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# DEVELOPING A REGIONAL RESTORATION PLAN FOR THE CENTRAL SAN JOAQUIN VALLEY

## STUDENT AUTHOR

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## CLIENT ORGANIZATION AUTHORS / CONTACTS

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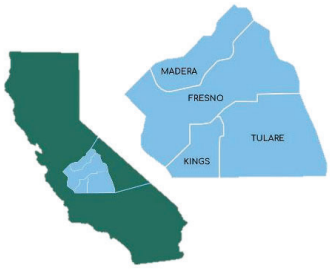
## OBJECTIVES

Sequoia Riverlands Trust (SRT) is an accredited, regional land trust that conserves the lands and waters of California's heartland. For this project, SRT seeks to partner with the Bren School of Environmental Science and Management to develop a Regional Restoration Plan for the Central San Joaquin Valley, which includes Tulare, Kings, Fresno and Madera Counties. This project will focus on the following objectives:




1. Synthesize and analyze existing data to identify potential areas for conservation and restoration, as well as gaps for future data collection.
2. Help SRT to engage stakeholders and deepen partnerships with regional environmental and social organizations, agencies, and indigenous groups to identify potential restoration projects.
3. Create a publicly-accessible plan for regional restoration projects.

## BACKGROUND AND IMPLICATIONS

SRT is an accredited, nonprofit land trust based in Tulare County, California. For over 20 years, SRT has worked to conserve and restore natural and agricultural lands across the Southern Sierra, San Joaquin Valley and Carrizo Plain. As part of an ongoing effort to bring regional groundwater use in line with sustainable supplies—necessitated by decades of agricultural overpumping, followed by passage of the Sustainable Groundwater Management Act (SGMA) in 2014—SRT has built partnerships with a wide range of stakeholders focused on groundwater recharge and ecosystem resilience, including multiple Groundwater Sustainability Agencies (GSAs). SRT supported the development of a Regional Conservation Investment Strategy (RCIS) for the Kaweah Subbasin, identifying a series of conservation priorities and developing maps to help guide GSA partners in future decision making around potential conservation projects. In anticipation of increased land use change in the near future, SRT is collaborating with three groups of water stakeholders that have received block grants under the Multibenefit Land Repurposing Program (MLRP) to promote habitat conservation and restoration on retired farmland. In the process,

SRT has built partnerships with multiple resource management agencies, community-based organizations, environmental nonprofits, and other stakeholders. The project will build on these partnerships to source information and engagement in the creation of the Regional Restoration Plan.

This project comes at a critical time for the San Joaquin Valley, where industrial agriculture, unsustainable groundwater pumping and major water diversion projects have created one of the most heavily-altered landscapes on Earth, with large swaths of riparian habitat and over 95% of historic wetlands destroyed by human development (CA 4th Climate Change Assessment), and remaining stretches of habitat highly vulnerable to climate change. SGMA implementation will represent a major change for the region, with a predicted 535,000 acres of irrigated farmland being repurposed over the next decade, even with a managed approach to sustainability that includes water markets and increased recharge (PPIC, 2019).

Landscape-scale restoration of retired farmland, however, can help to mitigate these impacts, providing benefits that include groundwater recharge, increased biodiversity, greater resilience to climate change, and cleaner air and water. A strategic restoration plan would allow us to identify sites with high chances of long-term success in the face of climate impacts, while optimizing health benefits for local communities, incorporating strategies for workforce development for those most negatively impacted by farmland retirement, and supporting equity for disadvantaged communities and tribal partners.

## EQUITY AND HUMAN IMPACT

The San Joaquin Valley is a severely disadvantaged and underserved region, with a majority-minority population, a median household income of $37,800 (Fernandez-Bou et al., 2023)—well below the statewide median—and a large population of migrant farmworkers. Much of the region's poverty is concentrated in rural, disadvantaged communities of color that suffer severe air and water pollution, are disproportionately impacted by drought and flooding, and often lack access to safe drinking water and healthy food, despite living in one of the world's most productive agricultural regions. Environmental justice is a primary concern among their residents (Flores-Landeros et al., 2021). Conservation and restoration of retired agricultural lands can provide important benefits for these residents, including community buffers that can increase recharge, improve air and water quality, support healthier communities, and provide opportunities for work and economic investment. Indeed, a recent study identified 123 rural disadvantaged communities in the San Joaquin Valley region that would physically benefit from repurposing land (Fernandez-Bou et al, 2023).

## DATA SOURCES

GIS data for this project will be provided by SRT. Stakeholder input and feedback will be collected during the course of the project with the involvement of students. Key GIS sources are likely to include:

- Land IQ data on crop and land use types; potentially other layers related to historical land use
- California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) layers on farmland type (prime farmland, farmland of statewide importance, etc.)
- Soil Agricultural Groundwater Banking Index (SAGBI) data on groundwater recharge suitability
- Data on surface vs. groundwater availability, potentially including the Public Policy Institute of California layer or more recent data from Groundwater Sustainability Agencies
- Kaweah Regional Conservation Investment Strategy (RCIS) data on the locations and interactions of natural communities and recharge lands

- The Southern Sierra Partnership (SSP) Regional Conservation Design, and potentially other datasets connected with the Framework for Cooperative Conservation and Climate Adaptation for the Southern Sierra Nevada and Tehachapi Mountains
- California State University, Stanislaus Endangered Species Recovery Program (ESRP) layers
- Calenviroscreen 4.0 mapping on environmental health and disadvantaged communities
- Dataset for Water, Environment and Socioeconomic Justice in California: A Multi-benefit Cropland Repurposing Framework (Fernandez-Bou et al., 2022)
- Datasets associated with the Nature Based Climate Solutions and Watershed Management portions of the Sierra San Joaquin Jobs Initiative Draft Regional Investment Plan

## APPROACHES

Potential approaches are likely to include the following:

1. Data Synthesis and Gap Analysis: Integrate data related to land use; water and other resource availability; impacts of SGMA; local conservation priorities and plans; social demographics; biodiversity indices; and projected models of land retirement, restoration potential, and climate change impacts. Conduct spatial analysis to identify key areas for conservation and habitat restoration work, using parameters listed in reference materials on ideal characteristics for restoration sites. Identify ecological, hydrological, and social gaps in prior studies and areas for future data collection.
2. Stakeholder Engagement and Outreach: Help SRT to build relationships among regional landowners, nonprofits, tribal partners and government agencies interested in restoration. Attend workshops and interview stakeholders to gather input and refine priorities for strategic restoration plan.
3. Regional Restoration Plan: Develop regional restoration strategy document and framework for project selection with core partners. The strategy should take into account land repurposing, groundwater recharge, biodiversity indices, community buffer zones, and habitat corridors; equity concerns and community impacts of proposed activities; and the role of workforce development in implementation. Incorporate stakeholder feedback regarding equity, tribal cultural uses, and related issues.

## DELIVERABLES

By the end of this project, students, in conjunction with SRT and other partners, will have created:

1. A Regional Restoration Plan for the Central San Joaquin Valley.
2. A series of maps identifying priority target areas for restoration.
3. A stakeholder engagement report which includes input and recommendations from partners.
4. A final presentation to be used for continued stakeholder engagement and plan implementation.

## INTERNSHIP

Sequoia Riverlands Trust will provide one paid summer internship for a student on the project team. We anticipate that the internship will last at least two months, compensated at $4,000 per month.

## BUDGET

Beyond SRT's support for the internship, and the $1,000 provided by the Bren School, we do not anticipate substantial additional costs. In the event that the project entails in-person meetings with SRT staff or stakeholders, SRT will reimburse any reasonable travel expenses incurred by the students.

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December 11, 2024

Group Project Committee
Bren School of Environmental Science and Management
University of California, Santa Barbara
2400 Bren Hall
Santa Barbara, CA 93106-5131

**Re: Data Availability and Financial Support for Developing a Regional Restoration Plan for the Central San Joaquin Valley**

Dear Committee Members,

I am writing on behalf of Sequoia Riverlands Trust (SRT) to describe the support we can offer for our proposed Bren School Group Project, Developing a Regional Restoration Plan for the Central San Joaquin Valley. In collaboration with Sneha Kumar, a current Bren student and longstanding member of SRT's team, we have prepared a proposal for a Group Project that will meet a critical environmental need in an underinvested region of California, while helping Bren students to build skills, experience and professional networks.

To make the project a success, SRT will support the students at every step of the way, including readily providing the data sources listed in the proposal (which are generally either publicly available or already within SRT's possession), and actively collaborating with students on the stakeholder input and feedback portions of the project. SRT's primary project contact will be Adam Livingston, who is himself a Bren School graduate. Having been Project Manager of his Group Project, Adam is well aware of the importance of timely access to data for an undertaking of this type.

SRT will also commit to fund a summer internship of at least two months, with compensation set at $4,000 per month.[1] Approximately half of the intern's time will be spent on Group Project-related work, and half on other substantive work related to conservation and water, with particular projects depending on both SRT's needs and the intern's professional interests. SRT staff will provide mentorship and meaningful feedback on the intern's work.

Funding for the internship will come from a Sierra San Joaquin Jobs (S2J2) Initiative grant that SRT received in December 2024 to cover several areas of our work over the next two years, including but not limited to the restoration plan. The grant has already been awarded, and the portion set aside for this project is committed within the grant budget (i.e., not available for unrelated projects).

We do not anticipate significant additional expenses, and we do not expect the project to involve frequent or long-distance travel, but as noted in the proposal, SRT is fully prepared to reimburse any reasonable travel expenses incurred by the students. These funds, as well as staff time for SRT's project contacts, will come from the S2J2 grant.

Please let us know if you need any additional information, and thank you for considering our proposal.

Sincerely,

Dr. Logan Robertson Huecker
Executive Director
Sequoia Riverlands Trust

[1] We do not have a set selection process, but if multiple students express interest and the group cannot come to consensus, SRT staff will speak with the students individually and make a decision as needed.