GOLETA'S CREEKS AND WATERSHEDS: OPPORTUNITIES FOR ENHANCEMENT AND RESTORATION

2020 ADDENDUM

ENVIRONMENTAL DEFENSE CENTER GOLETA WATERSHED PROTECTION AND EDUCATION PROGRAM

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Acknowledgements

Funders of EDC's Goleta Watershed Protection and Education Program

The following generous funders of the Environmental Defense Center's ("EDC") Goleta Watershed Protection and Education Program enabled EDC to (1) successfully cleanup and survey Goleta's creeks annually from 2014 to 2019, (2) identify problem areas and opportunities for environmental enhancement, (3) report violations such as illegal dumping, and (4) prepare this report to guide development and implementation of a *City of Goleta Creek and Watershed Management Plan*.

- **Union Bank**
- **Clif Bar Family Foundation**
- **UCSB Coastal Fund**

EDC's 2019 Sponsors and Partners

The following sponsors and partners maximized the effectiveness of EDC's Goleta Watershed Protection and Education Program in 2020.

- **City of Goleta**
- **Santa Barbara County Project Clean Water**
- **Santa Barbara County Flood Control District**
- **City of Santa Barbara Creeks Division**
- **Santa Barbara Urban Creeks Council**
- **UCSB Engineers Without Borders**
- **United Way Santa Barbara's Day of Caring**
- **Coastal Cleanup Day**
- **Dougal House, Arborist**

These amazing partners cleaned up the creeks, provided cleanup team captains, supplied dumpsters, hauled the trash to the County Transfer Station, donated supplies, helped refine safety protocols, waived fees for encroachment permits, promoted the cleanups on social media, and provided data for this Addendum.

Cover Photo: San Jose Creek at Patterson Avenue Bridge. Brian Trautwein. 2019.

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I. Creek-By-Creek Recommendations

Devereux Creek Watershed

- Regulation of Upstream Agriculture Runoff into Devereux Creeks

    - **Problem Devereux A1:** The upper portion of the Devereux Creek Watershed is zoned for agriculture. Agricultural activities that fail to control soil erosion have the potential to degrade water quality and stream habitats particularly during and following storm events when excessive sediment is deposited in the creek bed, filling in pools and riffles, and suspended as sediment in the water column degrading water quality and harming fish and wildlife.

Figure 1. Water quality testing of a creek. Sourced from Santa Barbara Channel Keeper. (https://www.sbck.org/)

- **Recommendation Devereux A1A:** Conduct regular water quality monitoring in Devereux Creek through, for example, enhanced collaboration between the City of Goleta, UCSB, and Santa Barbara Channelkeeper.

    - **Community Benefits:** Recommendation Devereux A1A will ensure that Devereux Creek and Devereux Slough contain clean water and may result in better control of agricultural erosion and sedimentation in the Creek. If the Creek and Slough water are not clean, monitoring will disclose pollution and then actions can be taken to control pollution. Members of the community can be reassured of

the safety of Goleta's waterways. Additionally, pollution sources can be identified, and pollution can be halted.

- **Next Step:** Discuss the concept with the City of Goleta and Santa Barbara Channelkeeper.

- <u>Restoring Riparian Habitat along Upper El Encanto Creek</u>

  - **Problem Devereux A2:** The section of Devereux Creek adjacent to Northgate Drive (El Encanto Creek) north of Cathedral Oaks Road consists of many non-natives, including but not limited to castor bean and anise which outcompete and displace native riparian plants.

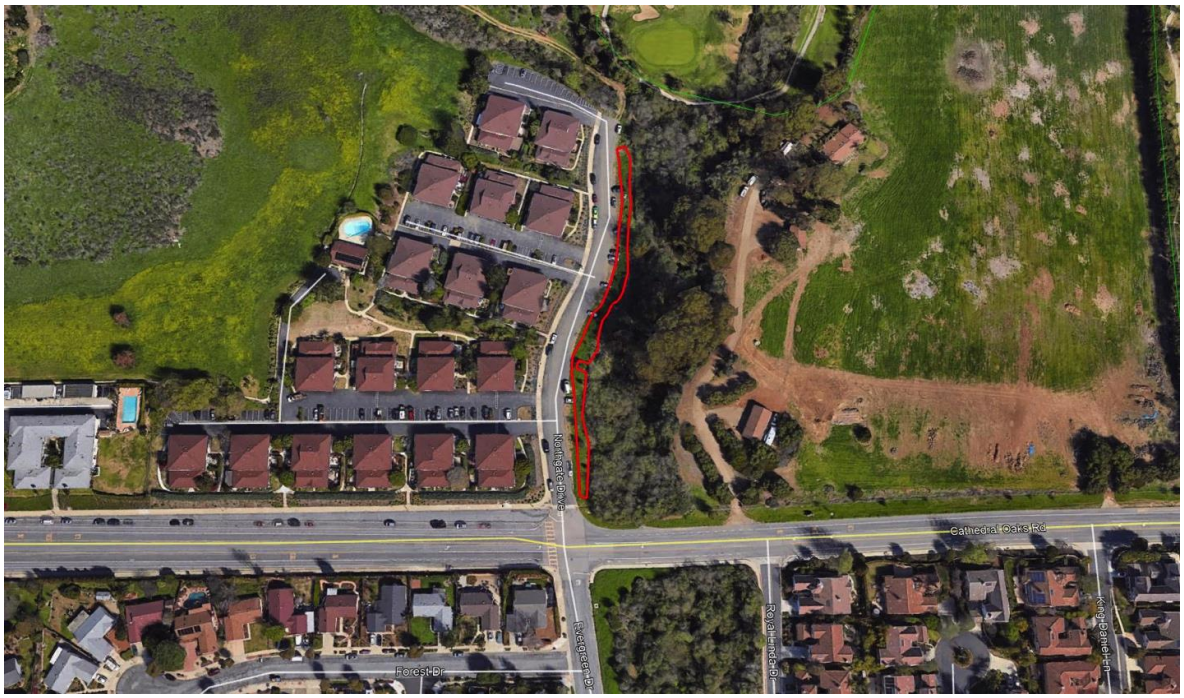

Figure 2. Recommended restoration site along El Encanto Creek and Northgate Drive.

- **Recommendation Devereux A2A:** Remove the non-native plants and plant native oak trees and oak woodland plant species. Build a wood rail fence that creates a wider setback and prevents people from parking their cars close to the Creek. Retain space to accommodate off-street parallel parking.

  - **Community Benefits:** Recommendation Devereux A2A will remove invasive non-native species, helping to prevent their spread, and will enhance wildlife habitat. Planting native oak trees and other native plants will expand the riparian corridor to the west, and will reduce sedimentation, water pollution, and litter. Native oak trees will shade the Creek and improve the aesthetic quality of the area.

- **Next Step:** Identify and approach the landowner to assess interest in restoring this section of the Creek.

- Acquisition of Undeveloped Wetlands Parcels on El Encanto Creek

  - **Problem Devereux A3:** There are two undeveloped parcels which are threatened by development which would harm Devereux Creek. One is located on Phelps Road. It is located adjacent to the University of California at Santa Barbara's North Campus Open Space and the City of Goleta's Ellwood Mesa. El Encanto Creek bisects the parcel which also supports wetlands and foraging habitat for birds of prey. The parcel is not suitable for development, due to its proximity to Phelps Creek and wetlands.

    The other undeveloped parcel known as the Shelby Parcel is located east of the Creek north of Cathedral Oaks Road, west of the Glen Annie Golf Club is visible in Figure 7. It is proposed for residential development. Impacts of the development are described in the City's Environmental Impact Report.[1] The parcels could create valuable additions to the ecosystem if they remain undeveloped and undergo environmental restoration.

Figure 3. Goleta Union School District Wetlands Parcel on Phelps Road recommended for acquisition by City of Goleta.

[1] City of Goleta, Revised Draft Environmental Impact report Shelby Residential Project 12-EIR-0005 (October 2015) www.cityofgoleta.org/home/showdocument?id=10107

- **Recommendation Devereux A3A:** Purchase the parcels for conservation, environmental restoration, passive recreation, and environmental education purposes.

    - **Community Benefits:** Recommendation Devereux A3A will extend and restore the natural riparian habitat and add aesthetic benefits to the open space and neighborhood. It would provide the community with additional land for passive recreation such as bird-watching and trails.

    - **Next Step:** The City of Goleta should contact the Goleta Union School District, the owner of the parcel, to inquire regarding acquisition.

- **Problem Devereux A4**: The western branch of El Encanto Creek within Evergreen Park east of Brandon School was placed in a 600-foot long concrete ditch on the southern side of a lawn. Construction of the ditch eliminated this tributary's riparian habitat and may reduce groundwater recharge and contribute to water quality problems such as thermal pollution (artificial warming of creek water).

Figure 4. Map showing location of proposed willow and oak planting (yellow and orange polygons) and concrete ditch (white) removal or infiltration facility installation in Evergreen Park.

- **Recommendation Devereux A4A**: Plant arroyo willow trees to reclaim riparian habitat along the ditch and plant several coast live oak trees on the north-facing slope south of the tributary and lawn. Consider removal of concrete and/or addition of infiltration facility to enhance both groundwater recharge and baseflow in El Encanto Creek.

    - **Community Benefits**: This recommendation would reestablish and extent riparian habitat further west connecting to the tributary upstream in the park which includes native white alders and coast live oak plantings and a footbridge. Neighborhood aesthetics would be enhanced. Planting native trees will help sequester carbon dioxide and fight climate change.

Glen Annie (Tecolotito) Creek Watershed

- Construction Staging, Erosion Control, and Illegal Dumping at the Intersection of Cathedral Oaks Road and Storke Road

Figure 5. The construction staging and stockpiling site adjacent to Glen Annie Creek at the corner of Cathedral Oaks and Glen Annie Roads degrades the Creek, harms water quality, is an eyesore, and attracts illegal dumping.

- **Problem Glen Annie A1[2]:** The land located at the northwest intersection of Cathedral Oaks Road and Glen Annie Road is used for constructing staging, asphalt and soil stockpiling, and illegal dumping. The erosion control coir is not properly installed allowing contaminants to escape containment and enter Glen Annie Creek to the west.

    - **Recommendation Glen Annie A1A:** Work with County Public Works to install an additional "No Dumping" sign at this turnout.

    - **Recommendation Glen Annie A1B**: Work with County Public Works to secure the erosion control coir to the ground to prevent asphalt, hydrocarbons, and soil from escaping containment and being transported by rainwater under the coir into the Creek.

[2] See EDC's 2019 Goleta Creeks and Watersheds Report for recommendations to fence-off and restore a portion of this site.

- **Recommendation Glen Annie A1C**: Remove stockpiled soil, asphalt, and other materials from within 100 feet of the riparian habitat and restore riparian habitat in buffer.

    - **Community Benefits:** Recommendations Glen Annie A1A, A1B, and A1C will help support a healthy and pollution-free Glen Annie Creek and riparian ecosystem. The project will increase public awareness and education about the Creek and beautify the area.

    - **Next Steps:** Meet with the County of Santa Barbara Public Works Transportation and Project Clean Water staffs to discuss the feasibility of these recommendations.

- <u>Soil Erosion in Orchards Within the Glen Annie Creek Watershed</u>

Figure 6. An orchard replacement project spanning 2018-19 removed an orchard that was installed using contour plowing to reduce erosion. A new orchard was created with rows running perpendicular to the contours directing eroded sediment downslope into a tributary to Glen Annie Creek.

- **Problem Glen Annie A2:** The orchards adjacent to Glen Annie Creek and its tributaries, for example on Cathedral Oaks Road, cause soil erosion resulting in sedimentation in the Creek and the reduction of habitat availability and water quality for fish and wildlife. One tributary became clogged with sediment and needed to be dredged, further damaging the watershed and habitat.

Figure 7. Sediment eroded from the new orchard is filling in a tributary to Glen Annie Creek and fouling the Creek.

- **Recommendation Glen Annie A2A:** Incentivize or require orchards near the Creek and its tributaries to install sedimentation basins and cover their topsoil to prevent its erosion. Sediment from the basins can be reused on farm fields.

- **Recommendation Glen Annie A2B:** Require or incentivize orchards to use contour plowing methods to reduce erosion.

Figure 8. A sediment basin installed in 2019 to trap sediment from eroding orchards along Cathedral Oaks Road.

- **Community Benefits:** Recommendations Glen Annie A2A and A2B will reduce soil erosion and subsequent sedimentation into Glen Annie Creek. Sedimentation is dangerous to southern California steelhead and other fish because it can clog their gills and smother gravel spawning beds. The project will increase collaboration with agricultural stakeholders and help retain valuable topsoil.

- **Next Steps:** Coordinate a meeting with agricultural property owners in the Glen Annie Watershed and the Cachuma Resources Conservation District staff to discuss the economic and environmental factors of implementing contour plowing. Contact the Regional Water Quality Control Board to inquire about requiring sediment basins and potential funding to install basins voluntarily.

- **Problem Glen Annie A3:** On the east side of Glen Annie Road by the intersection of Highway 101, there is a buildup of trash in a Caltrans drainage culvert. As is, the drainage culvert directs litter into the Creek and sometimes becomes a plugged flooding hazard.

    - **Recommendation Glen Annie A3A:** Clear the areas of debris and install trash racks. Caltrans should maintain this drainage facility every fall to keep it clear and to remove trash.

- **Community Benefits:** Recommendation Glen Annie A3A will improve the water quality of Glen Annie Creek, reduce litter in the Creek, and prevent potential flooding onto roadways.

- **Next Steps:** A representative from Caltrans and the City should survey these areas and determine the time, labor, and cost to remove the trash annually, and to install trash racks.

- <u>Exotic Shamel Ash Trees in the Glen Annie Riparian Environment</u>

Figure 9 The young nonnative, invasive Shamel ash tree saplings in Glen Annie Creek near Highway 101 are small enough to be removed without extensive equipment or herbicides.

- **Problem Glen Annie A4:** Exotic Shamel ash trees are growing by the Highway 101 Northbound Glen Annie/Storke Road Onramp.

    - **Recommendation Glen Annie A4A:** The invasive exotic Shamel ash trees should be removed, and the area should be replanted with native tree species that naturally occur on the upper creek-banks. These include coast live oak (*Quercus agrifolia*), black cottonwood (*Populus trichocarpa*), and

western sycamore (*Platanus racemosa*), and understory species such as wild blackberry (*Rubus ursinus*).

- **Community Benefits:** Recommendation Glen Annie A4A will prevent the spread of Shamel ash trees, enhance the riparian habitat, support native birds and wildlife, and improve the aesthetics of Glen Annie Creek.

- **Next Step:** Discuss the concept with Caltrans. If feasible, seek funding to create a plan for replacement with native trees and/or incorporate replacement into the Santa Barbara County Flood Control and Water Conservation District's ("SBCFCWCD") existing plans and maintenance programs for Glen Annie Creek.

- Creek Bank Stabilization Revetments

Figure 10 An example of a live willow crib wall. Sourced from *Salix*. (https://www.salixrw.com/product/live-willow-revetments/)

- **Problem Glen Annie A5:** The pipe and wire revetments along the banks of Glen Annie Creek inhibit wildlife movement between the Creek and the riparian environment and prevent establishment of natural points and bars in the stream. In addition, the revetments collect debris, such as tires, cans, and bottles that leach substances into the Creek as they decay. The pipe and wire revetments are unsightly blights in the Creek.

- **Recommendation Glen Annie A5A:** Remove pipe and wire wherever feasible and install live willow "boxes" or live willow crib walls on the Creek's banks to prevent erosion. Pictured is an example of this method of biotechnical stream bank stabilization. Live crib walls are wooden log type structures that are built into steam banks and filled with soil, live willow cuttings, and rock.

    - **Community Benefits:** The removal of pipe and wire revetments and implementation of live willow crib walls will stabilize eroding banks, increase biomass in the riparian environment, remove impediments to wildlife movement, shade the Creek, and provide a larger habitat for wildlife. They will also enhance the aesthetic quality of the riparian area. Removal of the pipe and wire revetment will restore the natural geomorphology of the Creek.

    - **Next Steps:** The cost and feasibility of implementing live willow crib walls should be researched further. Consult with City Public Works Department staff and SBCFCWCD regarding the feasibility of replacing pipe and wire revetment with live willow crib walls.

- <u>Exotic Fish in Glen Annie Creek</u>

    - **Problem Glen Annie A6:** In 2019, during an EDC creek cleanup, invasive exotic green sunfish were documented to have established a population in Glen Annie Creek near the Union pacific Railroad Bridge and the Highway 101 Bridge. This species competes with and preys upon native fish and wildlife including steelhead and red-legged frogs.

Figure 11. Green sunfish have invaded Glen Annie Creek, threatening native fish and wildlife.

- **Recommendation Glen Annie A6A:** Survey Glen Annie Creek from the Goleta Slough upstream to and including McCoy Creek and the Glen Annie Reservoir.

- **Recommendation Glen Annie A6B:** Eradicate green sunfish from the Glen Annie Creek Watershed before winter rains allow them to spread.

    - **Community Benefits:** Removal of green sunfish will allow native fish and wildlife to flourish and will serve as an educational tool to inform residents of the problems caused by invasive species.

    - **Next Step:** Contact California Department of Fish and Wildlife ("CDFW") to inquire regarding the status of their eradication efforts.

San Pedro Creek Watershed

- Open Space Park Landscaping and Oak Woodland Restoration

    - **Problem San Pedro A1:** Area youth have constructed a BMX course in the City of Goleta's Open Space located south of Cathedral Oaks Road and immediately east of San Pedro Creek. These alterations to the landscape increase erosion and adversely affect wildlife and riparian habitat. The earthen jumps and turns carved into the landscape are an eyesore when viewed from the recreational path and present potential danger for the public. Several unsafe ditches were created near the pathway during the grading.

Figure 12. An unofficial BMX course has been graded within the City of Goleta's Open Space located east of San Pedro Creek south of Cathedral Oaks Road.

Figure 13. An additional photo of the unofficial BMX course within the City of Goleta's Open Space.

Figure 14. The City of Goleta's Open Space along San Pedro Creek south of Cathedral Oaks contains dangerous ditches adjacent to the recreation path.

- **Recommendation San Pedro A1A:** Post signs around the City of Goleta's Open Space warning that the creation of BMX courses is prohibited. Have City Park Rangers monitor the site and speak with people using the BMX course.

- **Recommendation San Pedro A1B:** Deconstruct jumps and turns. Refill the ditches with soil used to make the jumps and berms and remove shovels from the Open Space. Develop a landscape plan installing native riparian, oak woodland, and/or coastal sage scrub species that will deter this activity, such as wild rose, and incorporate it into the City Parks Department's land scape and maintenance plan for this Open Space.

    - **Community Benefits:** Recommendations San Pedro A1A and A1B will restore the Creek's riparian habitat. Restoring the grade and planting native plants will reduce soil erosion into the Creek, enhance neighborhood and open space aesthetics, and provide habitat for birds and wildlife.

    - **Next Step:** Contact City Parks and meet onsite to discuss the feasibility of posting signs, restoring the graded land, and planting native plants.

- <u>Asphalt in the Creek Bed</u>

    - **Problem San Pedro A2:** Throughout San Pedro Creek between Cathedral Oaks and Stow Canyon Road are chunks of asphalt that contain hydrocarbons, which can leach into the Creek and pollute the water.

Figure 15. Asphalt pieces found in the San Pedro Creek bed.

- **Recommendation San Pedro A2A:** Remove the chunks of asphalt that are in the Creek bed.

    - **Community Benefits:** Recommendation San Pedro A2A will prevent the leaching of hydrocarbons into the Creek. This will improve water quality for integral species such as the southern California steelhead and the California red-legged frog.

    - **Next Step:** Discuss the concept of a creek bed cleanup with City Parks and SBCFCWCD, as well as other potential partners such as Santa Barbara Channelkeeper.

San Jose Creek Watershed

- Tree Farm Housing Project Vegetation on San Jose Creek

    - **Problem San Jose A1:** The revegetation done as mitigation for the Tree Farm Housing Project along San Jose Creek near Patterson used non-native plants, or non-local varieties of native plants including non-local varieties of purple sage (*Salvia leucophylla)* and wild rose (*Rosa californica).*

Figure 16. A photo of the non-local purple sage planted along San Jose Creek.

Figure 17. A photo of the non-local wild rose varietal planted along San Jose Creek.

- **Recommendation San Jose A1A:** Request the County Planning Department consulting biologist evaluate whether plants installed as habitat mitigation for the Tree Farm Housing Project are appropriate for planting along the Creek. Replace them if they are not local native plants.

    - **Community Benefits:** Recommendation San Jose A1A will prevent hybridization between local native riparian plants and the installed varietals, protecting the native plant populations.

    - **Next Step:** Contact the County Planning Department planner on the Tree Farm Project regarding the source of the plants, request assessment by County biologist if needed, and request replacement with local native plant species.

- <u>Repairs at Berkeley Footbridge</u>

    - **Problem San Jose A2:** The wooden fence lining the Berkeley Footbridge over San Jose Creek is dilapidated. Several boards are broken or missing. The San Jose Creek Restoration Project informational sign about has been damaged. There are also many weeds invading the area along the Footbridge.

Figure 18. A damaged educational sign outlining the San Jose Creek Restoration Project, located on the Berkeley Footbridge.

    - **Recommendation San Jose A2A:** Clean, touch-up, and replace the Plexiglas on the informational sign so that it is

legible. Repair the wood rail fence. Remove weeds from along the Footbridge path.

- **Community Benefits:** Recommendation San Jose A2A will enhance recreation around San Jose Creek, provide community education, and revitalize the riparian habitat. The Recommendation will also improve aesthetics and instill a stronger sense of community in the neighborhood.

- **Next Step:** Contact Goleta City Parks staff about repairing the fence and sign and controlling weeds.

- <u>Potential Contamination from Goleta Water District Facility at Berkeley Foot Bridge</u>

    - **Problem San Jose A3:** The Goleta Water District ("GWD") facility located adjacent to the Berkeley Footbridge on the west side of San Jose Creek has signs indicating the presence of chemicals including sodium hydrochloride.

Figure 19. The sign identifying potentially noxious chemicals at the building on the bank of San Jose Creek.

Figure 20. The perimeter of the Goleta Water District facility near the bank of San Jose Creek.

- **Recommendation San Jose A3A:** While the doors to this facility are elevated and/or apparently sealed to flood waters, a flood could still damage this facility or carry chemicals into the Creek, Goleta Slough, and ocean. Create a low floodwall around this building to protect the facility and prevent the potential for chemicals to contaminate San Jose Creek.

  - **Community Benefits:** Recommendation San Jose A3A will protect the GWD facility and the Creek during floods. It also ensures that the water flowing to Goleta beaches will be clean.

  - **Next Step**: Contact GWD about the potential for flooding of this facility and the potential for a spill of these chemicals into the Creek. Discuss the likelihood of a spillage event occurring and the appropriate mitigation measures that the City and GWD could take, if needed.

- <u>Habitat Restoration</u>

  - **Problem San Jose A4:** The upper terrace on the west side of San Jose Creek around the intersection of Kellogg Avenue and Cathedral Oaks Road is bare. Once the aged oak tree that shades this area dies, it will reduce the extent of the riparian habitat and Stream Protection Area

("SPA") and weeds will flourish in the newly created gap in the riparian corridor.

Figure 21. The bare upper western terrace of San Jose Creek on Kellogg Avenue south of Cathedral Oaks Road.

- **Recommendation San Jose A4A:** Plant native coast live oaks (*Quercus agrifolia*) and native understory vegetation (e.g., wild rose (*Rosa californica*) and hummingbird sage (*Salvia spathacea*) from below the top of the west bank outward to within ten feet of Kellogg Avenue, avoiding underground utilities where necessary.

  - **Community Benefits:** Recommendation San Jose A4A will proactively protect and restore riparian habitat within the SPA. It will enhance the buffer between the Kellogg Avenue and the Creek and improve neighborhood aesthetics.

  - **Next Steps:** Meet with City Parks staff to discuss planting native coast live oaks and native understory plants in this location.

- <u>Algerian Ivy Eradication</u>

  - **Problem San Jose A5:** The native sycamore trees along San Jose Creek are being adversely impacted by Algerian ivy (*Hedera algeriensis*).

Figure 22. Algerian ivy suffocating a California sycamore tree on the bank of San Jose Creek.

Figure 23. Description of the largest western sycamore tree in the USA, located adjacent to Jonny D. Wallis Park on San Jose Creek.

- **Recommendation San Jose A5A:** Eradiate the Algerian Ivy along San Jose Creek, particularly around Jonny D. Wallis Park where the largest western sycamore (*Platanus racemosa)* in the USA resides.

    - **Community Benefits:** Recommendation San Jose A5A will support the ecosystem around San Jose Creek and protect the largest California sycamore tree in the nation. This recommendation will increase public interest and education about native creek ecosystems.

    - **Next Steps:** Discuss eradication efforts of invasive Algerian ivy with City Parks, SBCFCWCD, and habitat restoration agencies.

- **Problem San Jose A6**: Riparian floodplain parcel subject to impacts from homeless camps.

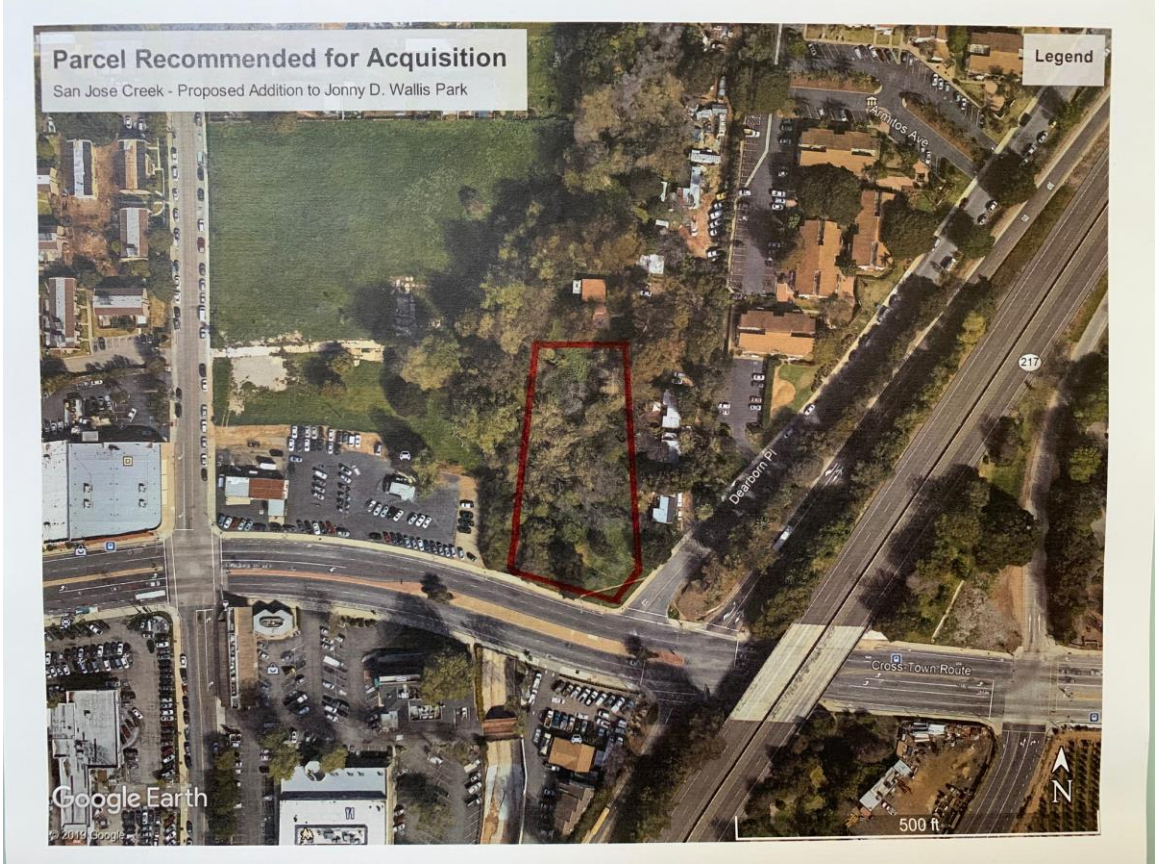

Figure 24. Floodplain parcel recommended for City of Goleta acquisition for creek restoration and addition to Jonny D. Wallis Park.

- **Recommendation San Jose A6A**: Acquire parcel to expand Jonny D. Wallis Park and for restoration of the Creek and riparian habitat.

    - **Community Benefits**: Recommendation A6A would provide sorely needed public park acreage in Old Town and would provide additional opportunities for passive recreation while enhancing San Jose Creek's riparian habitat.

    - **Next Steps**: The next step would be to identify the owner of the parcel and meet with City Council members and Planning and Parks staff to discuss feasibility and interest by City decision-makers.

Maria Ygnacio Creek Watershed

- Undercut Concrete Dams

    - **Problem Maria Ygnacio A1:** The flow of Maria Ygnacio Creek has undercut several old, possibly obsolete concrete dams located downstream from Cathedral Oaks Road. These dams impair migration of the endangered southern California steelhead due to the height of the dams above the Creek bed.

Figure 25. This obsolete concrete dam inhibits southern steelhead migration south of Cathedral Oaks Road.

Figure 26. A second concrete dam in Maria Ygnacio Creek.

- **Recommendation Maria Ygnacio A1A:** Remove the concrete dams to eliminate impediments to steelhead, if feasible, or modify the Creek channel to eliminate these migratory impediments.

  - **Community Benefits:** Recommendation Maria Ygnacio A1A will enhance the migratory corridor for endangered southern California steelhead by allowing them to migrate to spawning grounds located in perennial reaches of the Creek upstream from Cathedral Oaks Road.

  - **Next Step:** Identify the owner of the dams. Contact SBCFCWCD regarding the feasibility of removing the dams.

- <u>Stormwater Run-off from Foothill Elementary School</u>

  - **Problem Maria Ygnacio A2:** The large asphalt playground at Foothill Elementary School is slanted so that storm water will flow directly into Maria Ygnacio Creek.

Figure 28. The asphalt playground at Foothill Elementary School directs stormwater runoff to Maria Ygnacio Creek.

- **Recommendation Maria Ygnacio A2A:** Install a bioswale between the playground and the Creek. Bioswales are drainages comprised of living plants, and they naturally filter stormwater runoff so that it is less polluted when it enters the flowing Creek where fish and other wildlife reside.

    - **Community Benefits:** Recommendation Maria Ygnacio A2A will increase community engagement in the Creek's health, improve water quality, increase aesthetic appeal, and enhanced habitat for fish and wildlife. The Foothill School community can get involved in this solution by educating students about watersheds and helping to create the bioswale.

    - **Next Step**: Contact Foothill Elementary School and County Project Clean Water to discuss the possibility of creating a bioswale.

Atascadero Creek Watershed

- Pending Flood Control Project on Atascadero Creek

    - **Problem Atascadero A1:** SBCFCWCD's pending permit for ongoing maintenance of Atascadero Creek could dramatically alter the riparian environment within Atascadero Creek.

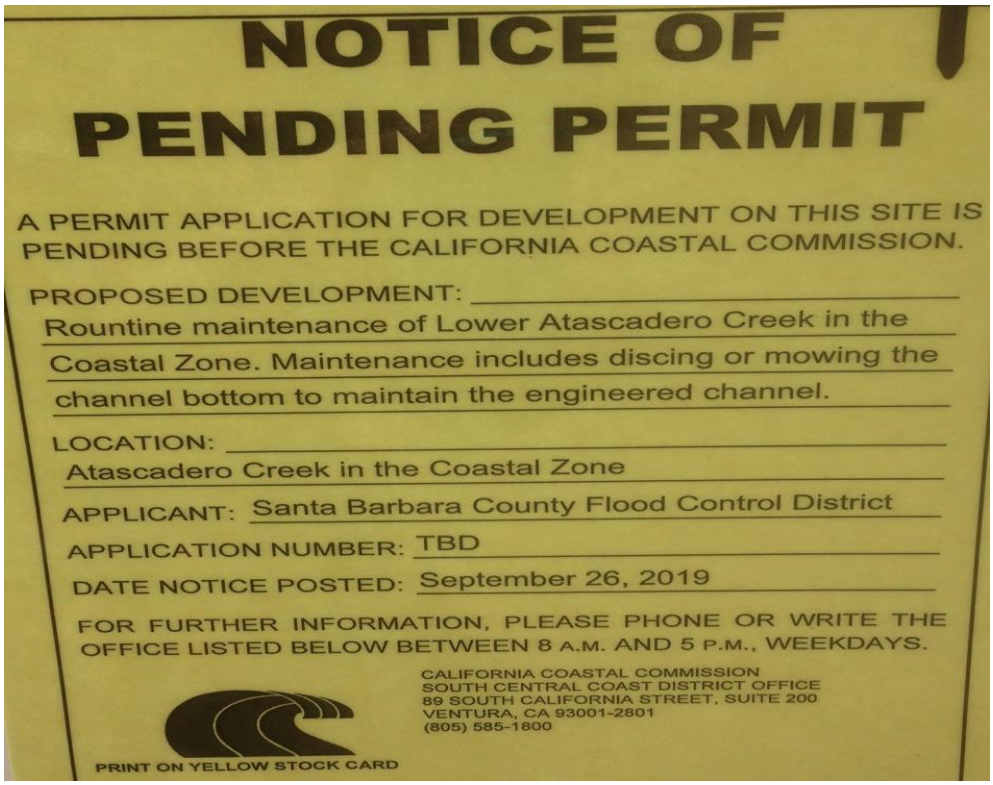

Figure 29. An informational sign posted about SBCFCWCD's proposed maintenance measures on Atascadero Creek.

- **Recommendation Atascadero A1A:** The SBCFCWCD should informally consult with National Marine Fisheries Service ("NMFS"), CDFW, and local non-profits such as EDC to identify measures to lessen impacts to riparian habitat and southern California steelhead. The Army Corps of Engineers may need to formally consult with NMFS to see if the project jeopardizes southern California steelhead.

- **Recommendation Atascadero A1B**: The Urban Creeks Council ("UCC") challenged this maintenance project approximately 20 years ago and a settlement was reportedly reached with the County. If so, this settlement should be investigated to confirm maintenance is consistent with the settlement. For instance, if the settlement requires SBCFCWCD to clear only half the channel at a time to lessen biological resources impacts, that provision should be

enforced. The use of herbicides should be avoided or minimized.

- **Community Benefits:** Recommendations Atascadero A1A and A1B will protect the Creek's existing riparian habitat and will promote water quality for fish and wildlife while ensuring flood protection.

- **Next Steps:** Review the UCC settlement. Discuss the potential effects of this project to the southern California steelhead population with SBCFCWCD, NMFS, and Army Corps. If the project may significantly deteriorate the habitat or jeopardize steelhead, then discuss alternatives.

- <u>Restoring Riparian Buffer Strip Adjacent to Atascadero Creek</u>

  - **Problem Atascadero 2:** There are strips of unvegetated land alongside the Creek that could be restored to expand riparian habitat.

Figure 30. Example of a potential riparian restoration site along Atascadero Creek Bike Path near Turnpike Avenue and Zinc Avenue.

- **Recommendation Atascadero A2A:** Restore the unvegetated areas between the Creek and the Atascadero Bike Path near Turnpike Avenue and near the southern terminus of Gwynne Avenue, leaving room for SBCFCWCD equipment access and avoiding existing utilities where necessary.

- **Community Benefits:** Recommendation Atascadero A2A will greatly enhance the riparian habitat and protect the

Creek's clean water. Native trees improve aesthetic quality of the area, support riparian ecosystems, enhance habitat for birds and wildlife, and sequester carbon. Restoring these buffer strips will enhance the experience of walkers and bikers as they pass by Atascadero Creek.

- **Next Step:** Identify the landowner. Visit the sites with the landowner and SBCFCWCD and discuss the feasibility of restoration. If feasible, seek funding to create a plan to install native trees and shrubs.

- <u>Adding Shade Trees Along Upper Atascadero Creek</u>

  - **Problem Atascadero A3:** The section of Atascadero Creek starting below Puente Road and extending upstream to Arroyo Road is over-saturated with sun, heating the water and causing algal blooms, which can result in a lack of dissolved oxygen available for the survival of fish.

    - **Recommendation Atascadero A3A:** Plant appropriate native trees including willows (*Salix*), western sycamores (*Platanus racemosa*) and coast live oaks (*Quercus agrifolia*) that will shade Atascadero Creek.

      - **Community Benefits:** Recommendation Atascadero A3A will improve aesthetic quality of the area, shade the Creek to keep the water cool and support steelhead, lessen algae blooms, and enhance the Creek's riparian ecosystem.

Figure 31. This section of Atascadero Creek near Puente Drive is exposed to sunlight, which heats the water and harms fish and wildlife. Planting trees to shade this section of the Creek would greatly enhance the Creek and riparian habitat.


Figure 32. There are already several oak trees providing shade along Atascadero Creek near Puente Avenue.

- **Next Steps**: Contact the Goleta Sanitary District to discuss the feasibility of planting additional trees given the nearby sewer line. If planting trees is feasible, identify the property owner to discuss restoring riparian habitat in this area.

- <u>Blocking Unofficial Trails and Restoring Sensitive Riparian Environment</u>

  - **Problem Atascadero A4:** The strip of riparian habitat between the Atascadero Bike Path and the Creek as well as the riparian corridor along both Creek banks contain unofficial trails and litter often associated with such trails.

    - **Recommendation Atascadero A4A:** Plant coastal sage scrub and coast live oak woodland species along and within unofficial trails to deter humans from entering the riparian environment. Species that grow in thickets with spines or other deterring characteristics can effectively prevent human intrusion into the riparian habitat. Species such as wild

blackberry (*Rubus ursinus*) and California wild rose (*Rosa californica*) may be most effective.

- **Community Benefits:** Recommendation Atascadero A4A will restore the riparian corridor, improve the aesthetic quality of the area, reduce erosion, and improve the riparian ecosystem. By deterring human activity, this recommendation will foster increased bird and wildlife activity and reduce litter.

- **Next Step:** Meet at the site with SBCFCWCD staff to identify tunnel locations and discuss the feasibility of installing and maintaining plants within unofficial trails along Atascadero Creek.

- Enforcement Action

  - **Problem Atascadero A5:** A 250-meter long section of riparian habitat located on the south bank just upstream from the Patterson Avenue Bridge was removed in October 2019. The clearing unveiled what appeared to be previous illegal dumping of cement or other material onto the Creek bank.

Figure 33. Riparian habitat destroyed along Atascadero Creek. November 4, 2019.


Figure 34. Cement or other material dumped over the bank of Atascadero Creek.

- **Recommendation Atascadero A5A:** EDC reported the clear-cut riparian habitat to the California Coastal Commission ("CCC") enforcement staff and CDFW as a violation of the Santa Barbara County Local Coastal Plan and the Fish and Game Code. These agencies' enforcement actions should be monitored to ensure that the area is restored with local native plants, the compensatory habitat mitigation ratio is at least 3:1, and the illegal dump is cleaned up. To be most effective, habitat restoration should occur onsite. Additional restoration that may be required should occur along Atascadero creek in the vicinity of this clearing. EDC recommends that the cleared habitat area and the area between the cleared habitat and the equestrian facility, and other onsite areas as needed, be restored to mitigate the impacts and achieve a minimum 3:1 ratio. All mitigation sites should be placed in a permanent conservation easement or otherwise subject to permanent preservation.

    - **Community Benefits:** A restored and enlarged riparian corridor will provide habitat for birds and wildlife, will shade the creek keeping water cool for steelhead, will reduce erosion, improve water quality, and enhance the area's natural beauty. Furthermore, enforcement will deter future illegal actions along the Creek.

    - **Next Step:** Communicate with CDFW, CCC, and Santa Barbara County to ensure enforcement, to support a large mitigation ratio, to ensure onsite mitigation, to ensure removal of the dumped material, and to support timely restoration of the Creek. Update: Enforcement underway.

- South Turnpike Project Bioswale Restoration

    - **Problem Atascadero 6:** Santa Barbara County's South Turnpike Bioswale contains invasive non-native plants. The informational sign is compromised, rendering it difficult to read.

Figure 35. The Atascadero Creek Bioswale on South Turnpike Road contains non-native plants such as the Peruvian pepper tree sapling pictured above silhouetted against the blue sky between the telephone poles.

Figure 36. The Plexiglas on South Turnpike Bioswale Project's informational sign is cracked.

- **Recommendation Atascadero A6A:** Remove the non-native plants within the bioswale, including Peruvian pepper tree (*Schinus molle*) and Shamel ash saplings (*Fraxinus uhdei*).

- **Recommendation Atascadero A6B:** Replace the Plexiglas covering the South Turnpike Bioswale Project's informational sign.

    - **Community Benefits:** Recommendation Atascadero A6A will protect the function of the bioswale and reduce the spread of exotic vegetation. Recommendation Atascadero A6B will increase community knowledge about the Bioswale Project and about the importance of clean water and the watershed in their neighborhood.

    - **Next Step:** Discuss the eradication of non-native plants and the restoration of the informational sign with Santa Barbara County Project Clean Water.

II. Global Recommendations

- Reduce Pesticide Use by Santa Barbara County Flood Control District

    - **Problem Global A1:** The SBCFCWCD's use of herbicides Roundup and Rodeo, which contain glyphosate, may harm native plants, fish, wildlife, and humans. Glyphosate is believed to be a carcinogen and is banned, restricted, or undergoing review in numerous countries or portions of countries including Argentina, Australia, Austria, Belgium, Bermuda, Canada, Sweden, Thailand, Vietnam, and over a dozen other countries.

Figure 37. Roundup by Monsanto contains glyphosate, which has been found to cause cancer in humans.

        - **Recommendation Global A1A:** Research pest plant eradication methods and recommend SBCFCWCD implement those methods as alternatives to using glyphosate.

            - **Community Benefits:** Recommendation Global A1A will help restore riparian habitats and protect native plants, fish, and wildlife populations. It will also protect human health and water quality.

            - **Next Step:** Identify, assess, and recommend alternatives to Roundup and Rodeo in the Creek and Watershed Management Plan that are not glyphosate-based herbicides.

- Create Educational Signs to Place Along Goleta's Creeks

    - **Problem Global A2:** There are too few signs indicating the importance of Goleta's creek ecosystems or providing knowledge about them to the public.

Figure 38. Example of Creek-related educational signage. www.tripadvisor.com

- **Recommendation Global A2A:** Create and post educational signs around all of Goleta's creeks. These signs can include photos and names of native plant species, birds, and other wildlife found near the creek. In addition, signs can indicate restoration efforts around an area and the organizations to contact if there is a concern about the creek.

    - **Community Benefits:** Recommendation Global A2A will support a community that is ecologically informed. This will conjure public support of restoration efforts.

    - **Next Steps:** Conduct field surveys of Goleta's creeks and create signs to post that inform the public about the waterways.

- Pipe and Wire Revetments and Rock Rip Rap along Creek Banks

    - **Problem Global A3:** The pipe and wire revetments and rock rip rap armoring Goleta's creekbanks inhibit wildlife movement between the creek and the riparian environment and collect debris, such as tires, cans, and bottles that leach substances into the creek as they decay. The pipe and wire revetments are not pleasing to the eye. In addition, the rock rip rap armoring redirects erosive flows onto opposite creek banks, causing erosion. The pipe and wire and rock revetments can create a "bowling alley" effect that harms creek habitats and damages stream geomorphology including point bars and pools.

        - **Recommendation Global A3A:** Remove pipe and wire revetments as well as rock rip rap armoring along Goleta's creeks where feasible. Plant young willow "boxes," live willow crib walls, or other biotechnical stream bank stabilization on the creek banks. Such biotechnical stream bank stabilization

methods enhance habitat and minimize excessive erosion. Live willow crib walls are constructed of live willow poles built into steam banks and filled with soil, live willow cuttings, and rock. (See Figure 14.)

Figure 39. Pipe and wire revetment undercut by erosion in San Pedro Creek.

- **Community Benefits:** Recommendation Global A3A will remove problematic pipe and wire revetments and provide a larger habitat for wildlife. The updated biotechnological measures will also be more aesthetically pleasing and will benefit water quality.

- **Next Steps**: Contact the SBCFCWCD and discuss the logistics of implementing this recommendation along Goleta's creek bank.

- <u>Control of Invasive Nonnative Vegetation and Aquatic Species</u>

  - **Problem Global A4:** Invasive exotic aquatic species, including the bullfrog, green sunfish, and crayfish inhabit some of Goleta's creeks. They prey on native fish and wildlife species and compete with native fish and wildlife species for resources, which contributes to the decline of native species. Invasive exotic plant species such as Arundo donax and castor bean outcompete native plants, displacing wildlife habitat, and degrading the environmental values of our watersheds.

Figure 40. Bullfrog (*Lithobates catesbeianus*). www.TorontoZoo.com

Figure 41. A photo of invasive tamarisk. Tamarisk is spreading along Goleta's creeks, displacing native riparian vegetation. Sourced from the California Invasive Plant Council. (https://www.cal-ipc.org/plants/profile/tamarix-chinensis-profile/)

Figure 42. A photo of invasive castor bean and cape ivy. Sourced from Morro Bay National Estuary Program. (https://www.mbnep.org/2017/09/08/poison-oak-natures-immune-response/)

Figure 43. A photo of invasive ash tree saplings.

Figure 44. A photo of invasive wild radish. Sourced from KQED Quest. (https://ww2.kqed.org/quest/exploration/view/319)

Figure 45. **I**nvasive giant reed. (*Arundo donax*) From California Invasive Plant Council. (https://www.cal-ipc.org/solutions/wmas/san-luis-obispo-wma/)

- **Recommendation Global A4A:** Eradicate bullfrog, green sunfish, and crayfish from Goleta's creeks.

- **Recommendation Global A4B:** Remove, control, and/or eradicate exotic invasive plant species from the Goleta Watershed. Gradually replace these invasive non-native plant

species with native plant species and maintain the native plants for a few years until they become established. Native tree species include coast live oak (*Quercus agrifolia*), black cottonwood (*Populus trichocarpa*), willows (*Salix* spp.), California bay laurel (*Umbellularia californica*), and western sycamore (*Platanus racemosa*).

- **Community Benefits:** Recommendation Global A4A will enhance the creek ecosystem for fish, birds, and wildlife. Without the threats caused by invasive exotic aquatic species including predation and competition, native aquatic species such as the southern California steelhead will thrive in Goleta's creeks.

- **Next Steps:** Contact CDFW to inquire regarding their plans to eradicate green sunfish in Glen Annie Creek. Inquire with CDFW and City staff about control of crayfish, bullfrogs, and exotic wildlife in creeks within the City of Goleta.

- **Problem Global A5**: Exotic trees are being planted by neighbors along Goleta's creeks.

  - **Recommendation Global A5A**: Remove exotic trees planted along Goleta's creeks and replace with native riparian trees including coast live oak, western sycamore, and California bay laurel.

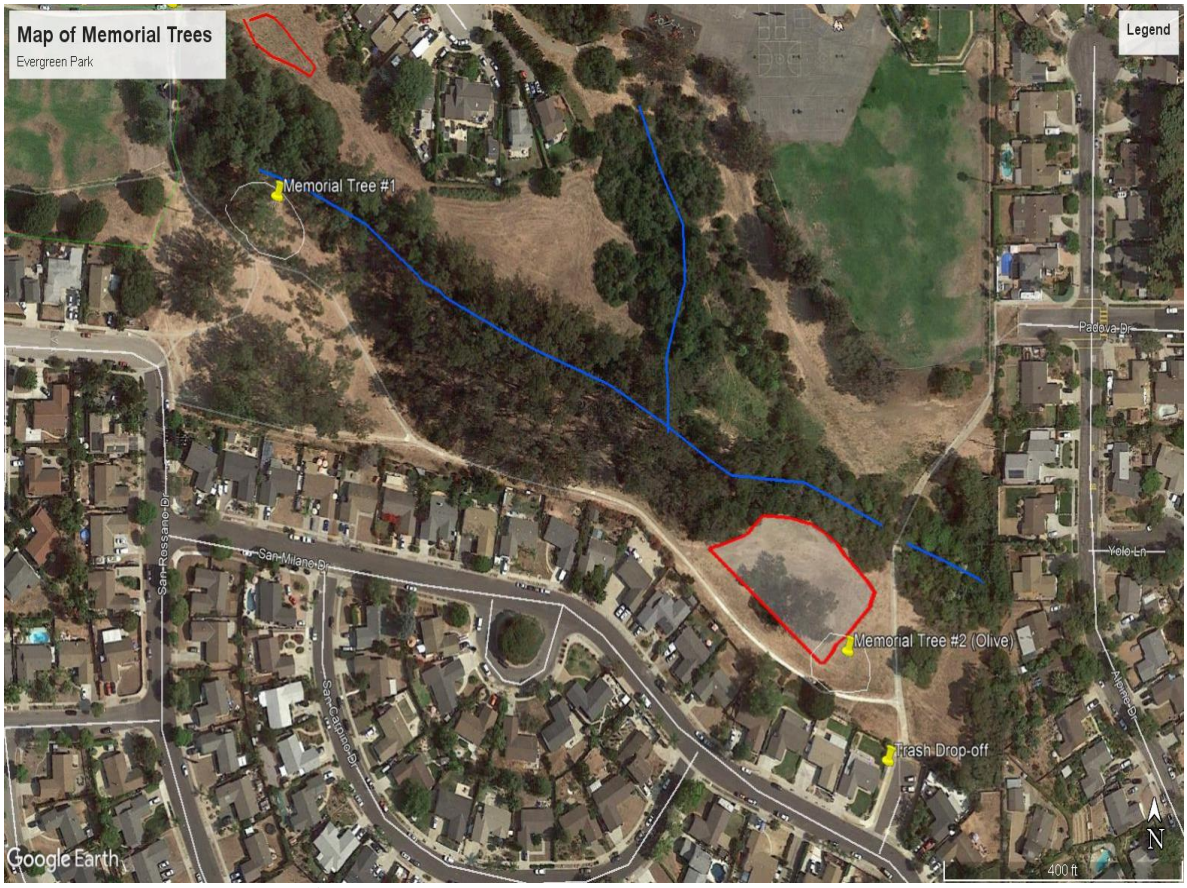

Figure 46: Map showing locations of nonnative memorial trees planted by neighbors. Evergreen Park; El Encanto (Devereux) Creek.

- **Recommendation Global A5B**: Amend City Resolution 10-54 and take any other actions necessary to require memorial trees or other types of planted trees located in or near SPAs to be native riparian trees from local seed or cutting stock.

    - **Community Benefits:** Recommendation Global A5A will prevent the spread of invasive exotic vegetation along Goleta's Creeks.

    - **Next Step:** Coordinate with Goleta City planning and Public Works staff to revise Resolution 10-54 to require that memorial trees planted in and near SPA and environmentally sensitive habitat ("ESH") must be ecologically appropriate local native trees.

- **Problem Global A6**: Landscaping in City Parks and Open Spaces is primarily nonnative detracting from habitats, such as streams, which occur in City Parks and Open Spaces.

Figure 47. Exotic trees planted along and near Bella Vista Creek's SPA in the Devereux Watershed.

- **Recommendation Global A6A**: Amend or develop landscape and maintenance plans for parks and open spaces to include planting and establishing ecologically appropriate native plants in and near creeks, SPAs, and other habitats and habitat buffers located within City parks and open spaces.

    - **Community Benefits**: Developing plans to plant and establish appropriate native vegetation in City parks and open spaces will rehabilitate degraded streams, enhance bird and wildlife habitat, improve neighborhood aesthetics, and may reduce park and open space landscape maintenance costs over time.

    - **Next Steps**: Meet with City Parks staff to discuss the concept. Work with City and partners to review and recommend changes to existing park and open space management and maintenance plans to identify appropriate vegetation for streams, SPAs, habitats and buffer areas located around streams habitats.

- **Problem Global A7**: Streams, tributaries, and drainages have been destroyed by burying them underground in culverts, eliminating all habitat value and all aesthetic value, and diminishing groundwater recharge.

    - **Recommendation Global A7A**: Whenever feasible, "daylight" creeks, tributaries, and drainages which have been buried in culverts, and restore riparian and stream habitats.

        - **Community Benefits**: Daylighting buried streams, tributaries, and drainages will restore riparian and stream habitat, reconnect wildlife corridors, enhance scenic nature of our neighborhoods, improve water quality, and enhance groundwater recharge.

        - **Next Steps**: Work with City and County Public Works Departments to map existing culverts and identify areas where daylighting may be feasible.

Figure 48: Examples of degraded riparian buffers which should be restored to enhance Goleta's creeks and watersheds.

- **Problem Global A8:** Habitats in areas surrounding creeks and riparian woodlands have been degraded through removal of native vegetation, introduction of nonnative plants and animals, earthwork, and human activities including noise and lighting.

- **Recommendation Global A8A:** Identify and restore degraded buffer areas on public land surrounding Goleta's creeks. Work with private property owners to restore degraded creek buffers on private lands.

    - **Community Benefits:** Restoring creek buffers will enhance wildlife habitat and community aesthetics. It will reduce water pollution in Goleta's creeks and the Goleta Slough, including sedimentation and thermal pollution.

    - **Next Step:** Work with the City to map all degraded riparian buffers on private and public properties and contact the owners of private parcels.

III. Appendix I: EDC 2019 Creek Cleanup Program Results

Creek	Volunteers	Weight	Date
Devereux Creek	17	1,234	8/24/2019
Glen Annie Creek	10	973	9/7/2019
San Pedro Creek	12	440.5	9/14/2019
San Jose Creek	16	1,259.50	9/28/2019
Maria Ygnacio Creek	6	345	10/5/2019
Atascadero Creek	22	2,180	10/26/2019
Total	**83**	**6,432**	
Avg.	13.8	1,072	
Total Volunteer Hours	166		

EDC Creek Cleanup Program Highlights

Glen Annie Creek

- EDC identified a newly established population of nonnative green sunfish in a pool located below the Union Pacific Railroad Tracks. EDC reported this discovery to California department of Fish and Wildlife which plans to eradicate this population in 2020 to protect native fish and aquatic wildlife including steelhead and red-legged frogs.

San Jose Creek

- EDC retrieved eleven shopping carts from the Creek and returned them to local businesses.
- Due to a persistent homeless community member encampment underneath Highway 101, the City of Goleta and has offered a police escort for future cleanups in this area.

Maria Ygnacio and Atascadero Creeks

- EDC documented two hypodermic needles near a homeless camp and reported this to County Project Clean Water which promptly removed and disposed of the needles.

Atascadero Creek

- EDC documented spilled paint in Atascadero Creek and a used oil filter adjacent to the Creek and reported these to County Project Clean water which promptly removed these hazardous materials from the Creek.

- EDC documented a 100 meter long section of Atascadero Creek's riparian woodland which had been clear-cut. EDC reported this clearing to California Department of Fish and Wildlife and to the California Coastal Commission. Both agencies are collaborating with the Santa Barbara County Planning Department to address this violation of the California Fish and Game Code and the Santa Barbara County Local Coastal Plan. EDC anticipates that the responsible party will be required to restore riparian habitat in this location and elsewhere to achieve a 4:1 replacement of lost riparian habitat.

- The 2,180 pounds of trash removed from Glen Annie Creek in 2019 was a record for EDC creek cleanups.

IV. Appendix II. List of Acronyms

CCBER	Cheadle Center for Biodiversity and Ecological Restoration
CDFW	California Department of Fish and Wildlife
COMB	Cachuma Operations and Maintenance Board
COPR	Coal Oil Point Reserve
CRCD	Cachuma Resource Conservation District
CRLF	California red-legged frog
EDC	Environmental Defense Center
EOF	Ellwood Onshore Facility
ESHA	Environmentally Sensitive Habitat Area
GAGC	Glen Annie Gold Club
GVJHS	Goleta Valley Junior High School
GWPEP	Goleta Watershed Protection and Education Program
NCOS	North Campus Open Space
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
ROW	Right-of-Way
RWQCB	Regional Water Quality Control Board
SBCFCWCD	Santa Barbara County Flood Control and Water Conservation District
SPA	Stream Protection Area
UCC	Urban Creeks Council
UCSB	University of California Santa Barbara
UPRR	Union Pacific Railroad

V. Appendix III: Index of Recommendations

VI. Appendix IV: Watershed Recommendations Map