bicycle Coalition
- Cachuma Operations and Maintenance Board
- California Coastal Conservancy
- California Conservation Corps
- Cachuma Resource Conservation District
- California Department of Fish and Wildlife
- Caltrans
- CalTrout
- Channel Islands Restoration
- Cheadle Center for Biodiversity and Ecological Restoration
- Federal Emergency Management Agency
- Goleta Public Works Department
- Goleta Sanitary District
- Goleta Union School District
- Goleta Water District
- Goleta West Sanitary District
- Landowners
- National Marine Fisheries Service
- Private Businesses
- Santa Barbara Channelkeeper
- Santa Barbara City Airport
- Santa Barbara City Creeks Division
- Santa Barbara County Fire Department
- Santa Barbara County Flood Control and Water Conservation District
- Santa Barbara County Project Clean Water
- Santa Barbara County Public Works Department
- Santa Barbara County Transportation Division
- Santa Barbara Unified School District
- Sierra Club
- South Coast Habitat Restoration
- Surfrider Foundation
- The Goodland Coalition
- UCSB
- Union Pacific Railroad
- Urban Creeks Council
- US Bureau of Reclamation
- United States Fish and Wildlife Service
- University of California Cooperative Extension

Appendix I

Results of City of Goleta Public Surveys: Creek and Watershed Management

Q1 Why are creeks important to you? (Check the two you feel are most important)

Answered: 153 Skipped: 1

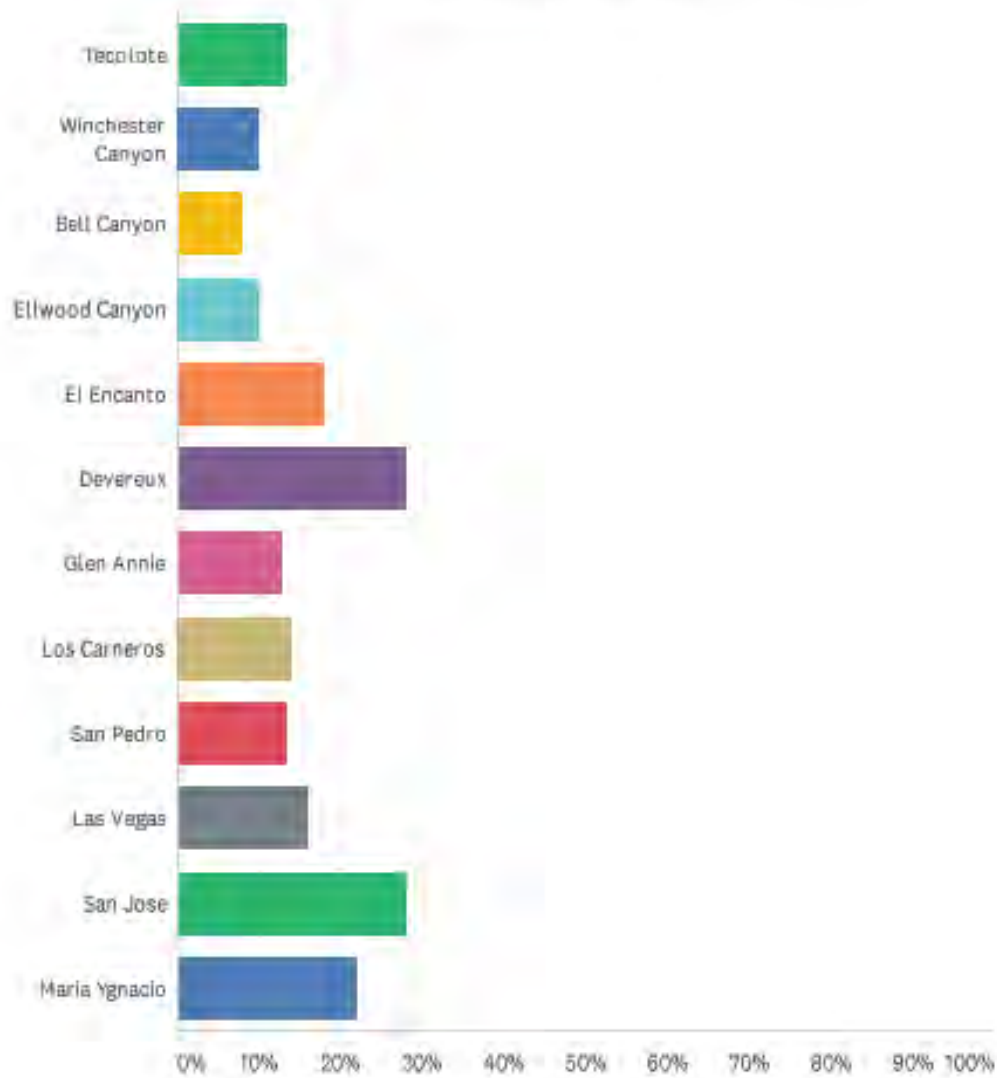


ANSWER CHOICES	RESPONSES	
Habitat for plants and animals	85.62%	131
Recreational opportunities	24.18%	37
Aesthetic value	33.33%	51
Flood Control	57.52%	88
Other (please specify)	6.54%	10
Total Respondents: 153		

City of Goleta. 2020.

Q2 Which Creek is the most important to you?

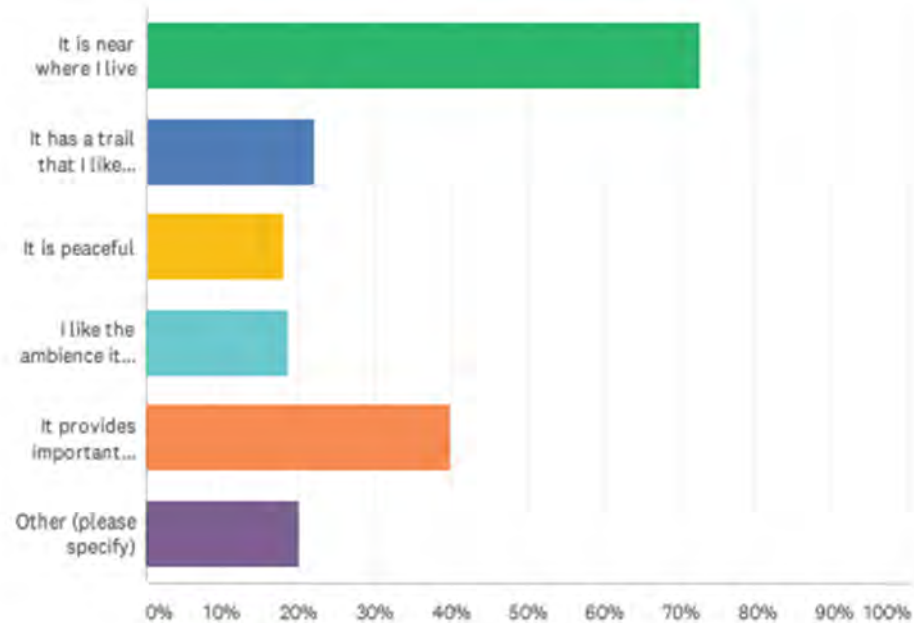
Answered: 150 Skipped: 4



City of Goleta. 2020.

Q3 Why is the creek selected in Question 2 most important to you?

Answered: 150 Skipped: 4

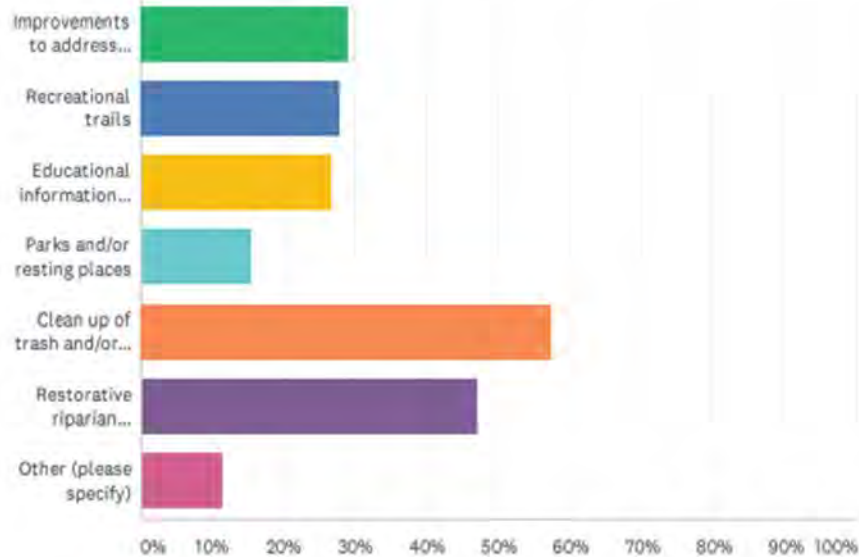


ANSWER CHOICES	RESPONSES	
It is near where I live	72.67%	109
It has a trail that I like next to it	22.00%	33
It is peaceful	18.00%	27
I like the ambience it provides	18.67%	28
It provides important habitat	40.00%	60
Other (please specify)	20.00%	30
Total Respondents: 150		

City of Goleta. 2020.

Q4 Out of the following categories of improvements or projects, what do you feel is most needed along the City's creek corridors? (Check the two you feel are most important)

Answered: 151 Skipped: 3



ANSWER CHOICES	RESPONSES	
Improvements to address flooding issues	29.14%	44
Recreational trails	27.81%	42
Educational information about habitats	26.49%	40
Parks and/or resting places	15.23%	23
Clean up of trash and/or homeless encampments	57.62%	87
Restorative riparian planting and/or removal of invasive plants	47.02%	71
Other (please specify)	11.26%	17
Total Respondents: 151		

City of Goleta. 2020.

City of Goleta Creeks and Watershed Management Plan

SurveyMonkey

#	RESPONSES	DATE
1	I'm assuming this is related to the National Flood Program Community Rating System designation? If so, thank you for finally getting this done.	2/17/2020 4:27 PM
2	Our creeks and small parks and trails along them are such an asset to Goleta! This is what makes Goleta unique; the other cities in the south coast don't have these!	1/6/2020 12:04 AM
3	is there a way students can get involved?	11/18/2019 8:30 AM
4	The correct answer to #4 is "all of the above." Clean up, restoration, recreation, flood control, education, ... it all matters.	11/6/2019 2:55 PM
5	We feel that it is excellent to attend to the creeks in the low land, but more important is the watershed all the way to the source. Please include that in your considerations! Thank You.	11/5/2019 9:05 PM
6	Our creeks quietly serve us 24-7 to make oxygen, purify water, and filter out pollution before it contaminate the ocean. Creeks do all the heavy lifting for society and does charge us a fee for these services. All we have to do is maintain them which is best done by leaving them alone once restored so they can function as nature designed. Bottom line, creeks need the same rights as humans.	11/5/2019 8:23 AM
7	I also care deeply about and frequently visit San Pedro Creek, San Jose Creek, and Lake Los Carneros. Our creeks are one of our most important assets in Goleta, and need to be protected and enhanced for environmental, recreational, spiritual, quality of life, property value and economic reasons.	11/4/2019 8:02 PM
8	I would feel a bit less terrified of local fires if Goleta's 12 creeks had water in them during fire season. At least we could run to the creeks like wildlife does during a fire. Breathing would be another matter. : /	11/4/2019 7:42 PM
9	the creeks are the last vestiges, albeit damaged with weeds (arundo, etc.), of wildlife corridors throughout our mountains to estuaries plain. we screw the creeks up any more, we will exacerbate flooding and loss of structures and life in the urban/suburban areas, increase invasive plants and animals which will increase fire risk (also to the human built environment), decrease water quality that will pollute not only the creeks, the steelhead (and other endangered species), the estuaries and the near shore sandy intertidal and rocky intertidal environments that we know are nurseries and rookeries to many invertebrates, fish, fowl/birds and other mammals, both small and considered characteristic megafauna.	11/4/2019 5:13 PM
10	Complete the San José creek bike path to old town Goleta and the beach, as well as into the National Forest!	11/4/2019 3:30 PM
11	Complete the San José creek bike path to old town Goleta and the beach, as well as into the National Forest!	11/4/2019 3:29 PM
12	The riparian corridor near Dos Pueblos HS and adjacent wooded area is a prime candidate for restoration. Presently it has issues with invasive plants, dumping by the HS landscapers, and homeless. San Jose and Maria Ignacio creeks are very important and potential steelhead creeks. Please do not allow the Slough mouth to close over - although this is natural, the slough has too much nutrient input from upstream avocado ranches etc and goes anoxic. This has longer term effects on the biology.	11/4/2019 2:34 PM
13	I am opposed to building being build close to creeks, especially if the crews are known to be the home of endangered species, like El Encanto.	11/4/2019 2:20 PM
14	Long term erosion control plan	10/28/2019 12:32 PM
15	I've lived in Goleta over 25 years. The creek areas are not maintained for the flooding that could occur. Too many plants grow in the beds which hinder water during heavy rains.	10/22/2019 4:53 PM
16	Thank you for shining a light on our local creeks! I loved them as a kid. Hiking up San Pedro makes me wonder how clean/safe it still is for me and my 9 and 7 year olds.	10/20/2019 8:28 PM
17	make liner parks on creeks, keep out homeless camps	10/18/2019 3:46 PM
18	Currently most of our urban creeks really do not serve anywhere near the habitat value that they should, or could with restoration. They are creeks in name only and are better described as flood control channels. Look at Los Carneros between Hollister and 101, a concrete channel home only to green algae from ag nutrient run-off. Could we bring back vegetation and open up	10/17/2019 4:52 PM

City of Goleta. 2020.

some of the concrete (as is being done in other areas)? What about Old San Jose Creek in Old Town, it didn't even make your list. Still riparian along this area from the 1960s (when it was diverted). Could we turn this area in to more valuable habitat, and provide recreation for residents (trail to beach/signage/benches)? Healthy watersheds are good for everybody. Native habitat can slow water flow, remove impurities and allow water to replenish aquifers. Currently many of our creeks are dumping grounds for trash and are lined with invasive plants that don't bring many benefits. I'm glad that this management plan is being developed to bring more attention and hopefully some ecological improvement. I am looking forward to the new San Jose Creek trail under 101. This is a project that residents really need. However, I am concerned about the lack of buffer zones along our creeks and how development goes right up to the edges.

19	Thank you for your recent improvement in our creek with tree trimming & removal. I don't know what the name of the creek is but is next to our house on Santa Barbara Shores.	10/17/2019 4:23 PM
20	It is important to require 100-foot setbacks in any new development and to restore 100-foot setbacks in existing developed areas as much as possible.	10/17/2019 3:19 PM
21	Creeks should be viewed as important community amenities. They should be preserved or restored where possible to support flood control functions, riparian and stream biodiversity, and recreational and aesthetic features.	10/17/2019 2:54 PM
22	Thank you for generating this survey!	10/17/2019 2:24 PM
23	Please leave the creeks alone and/or act only to restore them to their truly natural state. The city of Goleta with its approval of rampant development has already ruined what was formerly natural and good about the Goleta area. To hear there is a plan to 'manage' the Goleta creeks by the city of Goleta concerns me based on what I've seen the city manage in the last 5-7 years: exponential growth and development in treasured open spaces. Please leave the creeks be. Thank you	10/17/2019 11:58 AM
24	A lot has been done to address flooding issues, such as the culvert under the freeway at Valdez and Calle Real. The first priority for the city administration is to prevent injury and property damage due to flooding.	10/17/2019 11:47 AM
25	1. We should de-channelize any creeks that we can. Concrete channels don't provide habitat and are not at all aesthetically pleasing or appropriate for recreating. Flood control can be accomplished through naturalized creeks more efficiently. 2. In addition, we should also explore economic opportunities that may exist along some creeks, for example what San Luis Obispo did along Higuera Street at Mission Plaza. There are unrealized opportunities to have creekside dining and outdoor patios at several locations throughout the city.	10/17/2019 11:12 AM
26	Improve Dog Walk Area north of La Goleta adjacent to Las Vegas creek. Currently tick infested weeds... impossible to use area as intended.	10/17/2019 11:00 AM
27	Creeks are important wild life corridors and must remain so.	10/17/2019 10:58 AM
28	They should have more information available to the community in general.	10/7/2019 11:46 AM
29	Working with nature to reduce the ill-effects of intrusive habitat development, trash dumping, and other intrusive human activities.	10/7/2019 11:43 AM
30	I guess more tree clean up and on sidewalks.	10/7/2019 11:40 AM
31	educational opportunities for kids	10/7/2019 11:38 AM
32	Provide staff and funding for restoration work.	10/7/2019 11:34 AM
33	we love seeing and hearing the owls in their natural habitat!	10/7/2019 11:30 AM
34	need for more education about dangers of playing in dirty creeks - promote "learning to swim"	10/7/2019 11:29 AM
35	I just moved here, so not too familiar with the creeks but interested in learning	10/7/2019 11:26 AM
36	Thanks for everything you are doing!	10/7/2019 10:52 AM

City of Goleta. 2020.



Appendix II

Local, State and Federal Policies, Laws, Ordinances, Regulations, Statutes, and Development Standards Related to Creek and Watershed Protection in the Goleta Valley

Several local, state, and federal laws, ordinances, regulations, and policies were taken into consideration for this report as they contain relevant information pertaining to creeks and watersheds. Several of the most relevant laws and policies are summarized below. The City of Goleta CWMP should strive to implement these laws and further their intentions to protect the local watersheds for their intrinsic and human-oriented values.

City of Goleta General Plan / Coastal Land Use Plan (2006)

The Goleta General Plan / CLUP⁴⁷⁸ contains numerous elements, including a Conservation Element intended to “address conservation, development, and use of natural resources including water, creeks, soils, wildlife, and other natural resources.”⁴⁷⁹ The Conservation Element provides policies, objectives, and actions for ESHA and creek protection including Action CE 1A-3 calling for the preparation of the CWMP. The City’s General Plan also includes a Safety Element with fire protection, flood protection, and creek restoration policies relevant to this report.

Applicability: The General Plan / CLUP applies to City of Goleta land and resource use decisions.

The following adopted Goleta General Plan / CLUP Conservation Element and Safety Element policies and implementation actions are relevant to this report:

City of Goleta General Plan: Conservation Element

- **Action CE-IA-3: Preparation of a Creek and Watershed Management Plan A** citywide Creek and Watershed Management Plan will be prepared to provide detailed standards of acceptable practices for protecting the ecological function, water quality, and drainage and flood control function of Goleta’s creeks and watersheds. Participate in multijurisdictional watershed management plans, where appropriate.
Time period: 2008⁴⁸⁰

⁴⁷⁸ City of Goleta (2006); The City of Goleta is currently updating its CLUP, including a Local Coastal Plan (“LCP”) and coastal zoning ordinance intended to implement the LCP, with the goal of obtaining Coastal Commission certification of the CLUP. Email from Anne Wells, Advanced Planning Manager, City of Goleta, to Tara Messing, Staff Attorney, EDC (February 16, 2021).

⁴⁷⁹ *Id.* at 4-1.

⁴⁸⁰ The City of Goleta CWMP was adopted by the City Council unanimously on November 17, 2020. City of Goleta CWMP Webpage available at <https://www.cityofgoleta.org/city-hall/planning-and-environmental-review/advance-planning-division/environmental-programs/creek-and-watershed-management-plan> (February 20, 2021).

Responsible party: Planning and Environmental Services Department; Community Services Department⁴⁸¹

- **CE 1.2 Designation of Environmentally Sensitive Habitat Areas. [GP/CP]** ESHAs in Goleta are generally shown in Figure 4-1, and Table 4-2 provides examples of the ESHAs and some locations of each. The provisions of this policy shall apply to all designated ESHAs. ESHAs generally include but are not limited to the following:
 - a. Creek and riparian areas.
 - b. Wetlands, such as vernal pools.
 - c. Coastal dunes, lagoons or estuaries, and coastal bluffs/coastal bluff scrub.
 - d. Beach and shoreline habitats.
 - e. Marine habitats.
 - f. Coastal sage scrub and chaparral.
 - g. Native woodlands and savannahs, including oak woodlands.
 - h. Native grassland.
 - i. Monarch butterfly aggregation sites, including autumnal and winter roost sites, and related habitat areas. Coastal Bluff Scrub Habitat along Ellwood Mesa
 - j. Beach and dune areas that are nesting and foraging locations for the western snowy plover.
 - k. Nesting and roosting sites and related habitat areas for various species of raptors.
 - l. Other habitat areas for species of wildlife or plants designated as rare, threatened, or endangered under state or federal law.
 - m. Any other habitat areas that are rare or especially valuable from a local, regional, or statewide perspective. (Amended by Reso. 09-59, 11/17/09)⁴⁸²

⁴⁸¹ City of Goleta (2006) at 4-36.

⁴⁸² *Id.* at 4-8 – 4-9.

- **CE 1.6 Protection of ESHAs. [GP/CP]** ESHAs shall be protected against significant disruption of habitat values, and only uses or development dependent on and compatible with maintaining such resources shall be allowed within ESHAs or their buffers. The following shall apply:
 - a. No development, except as otherwise allowed by this element, shall be allowed within ESHAs and/or ESHA buffers.
 - b. A setback or buffer separating all permitted development from an adjacent ESHA shall be required and shall have a minimum width as set forth in subsequent policies of this element. The purpose of such setbacks shall be to prevent any degradation of the ecological functions provided by the habitat area.
 - c. Public accessways and trails are considered resource-dependent uses and may be located within or adjacent to ESHAs. These uses shall be sited to avoid or minimize impacts on the resource to the maximum extent feasible. Measures— such as signage, placement of boardwalks, and limited fencing or other barriers—shall be implemented as necessary to protect ESHAs.
 - d. The following uses and development may be allowed in ESHAs or ESHA buffers only where there are no feasible, less environmentally damaging alternatives and will be subject to requirements for mitigation measures to avoid or lessen impacts to the maximum extent feasible: 1) public road crossings, 2) utility lines, 3) resource restoration and enhancement projects, 4) nature education, 5) biological research, and 6) Public Works projects as identified in the Capital Improvement Plan, only where there are no feasible, less environmentally damaging alternatives.

If the provisions herein would result in any legal parcel created prior to the date of this plan being made unusable in its entirety for any purpose allowed by the land use plan, exceptions to the foregoing may be made to allow a reasonable economic use of the parcel. Alternatively, the City may establish a program to allow transfer of development rights for such parcels to receiving parcels that have areas suitable for and are designated on the Land Use Plan map for the appropriate type of use and development. (Amended by Reso. 09-59, 11/17/09)⁴⁸³

- **Policy CE 2: Protection of Creeks and Riparian Areas [GP/CP]** Objective: Enhance, maintain, and restore the biological integrity of creek courses and their associated wetlands and riparian habitats as important natural features of Goleta’s landscape.⁴⁸⁴

⁴⁸³ *Id.* at 4-10 – 4-11.

⁴⁸⁴ *Id.* at 4-13.

- **CE 2.1 Designation of Protected Creeks. [GP/CP]** The provisions of this policy shall apply to creeks shown in Figure 4-1. These watercourses and their associated riparian areas are defined as ESHAs. They serve as habitat for fish and wildlife, provide wildlife movement corridors, provide for the flow of stormwater runoff and floodwaters, and furnish open space and passive recreational areas for city residents.⁴⁸⁵
- **CE 2.2 Streamside Protection Areas. [GP/CP]** A streamside protection area (SPA) is hereby established along both sides of the creeks identified in Figure 4-1. The purpose of the designation shall be to preserve the SPA in a natural state in order to protect the associated riparian habitats and ecosystems. The SPA shall include the creek channel, wetlands and/or riparian vegetation related to the creek hydrology, and an adjacent upland buffer area. The width of the SPA upland buffer shall be as follows:
 - a. The SPA upland buffer shall be 100 feet outward on both sides of the creek, measured from the top of the bank or the outer limit of wetlands and/or riparian vegetation, whichever is greater. The City may consider increasing or decreasing the width of the SPA upland buffer on a case-by-case basis at the time of environmental review. The City may allow portions of a SPA upland buffer to be less than 100 feet wide, but not less than 25 feet wide, based on a site specific assessment if (1) there is no feasible alternative siting for development that will avoid the SPA upland buffer; and (2) the project's impacts will not have significant adverse effects on streamside vegetation or the biotic quality of the stream.
 - b. If the provisions above would result in any legal parcel created prior to the date of this plan being made unusable in its entirety for any purpose allowed by the land use plan, exceptions to the foregoing may be made to allow a reasonable economic use of the parcel, subject to approval of a conditional use permit. (Amended by Reso. 09-30, 5/19/09 and Reso. 09-59, 11/17/09)⁴⁸⁶
- **CE 2.3 Allowable Uses and Activities in Streamside Protection Areas. [GP/CP]** The following compatible land uses and activities may be allowed in SPAs, subject to all other policies of this plan, including those requiring avoidance or mitigation of impacts:
 - a. Agricultural operations, provided they are compatible with preservation of riparian resources.
 - b. Fencing and other access barriers along property boundaries and along SPA boundaries.
 - c. Maintenance of existing roads, driveways, utilities, structures, and drainage improvements.

⁴⁸⁵ *Id.*

⁴⁸⁶ *Id.* at 4-13 – 4-14.

- d. Construction of public road crossings and utilities, provided that there is no feasible, less environmentally damaging alternative.
 - e. Construction and maintenance of foot trails, bicycle paths, and similar low-impact facilities for public access.
 - f. Resource restoration or enhancement projects.
 - g. Nature education and research activities.
 - h. Low-impact interpretive and public access signage.
 - i. Other such Public Works projects as identified in the Capital Improvement Plan, only where there are no feasible, less environmentally damaging alternatives. (Amended by Reso. 09-59, 11/17/09)⁴⁸⁷
- **CE 2.4 Dedication of Easements or Other Property Interests. [GP/CP]** In new subdivisions of land, SPAs shall not be included in developable lots but shall be within a separate parcel or parcels, unless the subdivider demonstrates that it is not feasible to create a separate open space lot for the SPA. An easement or deed restriction limiting the uses allowed on the open space lot to those set forth in CE 2.3 shall be required. Dedication of the open space lot or easement area to the City or a nonprofit land trust is encouraged.⁴⁸⁸
 - **CE 2.5 Maintenance of Creeks as Natural Drainage Systems. [GP/CP]** Creek banks, creek channels, and associated riparian areas shall be maintained or restored to their natural condition wherever such conditions or opportunities exist. Creeks carry a significant amount of Goleta's stormwater flows. The following standards shall apply:
 - a. The capacity of natural drainage courses shall not be diminished by development or other activities.
 - b. Drainage controls and improvements shall be accomplished with the minimum vegetation removal and disruption of the creek and riparian ecosystem that is necessary to accomplish the drainage objective.
 - c. Measures to stabilize creek banks, improve flow capacity, and reduce flooding are allowed but shall not include installation of new concrete channels, culverts, or pipes except at street crossings, unless it is demonstrated that there is no feasible alternative for improving capacity.

⁴⁸⁷ *Id.* at 4-14

⁴⁸⁸ *Id.*

- d. Drainage controls in new development shall be required to minimize erosion, sedimentation, and flood impacts to creeks. Onsite treatment of stormwater through retention basins, infiltration, vegetated swales, and other best management practices (BMPs) shall be required in order to protect water quality and the biological functions of creek ecosystems.
 - e. Alteration of creeks for the purpose of road or driveway crossings shall be prohibited except where the alteration is not substantial and there is no other feasible alternative to provide access to new development on an existing legal parcel. Creek crossings shall be accomplished by bridging and shall be designed to allow the passage of fish and wildlife. Bridge abutments or piers shall be located outside creek beds and banks, unless an environmentally superior alternative exists. (Amended by Reso. 09-59, 11/17/09)⁴⁸⁹
- **CE 2.6 Restoration of Degraded Creeks. [GP/CP]** Segments of several creeks in Goleta have been covered or channelized by concrete culverts, causing degradation of the creek ecosystem. Restoration activities for improving degraded creek resources shall include the following:
 - a. Channelized creek segments and culverts shall be evaluated and removed to restore natural channel bed and bank, where feasible.
 - b. Creek courses in public rights-of-way shall be uncovered as part of public works improvement projects.
 - c. Barriers that prevent migration of fish such as anadromous salmonids from reaching their critical habitat shall be removed or modified.
 - d. Restoration of native riparian vegetation and removal of exotic plant species shall be implemented, unless such plants provide critical habitat for monarch butterflies, raptors, or other protected animals.
 - e. Creek rehabilitation projects shall be designed to maintain or improve flow capacity, trap sediments and other pollutants that decrease water quality, minimize channel erosion, prevent new sources of pollutants from entering the creek, and enhance in-creek and riparian habitat.

⁴⁸⁹ *Id.* at 4-14 – 4-15.

- f. The use of closed-pipe drainage systems for fish-bearing creeks shall be prohibited unless there is no feasible, less environmentally damaging alternative. When the use of culverts is necessary, the culverts shall be oversized and have gravel bottoms that maintain the channel's width and grade.⁴⁹⁰

City of Goleta General Plan: Safety Element

- **SE 6.1 Map of Flood Hazard Areas. [GP/CP]** The City shall use the most recent edition of the federal Flood Insurance Rate Maps (FIRM maps) in evaluating applications for new or expanded development on properties subject to flood hazards. All applications for new or expanded development shall be required to show, where applicable, the floodway, 100-year floodplain, and the 500-year floodplain on the site plan showing the proposed development. The map in Figure 5-2 is a facsimile rather than the official flood hazard map and is intended only to be illustrative of possible flood hazard areas.⁴⁹¹
- **SE 6.2 Areas Subject to Local Urban Flooding. [GP]** In addition to flood hazard areas shown on the FIRM maps, the City may require applications for new or expanded development in areas with known persistent local urban flooding to include measures that lessen the urban flooding hazard and/or that mitigate its effects on the proposed development. This requirement shall apply to flooding on any street or roadway that provides access to the proposed development.⁴⁹²
- **SE 6.3 Floodplain Management Ordinance. [GP]** The City shall maintain and strictly enforce the policies, regulations, and standards within a Floodplain Management Ordinance.⁴⁹³
- **SE 6.4 Avoidance of Flood Hazard Areas. [GP/CP]** The City shall discourage any new intensive development in any flood hazard area. Similarly, the City shall require appropriate flood mitigation for intensification of existing development in any floodprone area. The City shall not approve development within areas designated as the 100-year floodplain that would obstruct flood flow (such as construction in the designated floodway), displace floodwaters onto other property, or be subject to flood damage. The City shall not allow development that will create or worsen drainage problems.⁴⁹⁴
- **SE 6.5 Siting of Critical Facilities. [GP]** The City shall discourage the construction of critical facilities within the 100-year floodplain. In cases where construction of such facilities cannot avoid flood hazard areas, the City shall require implementation of appropriate mitigation as recommended in site-specific hydrology/hydraulic and/or

⁴⁹⁰ *Id.* at 4-15.

⁴⁹¹ *Id.* at 5-20.

⁴⁹² *Id.*

⁴⁹³ *Id.* at 5-21.

⁴⁹⁴ *Id.*

engineering studies.⁴⁹⁵

- **SE 6.6 Enforcement of Watercourse Setback Ordinance. [GP/CP]** A minimum 50-foot setback shall be required from streambanks and flood control channels for all new development (see related CE 2.2). For projects that would be rendered infeasible by the application of such minimum setbacks, the project applicant shall provide a site-specific engineering study with recommended mitigation measures to allow for a reduced setback that would not expose development to unacceptable risk. Furthermore, in these cases, the City shall consult with the Santa Barbara County Flood Control District to determine whether the proposed lesser setback would be appropriate, in that it would allow access for flood control maintenance and enable proper operation of the channels. The City shall maintain and enforce the policies and standards within a Water Course Setback Ordinance.⁴⁹⁶
- **SE 6.7 Evaluation of Potential Inundation Hazard. [GP/CP]** When reviewing proposals for development of water reservoirs, large retention basins, or drainage channels, the City shall require an evaluation of potential inundation areas and require design to withstand potential seismic activity.⁴⁹⁷
- **SE 6.8 Flood Control Projects. [GP/CP]** The City shall seek funding for and implement capital improvement projects to mitigate hazards for low-lying flood-prone areas. The City shall require restoration of natural processes in drainage ways where appropriate and feasible. For these flood control projects, methods that employ native plantings and natural-looking, “soft” stabilization shall be preferred over methods that rely solely on concrete channelization and other “hard” stabilization methods.⁴⁹⁸
- **SE 6.9 Restoration of Armored or Channelized Stream Beds. [GP/CP]** The City shall pursue opportunities to eliminate or soften existing concrete channels and/or rock- or concrete-stabilized banks from streams. (See CE 2.5.)⁴⁹⁹
- **Policy SE 7: Urban and Wildland Fire Hazards [GP/CP]**
Objective: To reduce the threat to life, structures, and the environment caused by urban and wildland fires.⁵⁰⁰
- **SE 7.1 Fire Prevention and Response Measures for New Development. [GP/CP]** New development and redevelopment projects shall be designed and constructed in

⁴⁹⁵ *Id.*

⁴⁹⁶ *Id.*

⁴⁹⁷ *Id.*

⁴⁹⁸ *Id.*

⁴⁹⁹ *Id.* at 5-22.

⁵⁰⁰ *Id.*

accordance with National Fire Protection Association standards to minimize fire hazards, with special attention given to fuel management and improved access in areas with higher fire risk, with access or water supply deficiencies, or beyond a 5-minute response time.⁵⁰¹

- **SE 7.2 Review of New Development. [GP/CP]** Applications for new or expanded development shall be reviewed by appropriate Santa Barbara County Fire Department personnel to ensure they are designed in a manner that reduces the risk of loss due to fire. Such review shall include consideration of the adequacy of “defensible space” around structures at risk; access for fire suppression equipment, water supplies, construction standards; and vegetation clearance. Secondary access may be required and shall be considered on a case-by-case basis. The City shall encourage built-in fire suppression systems such as sprinklers, particularly in high-risk or high-value areas.⁵⁰²
- **SE 7.3 Identification of Fire Hazard Areas. [GP/CP]** The Santa Barbara County Fire Department should identify high-value and high-risk areas, including urban/wildlife interface areas, and develop mitigation efforts to reduce the threat of fire.⁵⁰³
- **SE 7.4 Fuel Modification Plans. [GP/CP]** Applications for new development that require fuel modification shall include a Fuel Modification Plan for the project. This plan shall be prepared by a landscape architect or resource specialist and shall include measures to minimize removal of native vegetation, minimize disturbance to environmentally sensitive habitat areas (ESHAs), and incorporate fire-retardant vegetation in new plantings. Such plans shall be reviewed and approved by the Santa Barbara County Fire Department.⁵⁰⁴
- **SE 7.5 Automatic Fire Sprinkler Systems. [GP]** The City shall require the installation of automatic fire sprinklers for: a) all new buildings that have a total floor area of 5,000 Fire Department Engine Responding to a Wildfire Source: Santa Barbara County Fire Department square feet or more and b) any existing building proposed for remodeling or an addition, which, upon completion of the remodel or addition, will have a total floor area of 5,000 square feet or more. The 5,000-square-foot threshold cited in criteria a) and b), above, shall be reduced to 1,000 square feet for any building zoned or used for commercial or industrial purposes if such building is within 100 feet of any residentially zoned parcel.⁵⁰⁵
- **SE 7.6 Standards for Rebuilding in High Fire Hazard Areas. [GP]** Any rebuilding in high fire hazard areas shall incorporate development standards and precautions that reduce the chance of structure losses from fire.⁵⁰⁶

⁵⁰¹ *Id.*

⁵⁰² *Id.*

⁵⁰³ *Id.*

⁵⁰⁴ *Id.*

⁵⁰⁵ *Id.*

⁵⁰⁶ *Id.* at 5-23.

Santa Barbara County Local Coastal Plan (2019)⁵⁰⁷

Applicability: Santa Barbara County land and resource use decisions for projects in the coastal zone of Santa Barbara County, including unincorporated parts of the Goleta Valley such as Atascadero Creek.

The Santa Barbara County LCP has been certified by the Coastal Commission and contains policies for creek and ESHA protection, including buffer zones to protect creeks and wetlands, flood hazards, and hillside and watershed protection.⁵⁰⁸

Santa Barbara County LCP: Flood Hazard Policies

- **Policy 3-11:** All development, including construction, excavation, and grading, except for flood control projects and non-structural agricultural uses, shall be prohibited in the floodway unless off-setting improvements in accordance with HUD regulations are provided. If the proposed development falls within the floodway fringe, development may be permitted, provided creek setback requirements are met and finish floor elevations are above the projected 100-year flood elevation, as specified in the Flood Plain Management Ordinance.
- **Policy 3-12:** Permitted development shall not cause or contribute to flood hazards or lead to expenditure of public funds for flood control works, i.e., dams, stream channelizations, etc.

Santa Barbara County LCP: Hillside and Watershed Protection Policies

- **Policy 3-13:** Plans for development shall minimize cut and fill operations. Plans requiring excessive cutting and filling may be denied if it is determined that the development could be carried out with less alteration of the natural terrain.
- **Policy 3-14:** All development shall be designed to fit the site topography, soils, geology, hydrology, and any other existing conditions and be oriented so that grading and other site preparation is kept to an absolute minimum. Natural features, landforms, and native vegetation, such as trees, shall be preserved to the maximum extent feasible. Areas of the site which are not suited for development because of known soil, geologic, flood, erosion or other hazards shall remain in open space.

⁵⁰⁷ Numerous creeks in the Goleta Valley cross jurisdictional boundaries as discussed above in Master Report Section I.b. on pages 2-3. All the creeks in the Goleta Valley pass through County jurisdiction. Most originate in the LPNF. Several traverse the City of Santa Barbara, and/or state property. While the focus of this report is on restoring creeks in the City of Goleta, we include relevant Santa Barbara County policies.

⁵⁰⁸ Santa Barbara County *Local Coastal Plan* at 132 and 144 – 147 available at <https://cosantabarbara.app.box.com/s/cx95k0r4hnfo58hg291f5gzf5rrdurd> (June 2019).

- **Policy 3-15:** For necessary grading operations on hillsides, the smallest practical area of land shall be exposed at any one time during development, and the length of exposure shall be kept to the shortest practicable amount of time. The clearing of land should be avoided during the winter rainy season and all measures for removing sediments and stabilizing slopes should be in place before the beginning of the rainy season.
- **Policy 3-16:** Sediment basins (including debris basins, desilting basins, or silt traps) shall be installed on the project site in conjunction with the initial grading operations and maintained throughout the development process to remove sediment from runoff waters. All sediment shall be retained on site unless removed to an appropriate dumping location.
- **Policy 3-17:** Temporary vegetation, seeding, mulching, or other suitable stabilization method shall be used to protect soils subject to erosion that have been disturbed during grading or development. All cut and fill slopes shall be stabilized immediately with planting of native grasses and shrubs, appropriate nonnative plants, or with accepted landscaping practices.
- **Policy 3-18:** Provisions shall be made to conduct surface water to storm drains or suitable watercourses to prevent erosion. Drainage devices shall be designed to accommodate increased runoff resulting from modified soil and surface conditions as a result of development. Water runoff shall be retained on-site whenever possible to facilitate groundwater recharge.
- **Policy 3-19:** Degradation of the water quality of groundwater basins, nearby streams, or wetlands shall not result from development of the site. Pollutants, such as chemicals, fuels, lubricants, raw sewage, and other harmful waste, shall not be discharged into or alongside coastal streams or wetlands either during or after construction.
- **Policy 3-20:** All development within the coastal zone shall be subject to the slope density curve (Plate A) of the County Zoning Ordinance No. 661 (Article VII, Section 20). However, in no case shall above-ground structures, except for necessary utility lines and fences for agricultural purposes, be sited on undisturbed slopes exceeding 40 percent.
- **Policy 3-21:** Where agricultural development will involve the construction of service roads and/or the clearance of natural vegetation for orchard development, a brush removal permit shall be required.
- **Policy 3-22:** Where agricultural development will involve the construction of service roads and the clearance of major vegetation for orchard development, cover cropping or any other comparable means of soil protection shall be utilized to minimize erosion until orchards are mature enough to form a vegetative canopy over the exposed earth.



- **Policy 3-23:** In order to protect scenic resources, water quality, and community character, and reduce land form alternation, greenhouses and greenhouse related development shall be prohibited on slopes in excess of 10 percent within Area B of the Carpinteria Agricultural Overlay District. Greenhouse or greenhouse related development may be approved on slopes between 5 and 10 percent, subject to a Conditional Use Permit.

Santa Barbara County LCP: Stream Policies

- **Policy 9-9:** Buffers must be a minimum of 100 feet in width along the periphery of all wetlands.
- **Policy 9-37:** The minimum buffer strip for major streams in rural areas, as defined by the land use plan, shall be presumptively 100 feet, and for streams in urban areas, 50 feet. These minimum buffers may be adjusted upward or downward on a case-by-case basis. The buffer shall be established based on an investigation of the following factors and after consultation with the Department of Fish and Game and Regional Water Quality Control Board in order to protect the biological productivity and water quality of streams:
 - 1) soil type and stability of stream corridors;
 - 2) how surface water filters into the ground;
 - 3) slope of the land on either side of the stream; and
 - 4) location of the 100-year flood plain boundary. Riparian vegetation shall be protected and shall be included in the buffer. Where riparian vegetation has previously been removed, except for channelization, the buffer shall allow for the reestablishment of riparian vegetation to its prior extent to the greatest degree possible.
- **Policy 9-38:** No structures shall be located within the stream corridor except: public trails, dams for necessary water supply projects, flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development; and other development where the primary function is for the improvement of fish and wildlife habitat. Culverts, fences, pipelines, and bridges (when support structures are located outside the critical habitat) may be permitted when no alternative route/location is feasible. All development shall incorporate the best mitigation measures feasible.
- **Policy 9-39:** Dams or other structures that would prevent upstream migration of anadromous fish shall not be allowed in streams targeted by the California Department of Fish and Game unless other measures are used to allow fish to bypass obstacles. These streams include: San Antonio Creek (Los Alamos area), Santa Ynez River, Jalama Creek, Santa Anita Creek, Gaviota Creek, and Tecolote Creek.



- **Policy 9-40:** All development, including dredging, filling, and grading within stream corridors, shall be limited to activities necessary for the construction of uses specified in Policy 9-38. When such activities require removal of riparian plant species, revegetation with local native plants shall be required except where undesirable for flood control purposes. Minor clearing of vegetation for hiking, biking, and equestrian trails shall be permitted.
- **Policy 9-41:** All permitted construction and grading within stream corridors shall be carried out in such a manner as to minimize impacts from increased runoff, sedimentation, biochemical degradation, or thermal pollution.
- **Policy 9-42:** The following activities shall be prohibited within stream corridors: cultivated agriculture, pesticide applications, except by a mosquito abatement or flood control district, and installation of septic tanks.
- **Policy 9-43:** Other than projects that are currently approved and/or funded, no further concrete channelization or other major alterations of streams in the coastal zone shall be permitted unless consistent with the provisions of Section 30236 of the Coastal Act.

Santa Barbara County Goleta Community Plan (1993)

The Santa Barbara County Goleta Community Plan contains stipulations regarding the definition and parameters of buffer zones to creeks and wetlands in the unincorporated western part of the Goleta Valley.⁵⁰⁹

Applicability: Land and resource use decisions by Santa Barbara in unincorporated portions of western and central Goleta Valley.

- **Policy BIO-GV-8:** Minimum riparian buffer strip within ESH overlay in urban, inner rural and existing developed rural neighborhoods is 50 feet. Minimum in mountainous-GOL Zone District is 200 feet from the edge of existing riparian vegetation.⁵¹⁰

Santa Barbara County Eastern Goleta Valley Community Plan (2017)

The Eastern Goleta Valley Community Plan contains specific objectives and policies for the care and maintenance of creeks in the unincorporated portion of the Eastern Goleta Valley.⁵¹¹

⁵⁰⁹ Santa Barbara County, *Goleta Community Plan* available at https://www.countyofsb.org/uploadedFiles/plndev/Content/Code_and_Policy/1993%20Goleta%20PlanW_inserts.pdf (August 1993).

⁵¹⁰ *Id.* at 198 -199.

⁵¹¹ Santa Barbara County (2017).



Applicability: Land and resource use decisions by Santa Barbara in unincorporated portions of Eastern Goleta Valley.

- **OBJECTIVE ECO-EGV-1:** Preserve and enhance the watershed ecosystems of Eastern Goleta Valley.
- **Policy ECO-EGV-1.1:** The County shall designate and provide protection to important or sensitive environmental resources and habitats in Eastern Goleta Valley.
- **Policy ECO-EGV-3.1:** Habitats that shall be preserved and enhanced include, but are not limited to:
 - Creeks, streams, and waterways, and fish passage.
 - Wetlands and vernal pools.
 - Riparian vegetation.
 - Wildlife corridors between habitat areas.

California Coastal Act

A portion of the City of Goleta lies within the coastal zone, and is therefore subject to the California Coastal Act, including the requirement for the City to prepare and adopt a certified LCP to ensure local land use decisions comply with the California Coastal Act. This requirement also applies to the City of Santa Barbara and Santa Barbara County. The Coastal Act includes laws for safekeeping and restoring coastal water quality, creeks, and other Environmentally Sensitive Habitat Areas⁵¹² (“ESHA”) such as riparian, oak woodland, coastal sage scrub, and other native habitats occurring within Goleta’s watersheds.

Applicability: The Coastal Act applies directly to land use and other activities within the California Coastal Commission’s original permit jurisdiction and requires cities and counties in coastal areas to prepare LCPs certified by the Commission as consistent with the Coastal Act to guide local land use, resource use, and development decisions.

⁵¹² The Coastal Act Section 30107.5 defines Environmentally Sensitive Area as, “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.” California Legislative information available at

https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC§ionNum=30107.5

(February 20, 2021).

- **Pub. Resources Code Section 30231:** The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.⁵¹³
- **Pub. Res. Code Section 30236:** Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.⁵¹⁴
- **Pub. Res. Code Section 30240:** (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.⁵¹⁵

California Fish and Game Codes

- **Section 1602:** Requires a Lake and Streambed Alteration Agreement (permit) for any activity which alters the bed, banks, or riparian habitat along a creek, river, or lake in California.⁵¹⁶

Applicability: This includes the following activities:

- “Divert or obstruct the natural flow of any river, stream, or lake;
- Change the bed, channel, or bank of any river, stream, or lake;
- Use material from any river, stream, or lake; or
- Deposit or dispose of material into any river, stream, or lake.”⁵¹⁷

⁵¹³ *Id.* at https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC§ionNum=30231.

⁵¹⁴ *Id.* at https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC§ionNum=30236.

⁵¹⁵ *Id.* at https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC§ionNum=30240.

⁵¹⁶ California Department of Fish and Wildlife *Lake and Streambed Alteration Program* webpage available at <https://wildlife.ca.gov/Conservation/Environmental-Review/LSA> (February 20, 2021).

⁵¹⁷ *Id.*



- **Section 5937:** Requires operators of dams to keep fish in good condition below dams, which has been interpreted by the courts to mean in good condition at the individual, species, and community levels.⁵¹⁸

Applicability: This law applies to water rights cases involving private and public dams in California.

California Public Trust Doctrine

The public trust doctrine requires the sovereign, or state, to hold in trust designated resources for the benefit of the people. Traditionally, the public trust applied to commerce and fishing in navigable waters, but its uses were expanded in California in 1971 to include fish, wildlife, habitat, and recreation.⁵¹⁹

Federal Clean Water Act 1972

The Federal Clean Water Act prohibits the unpermitted discharge of pollutants or fill material into waters of the United States. Most of Goleta's creeks as outlined in this report feed Goleta Slough and empty into the Pacific Ocean, and therefore are protected as tributaries to Waters of the United States.

Applicability: Projects which involve discharges into, and/or placement of fill material such as dirt or rocks, including grading, in federally designated wetlands and Waters of the US.

Federal Endangered Species Act 1973

The Federal Endangered Species Act ("ESA") prohibits the "taking" (harming, harassing, poaching, etc.) of listed endangered or threatened species or their critical habitats. Several endangered species in Goleta Valley watersheds depend on healthy riparian habitat to survive, including the least Bell's vireo, tidewater goby, California red-legged frog and southern California steelhead.

⁵¹⁸ Findlaw for Legal Professionals, *California Code, Fish and Game Code - FGC § 5937* webpage available at <https://codes.findlaw.com/ca/fish-and-game-code/fgc-sect-5937.html> (February 20, 2021); See also UC Davis, *The Rebirth of California Fish and Game Code Section 5937; Water for Fish* available at https://lawreview.law.ucdavis.edu/issues/45/3/Topic/45-3_Bork.pdf (2012).

⁵¹⁹ Water Education Foundation Website, *Public Trust Doctrine* Webpage available at <https://www.watereducation.org/aquapedia/public-trust-doctrine#:~:text=The%20public%20trust%20doctrine%20requires,%2C%20wildlife%2C%20habitat%20and%20recreation> (April 22, 2021).



Applicability: Federal actions including projects using federal funding or requiring federal permits, which may adversely affect species listed as threatened or endangered under the ESA.

Appendix III

Watershed Maps

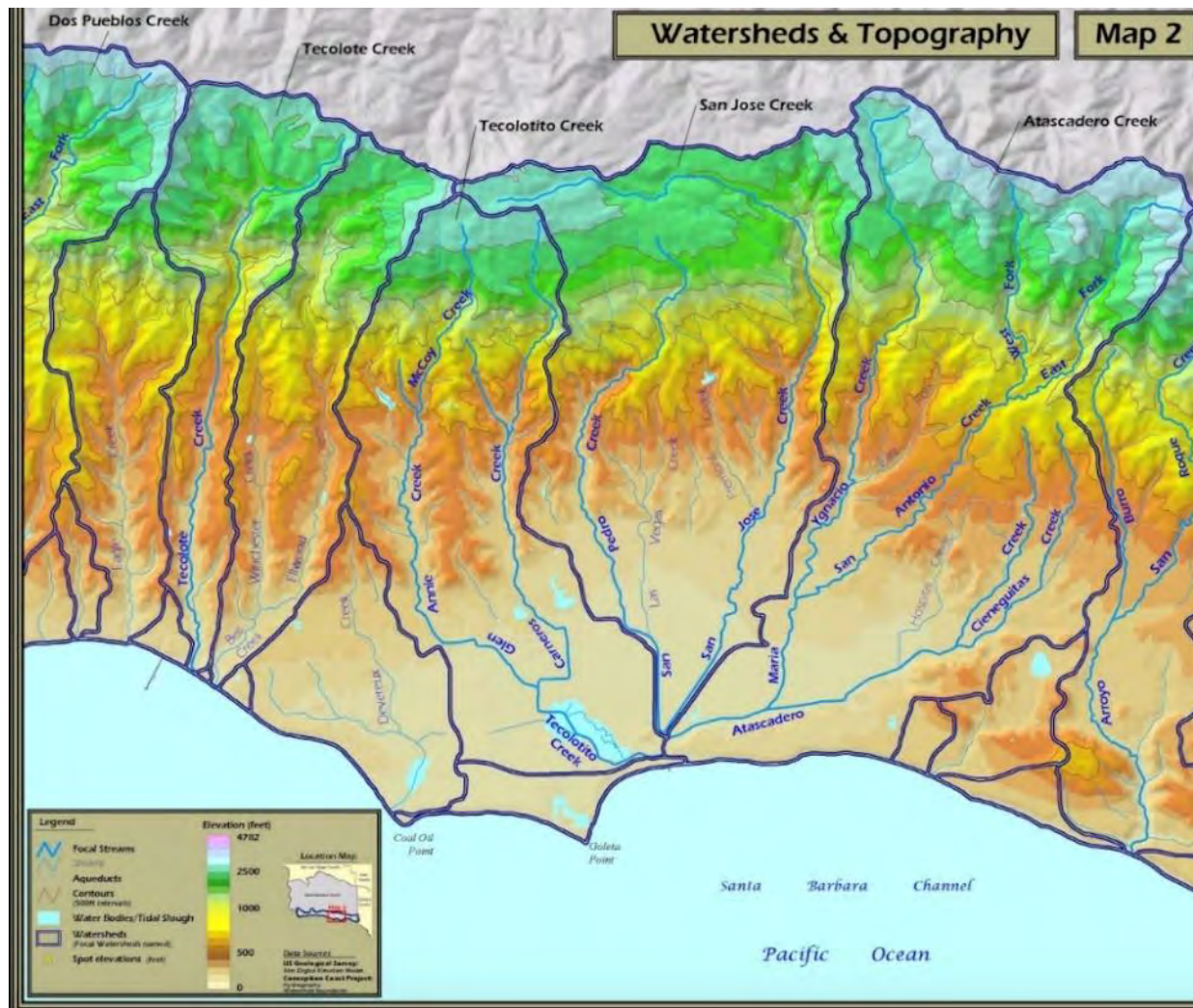


Figure III-1. Stoecker Ecological. Steelhead Assessment and Recovery Opportunities in So. Santa Barbara County. http://www.stoeckerecological.com/southern_santa_barbara_county_stlhd_assessment_recovery_project.html 2002.



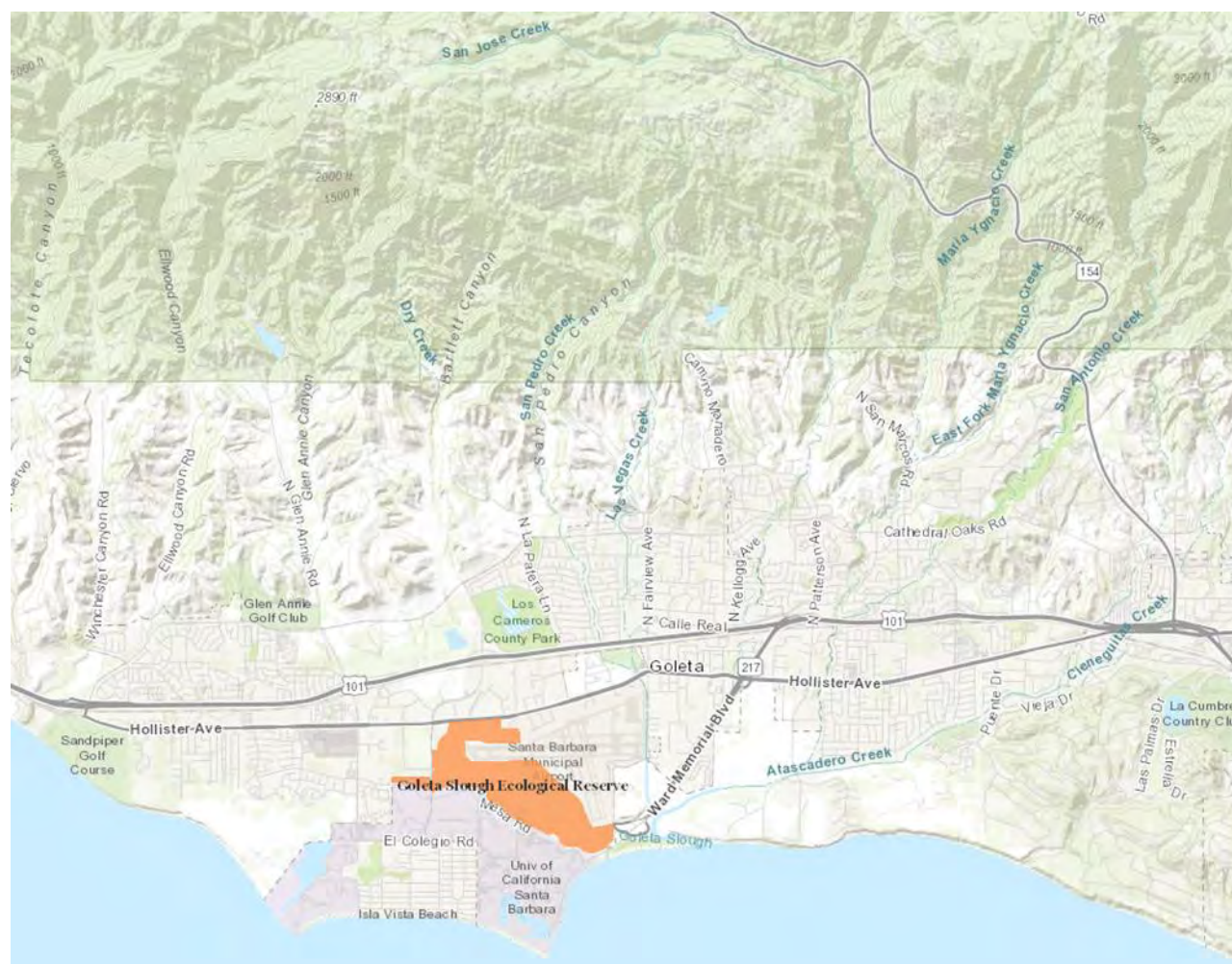


Figure III-3. California Department of Fish and Wildlife. Goleta Slough Ecological Reserve. 2021.

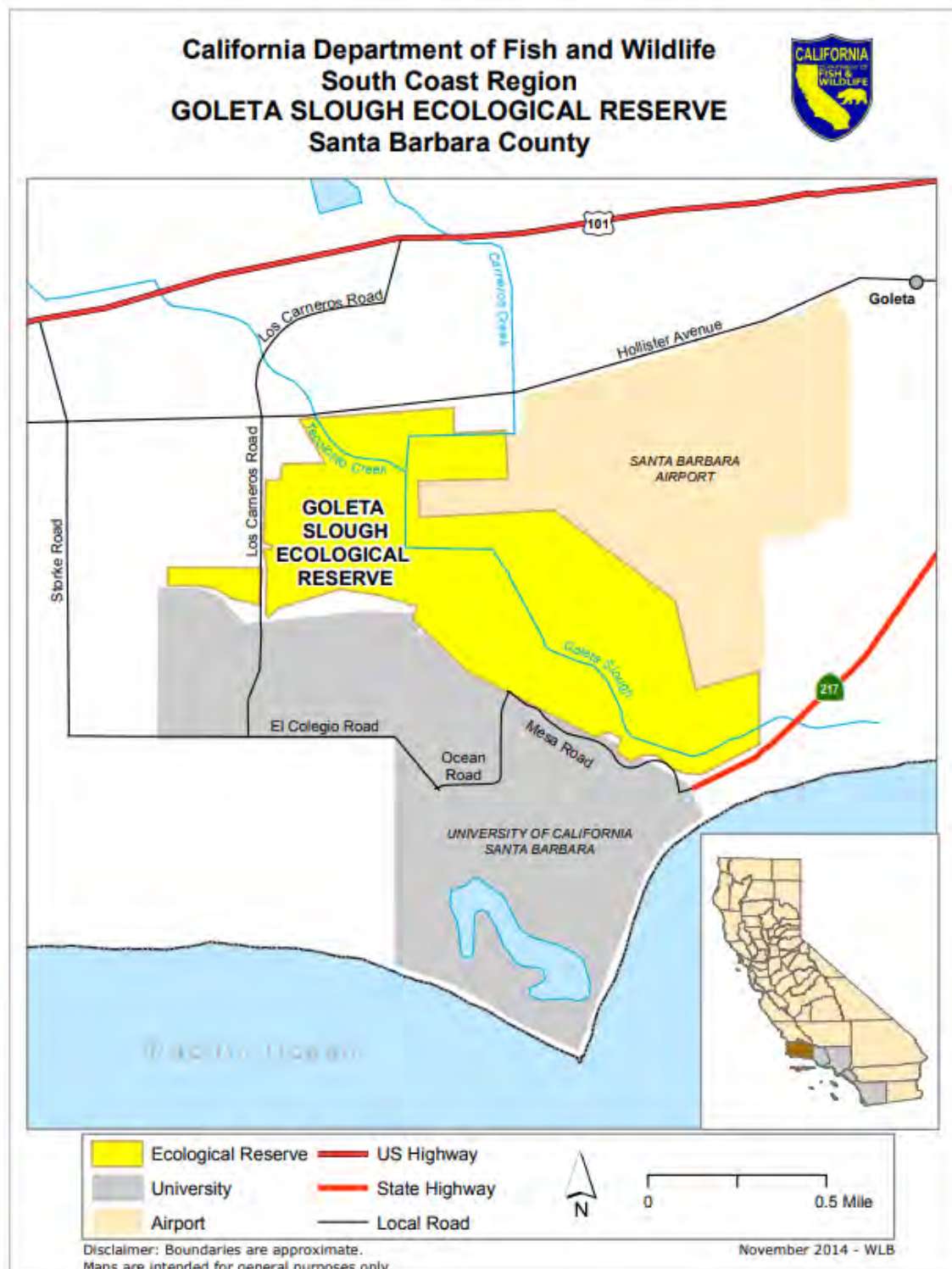


Figure III-4. California Department of Fish and Wildlife. Goleta Slough Ecological Reserve.
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=85035&inline> 2017.

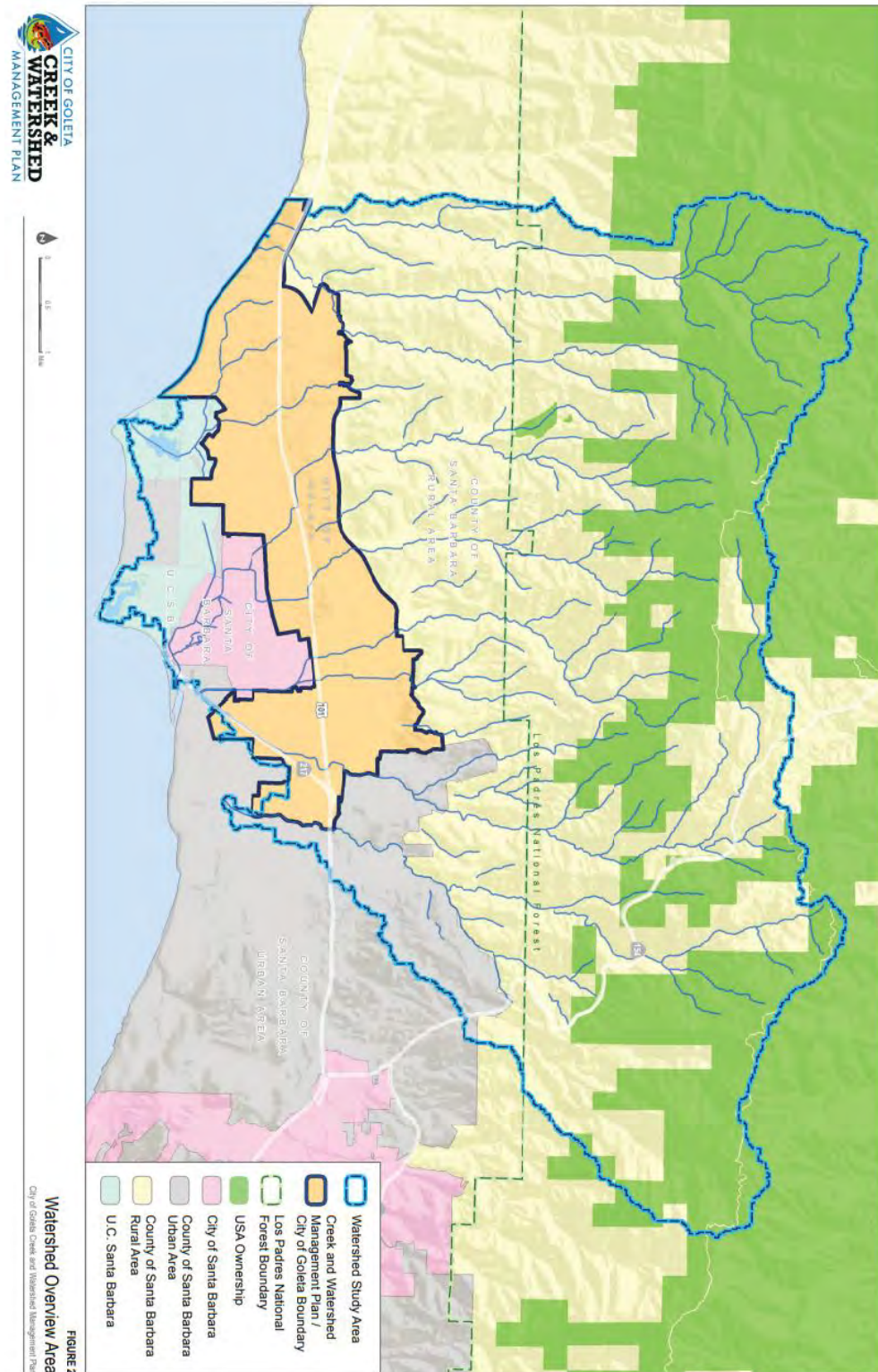


Figure III-5. City of Goleta. Creek and Watershed Management Plan.

<https://www.cityofgoleta.org/home/showpublisheddocument/24653/637484869012130000> 2020.

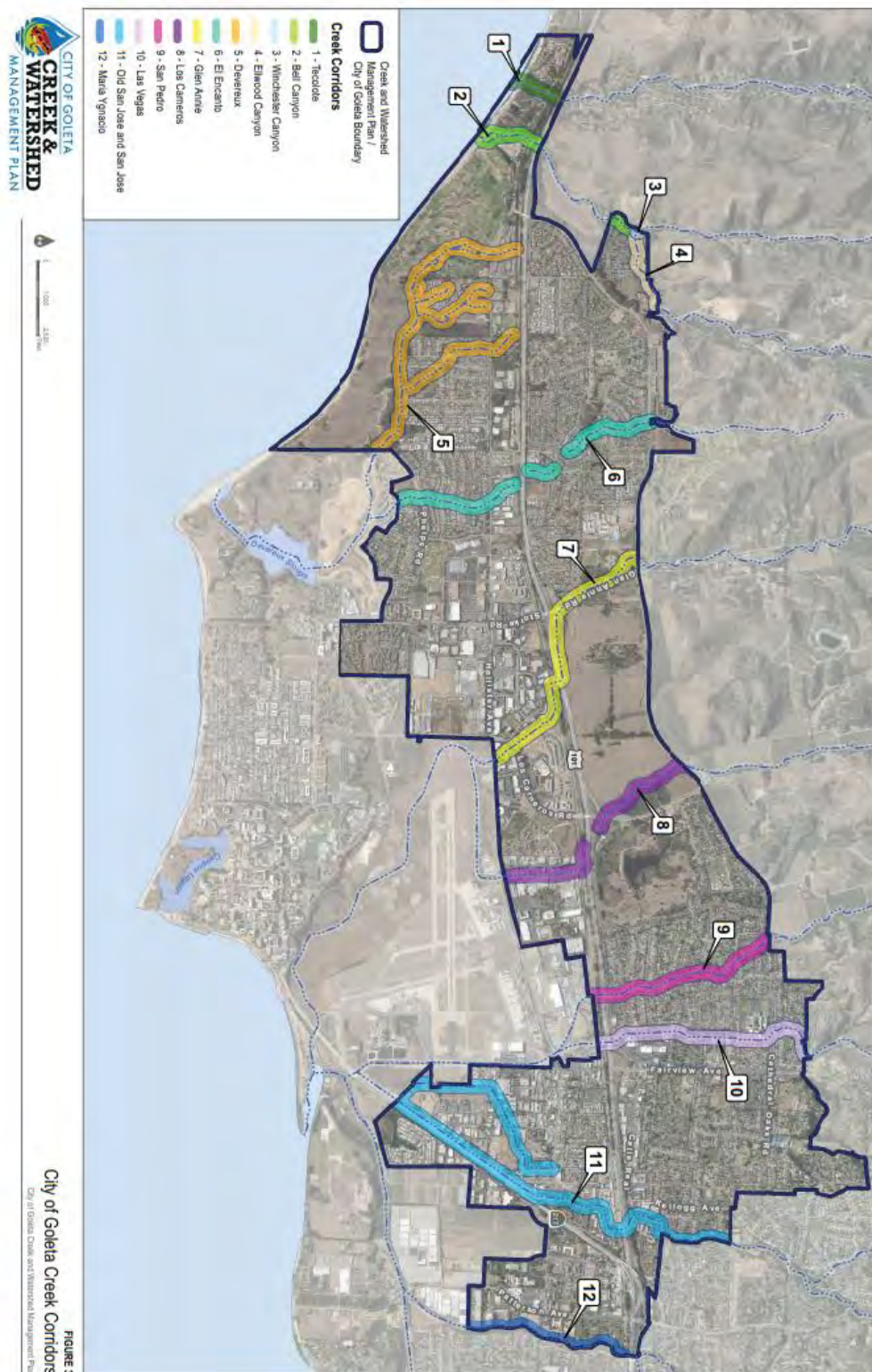


Figure III-6. City of Goleta. Creek and Watershed Management Plan.
<https://www.cityofgoleta.org/home/showpublisheddocument/24653/637484869012130000>. 2020.

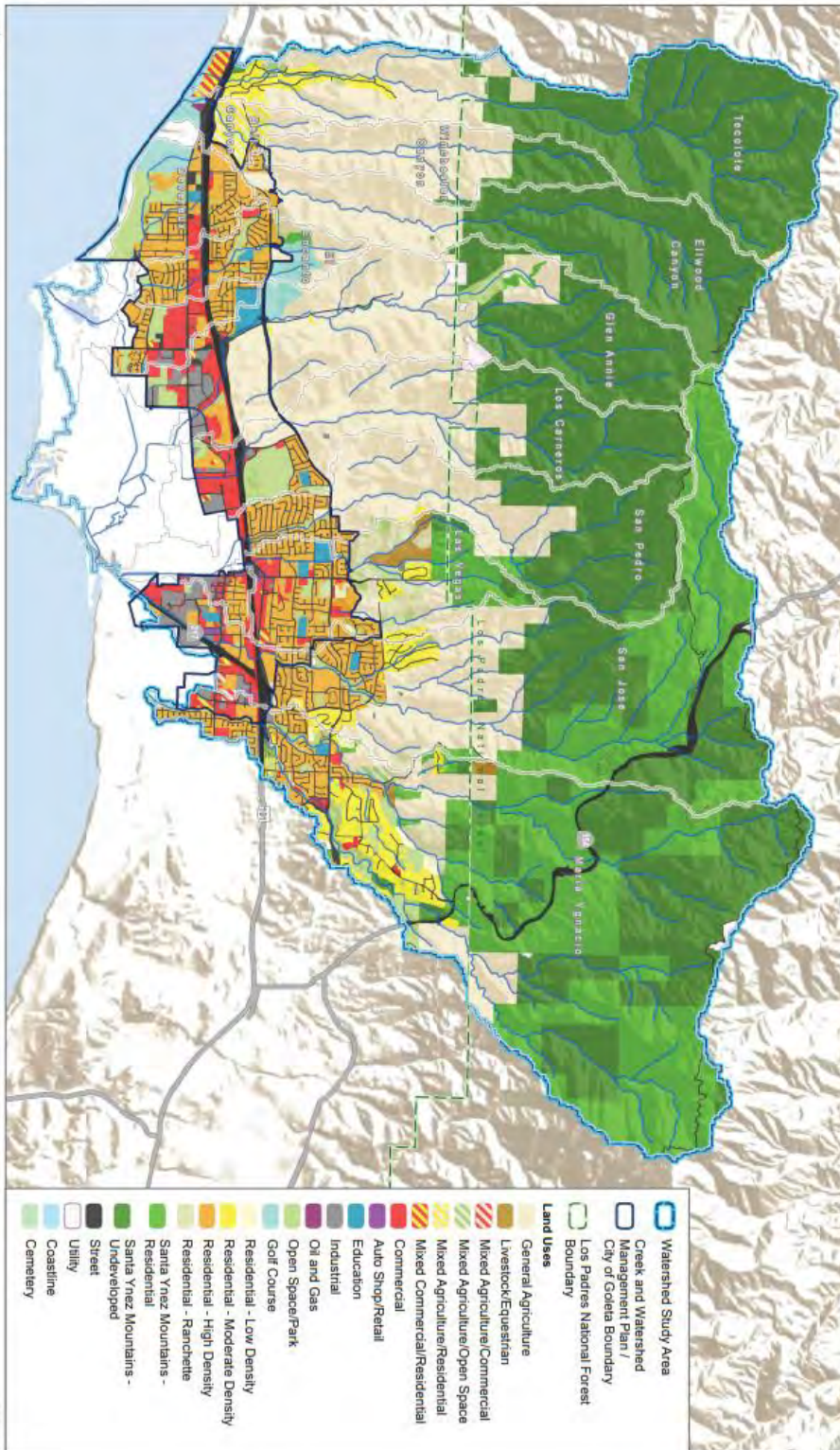


Figure III-7. City of Goleta. Creek and Watershed Management Plan.
<https://www.cityofgoleta.org/home/showpublisheddocument/24653/637484869012130000>. 2020.



Appendix IV

2014 – 2019 EDC Goleta Creek Cleanup Results

Tecolote Creek Cleanup Results

2014: 136 lbs.

2015: 187 lbs.

Total: 323 lbs.

Bell Creek Cleanup Results

2014: 141 lbs., 5 volunteers

2015: 384 lbs., 8 volunteers

Total: 525 lbs.

Devereux Creek Cleanup Results

2014: 440 lbs., 4 volunteers

2015: 1,022 lbs., 18 volunteers

2016: 400 lbs., 8 volunteers

2018: 1,369 lbs., 13 volunteers

2019: 1,234 lbs., 17 volunteers

Total: 4,466 lbs.

Glen Annie Creek Cleanup Results

2014: 280 lbs., 3 volunteers

2015: 529 lbs., 15 volunteers

2016: 416 lbs., 18 volunteers

2017: 292 lbs., 22 volunteers (this included a cleanup conducted in Carneros Creek)

2018: 751 lbs., 22 volunteers

2019: 973, 10 volunteers

Total: 3,241 lbs.

Carneros Creek Cleanup Results

2014: 132lbs., 2 volunteers

2015: 222lbs., 5 volunteers

2016: 128lbs., 10 volunteers

2017: (included in Glen Annie Creek results)

Total: 482 lbs.

San Pedro Creek Cleanup Results

2014: 137 lbs., 8 volunteers (this included a cleanup conducted in Las Vegas Creek)

2016: 272 lbs., 12 volunteers

2018: 480 lbs., 12 volunteers

2019: 440.5 lbs., 12 volunteers

Total: 1,329.5 lbs.



Las Vegas Creek Cleanup Results

2014: (see San Pedro Creek results)

2016: 589lbs., 12 volunteers

Total: 589 lbs.

San Jose Creek Cleanup Results

2014: 389 lbs., 9 volunteers

2016: 389 lbs., 12 volunteers

2017: 984 lbs., 25 volunteers

2018: 1,362 lbs., 34 volunteers

2019: 1,259.5 lbs., 16 volunteers

Total: 4,383.5 lbs.

Maria Ygnacio Creek Cleanup Results

2014: 274 lbs., 10 volunteers

2016: 269 lbs., 6 volunteers

2017: 422 lbs., 18 volunteers

2018: 486 lbs., 13 volunteers

2019: 345 lbs., 6 volunteers

Total: 1,797 lbs.

San Antonio Creek Cleanup Results

2014: 167 lbs., 5 volunteers (this included a cleanup conducted in Maria Ygnacio Creek)

2016: 479 lbs., 19 volunteers

Total: 648 lbs.

Atascadero Creek Cleanup Results

2014: 140 lbs., 4 volunteers

2016: 170 lbs., 9 volunteers

2017: 422 lbs., 18 volunteers

2018: 305 lbs., 14 volunteers

2019: 2180 lbs., 22 volunteers

Total: 3,217 lbs.

2014 – 2019 EDC Goleta Creek Cleanup Total:

21,001 lbs.

*****NO CREEK CLEAN-UPS WERE IMPLEMENTED
IN 2020 DUE TO COVID-19 SAFETY MEASURES*****

Appendix V

List of Acronyms and Abbreviations

BMP	Best Management Practice
Caltrans	California Department of Transportation
CalTrout	California Trout Club
CASQA	California Stormwater Quality Association
CCBER	Cheadle Center for Biodiversity and Ecological Restoration
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
cfs	Cubic feet per second
CE	Conservation Element (City of Goleta General Plan)
CIP	Capital Improvement Project
CIR	Channel Islands Restoration
CLUP	Coastal Land Use Plan (City of Goleta)
COMB	Cachuma Operations and Maintenance Board
COPR	Coal Oil Point Reserve
CRCD	Cachuma Resource Conservation District
CRLF	California red-legged frog
CWMP	Creek and Watershed Management Plan (City of Goleta)
CWPP	Community Wildfire Protection Program
EDC	Environmental Defense Center
EDF	Environmental Defense Fund
EEMP	Environmental Enhancement and Mitigation Program
EGVCP	Eastern Goleta Valley Community Plan
EIR	Environmental Impact Report
EMID	Rancho Embarcadero Municipal Improvement District
EOF	Ellwood Onshore Facility (Venoco Oil Treatment and Processing)
ESA	Endangered Species Act
ESH	Environmentally Sensitive Habitat
ESHA	Environmentally Sensitive Habitat Area
GAGC	Glen Annie Golf Club
GVJHS	Goleta Valley Junior High School
GSD	Goleta Sanitary District
GWD	Goleta Water District
LCP	Local Coastal Program (City of Goleta)
MOU	Memorandum of Understanding
NCOS	North Campus Open Space
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PATH	People Assisting the Homeless
ROW	Right-of-Way



RWQCB	Regional Water Quality Control Board
SBCK	Santa Barbara Channelkeeper
SBCFD	Santa Barbara County Fire Department
SBCFCWCD	Santa Barbara County Flood Control and Water Conservation District
SBCPWD	Santa Barbara County Public Works Department
SBCWMA	Santa Barbara County Weed Management Area
SCE	Southern California Edison
SCHR	South Coast Habitat Restoration
SLC	State Lands Commission
SPA	Stream Protection Area
SWRCB	State Water Resources Control Board
UCC	Urban Creeks Council
UC Coop	University of California Cooperative Extension
UCSB	University of California Santa Barbara
UPRR	Union Pacific Railroad
USACOE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USFS	United States Forest Service
USGS	United States Geological Survey
WUI	Wildland-Urban Interface

Appendix VI.

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