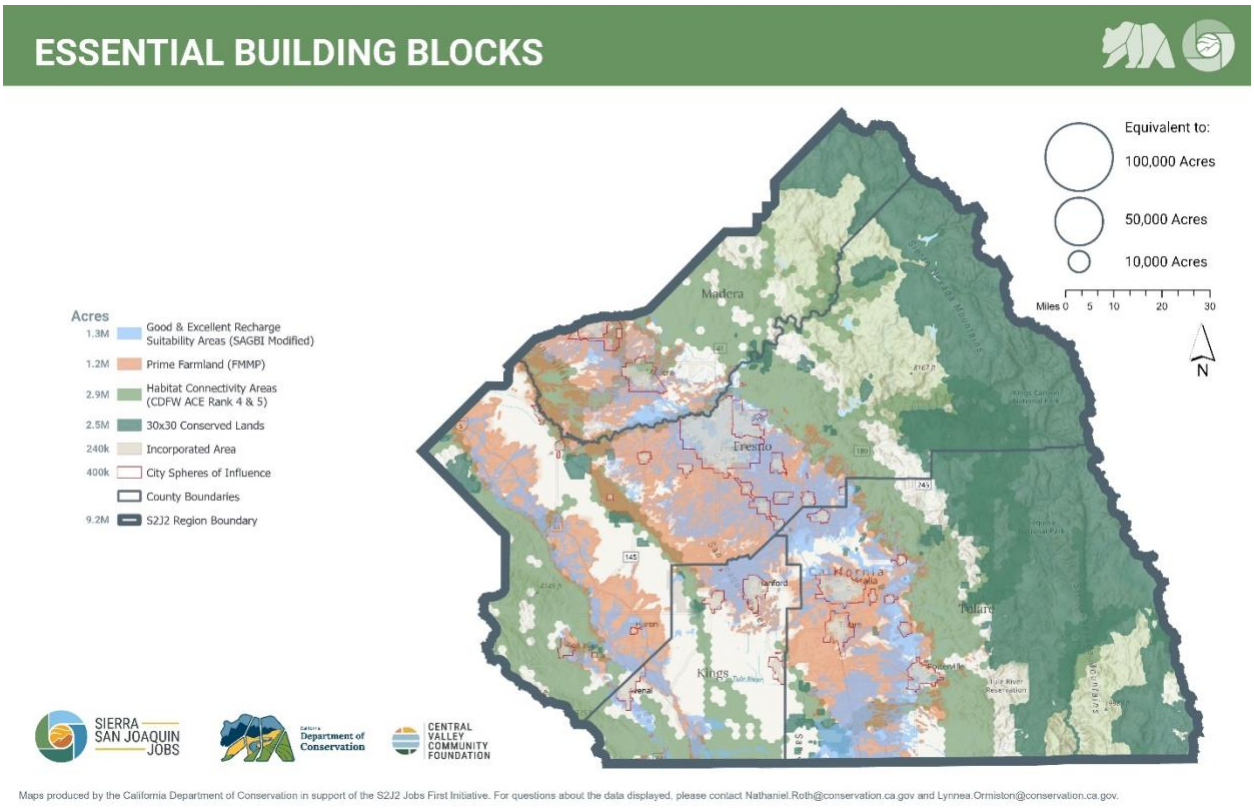
SIERRA SAN JOAQUIN JOBS

Department of Conservation Baseline Mapping-Assets and Opportunities

Introduction

The notes below describe the map series prepared for the Spring Sprint Kickoff meeting of the Sierra San Joaquin Jobs Region. These maps span a range of topical areas critical to the region's future and are intended to represent a high-level view of the current state of resources in the region. As such, the information presented here has been generalized for presentation and should not be used in lieu of a review against detailed local data.



Essential Building Blocks

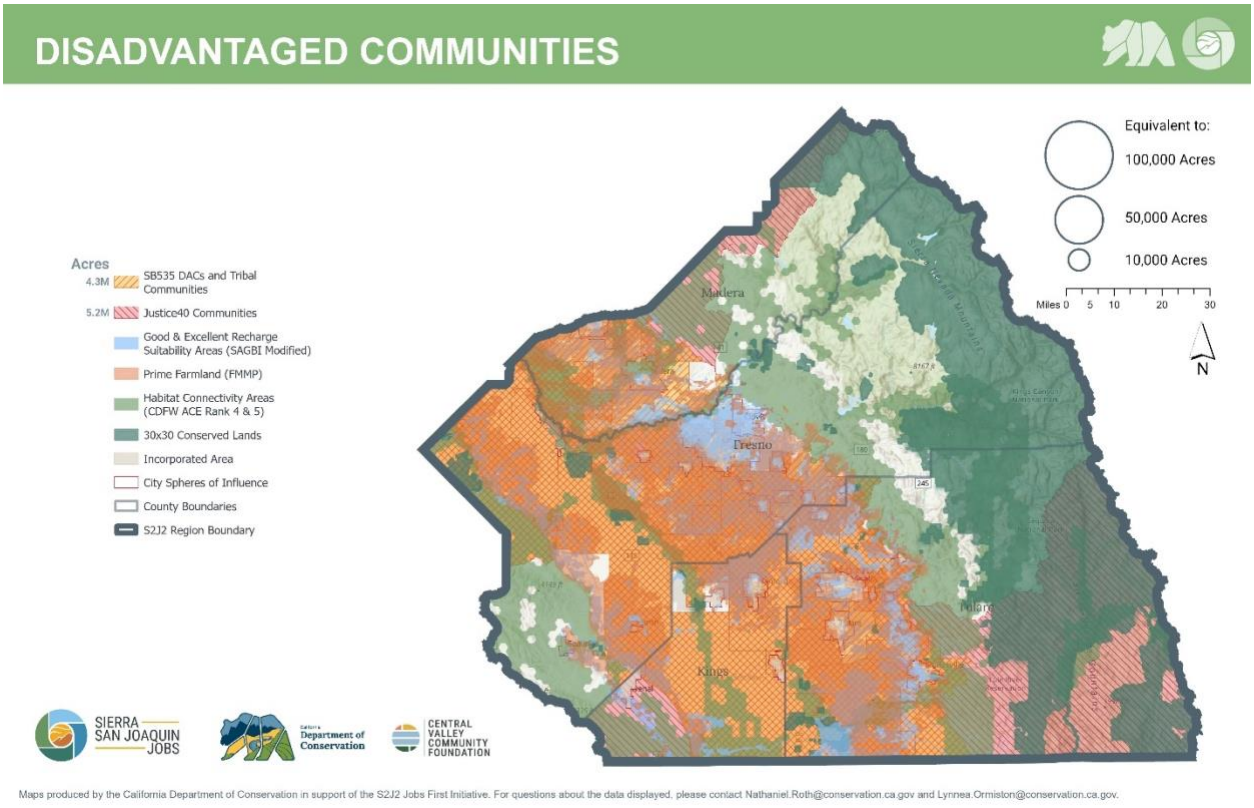
The Sierra San Joaquin Region is rich in resources. From west to east, the four counties start from the edge of the Coast Ranges, reach across the fertile valley floor, and climb to the highest points of the Sierra Nevada. The farmlands represented by Prime Farmland as mapped by the Farmland Mapping and Monitoring Program at the Ca. Department of Conservation (shown in brown) are world class soils, followed only slightly by Farmland of Statewide Importance (not shown). The Sustainable Groundwater Banking Index (SAGBI) (modified) builds on soils data for the state and identifies those areas with natural soils modified by human actions such as deep ripping, and rated as excellent or good, that

would allow easier penetration of water through at least the top 6 feet of soils on its way to the aquifers below. The valley floor while heavily impacted by human action remains critical to species movement and conservation. The Areas of Conservation Emphasis (ACE) Habitat Connectivity layer from the California Department of Fish & Wildlife (CDFW) as shown on these maps includes both the rank 5 "Irreplaceable and Essential Corridors" and rank 4 "Conservation Planning Linkages" are key to maintaining and restoring habitat connectivity in the region. And finally, the 30x30 Conserved Areas represent areas of our landscape with durable biodiversity protections. Spheres of influence, city boundaries, and of course, the county boundaries define some of the important administrative areas for planning the region's future. Taken together these data overlain on the four counties represent building blocks for the region's future in agriculture, biodiversity conservation, water management, clean energy, and economic development. These building block layers appear in all the subsequent maps.

Data List:

- Farmland Mapping and Monitoring Program Important Farmland 2018
    - Frequently simply called the FMMP dataset, the Important Farmlands data defines and tracks the availability and conversion of farmland across California by farmland capability class. https://www.conservation.ca.gov/dlrp/fmmp
- Sustainable Agricultural Groundwater Banking Index (SAGBI) (Modified)
    - SAGBI exists in two forms, unmodified and modified. The unmodified is developed based on the detailed soil surveys to indicate the suitability of agricultural lands for groundwater banking based on soil characteristics. The modified version, updates locations that have had impermeable layers disrupted through deep ripping or similar agricultural practices. https://calag.ucanr.edu/archive/?article=ca.v069n02p75
- CDFW Areas of Conservation Emphasis (ACE) Habitat Connectivity Rank
    - This ACE datasets is a generalized and aggregated indicator of the presence or importance of terrestrial habitat connectivity using a five class system with class 5 indicating areas of irreplaceable and essential corridors, 4 indicates areas of important linkages, 3 areas with implementation flexibility, 2 are large natural habitat areas, and 1 are areas with limited connectivity opportunity. Zero represents an unmapped area. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150835&inline
- 30x30 Conserved Areas (2023)
    - GAP categories 1 and 2, indicate durable biodiversity protections and are considered conserved by the 30x30 effort. https://www.californianature.ca.gov/datasets/CAnature::30x30-conserved-areas-terrestrial-2023/about
- Spheres of Influence.

- Are defined by each county's Local Agency Formation Commission and represent areas that are expected to become a part of the city in the future and that the city generally starts including in their planning activities.
- Assembled by Ca. Department of Conservation from county data.



Disadvantaged Communities

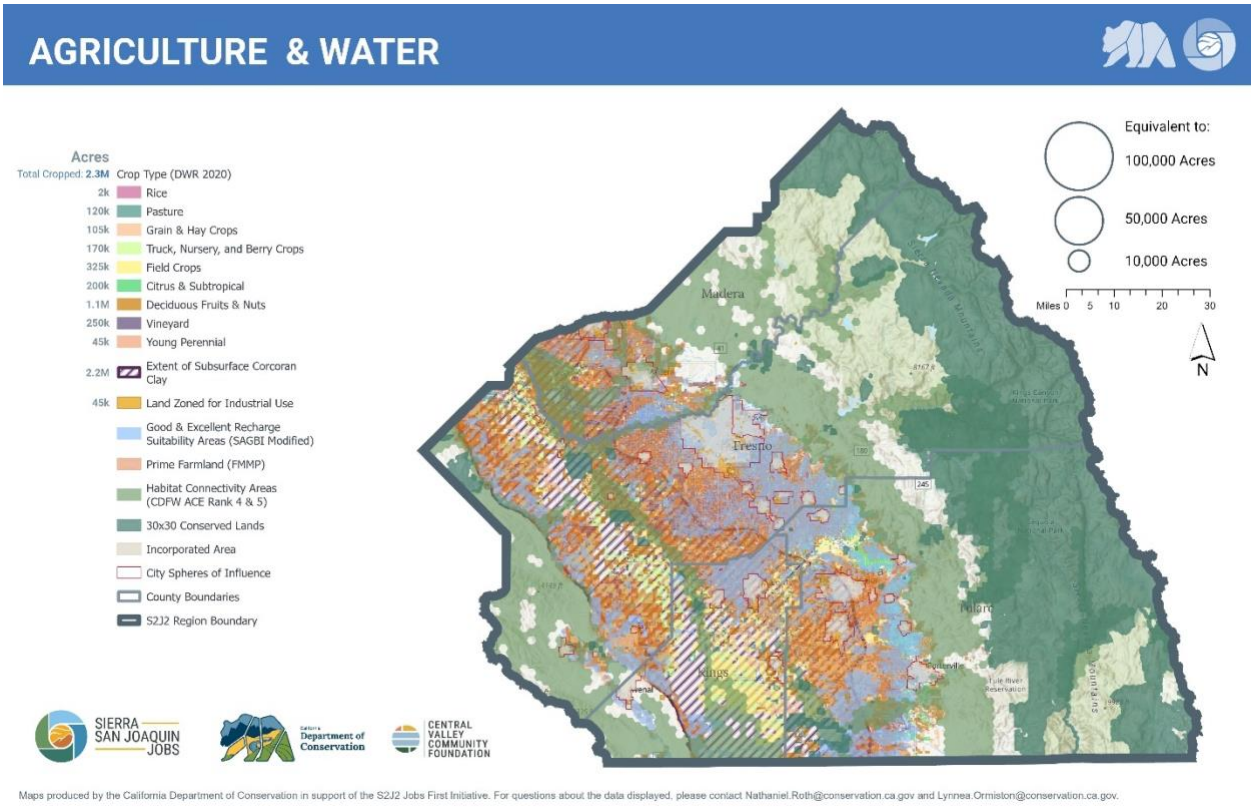
The Sierra San Joaquin region has enormous economic challenges including a history of disinvestment in communities and a legacy of environmental injustices impacting vulnerable communities. This map includes two definitions of disadvantaged community, one defined by Senate Bill 535 and used widely within California, and another from the White House Sponsored Climate and Economic Justice Screening Tool. While there are differences in the census tracts that they identify both paint a clear picture of the widespread nature of the economic and environmental justice challenges that beset the region. It is worth noting that because both use a census tract as the minimum geographic area, both have known challenges with identifying small rural communities and related challenges.

Data List:

- SB353 and Tribal Communities as identified in CalEnviroScreen 4.0:

- Includes census tracts identified in the CalEnviroScreen 4.0 implementation of Disadvantaged Communities as required under SB535 (De Leon, 2012). https://oehha.ca.gov/calenviroscreen/sb535

- Climate and Economic Justice Screening Tool
  - Includes census tracts identified in the Whitehouse sponsored Climate and Economic Justice Screening Tool. https://screeningtool.geoplatform.gov/



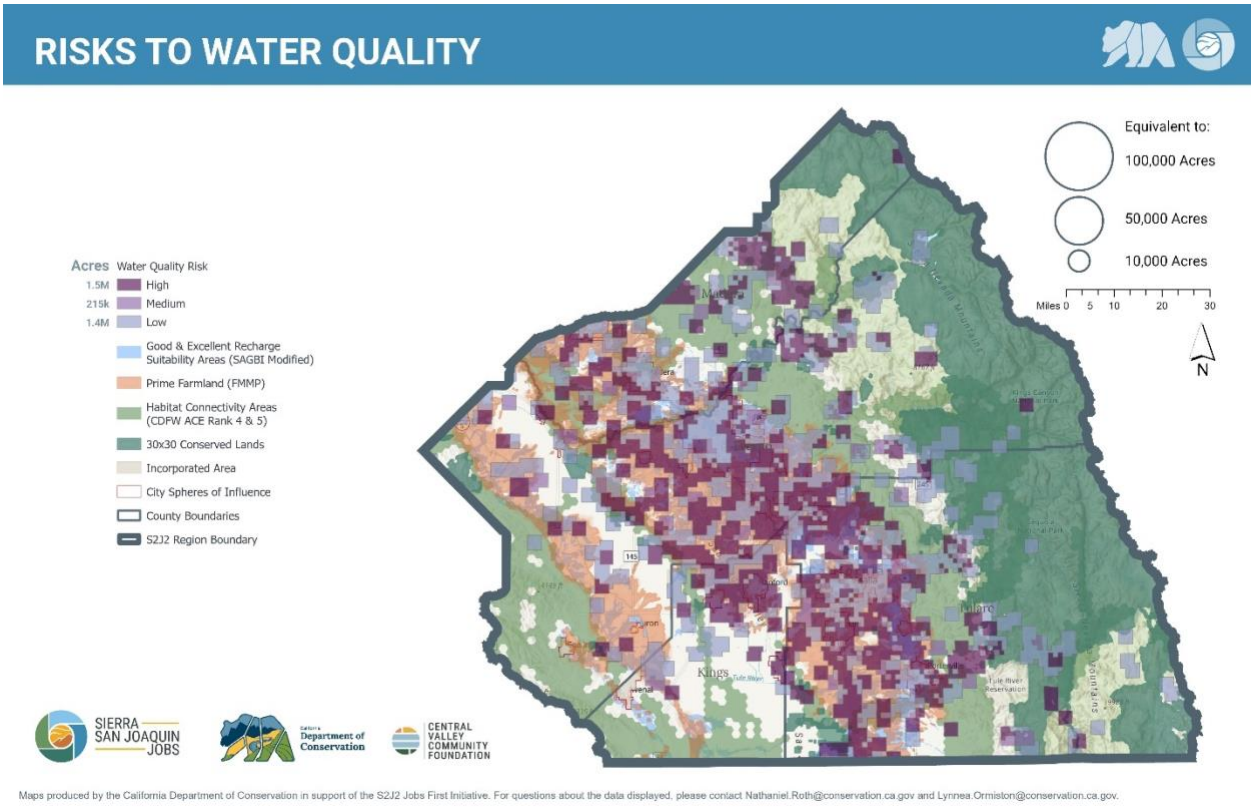
Agriculture & Water

Agriculture and water are inextricably linked in the Sierra San Joaquin Region. Agriculture is a foundational element of the region's economy and identity. The impacts of regulations and highly variable water supply are clearly felt and legislation requires new forms of planning followed by implementation of groundwater management. This map shows 2020 cropping patterns documented by the Ca. Department of Water Resources lain over the building block layers including areas with higher groundwater recharge potential. Additional layers include the extent of the Corcoran Clay layer which restricts recharge to deeper aquifers, and zoning for industrial land use which has the potential to bring the packing, processing, and value-added economic benefits from agriculture into the region.

Data List:

- DWR 2020 Crops

    - As available from https://data.cnra.ca.gov/dataset/statewide-crop-mapping with 2020 selected to match the most recent available FMMP Important Farmland Dataset
- Corcoran Clay extent (USGS)
    - The extent of the Corcoran clay layer as defined in the data used within the Central Vallet Hydrologic Model. https://ca.water.usgs.gov/projects/central-valley/central-valley-spatial-database.html
- Industrial Zoning
    - Assembled for this effort using data from all counties and cities in the region by the Ca. Department of Conservation.



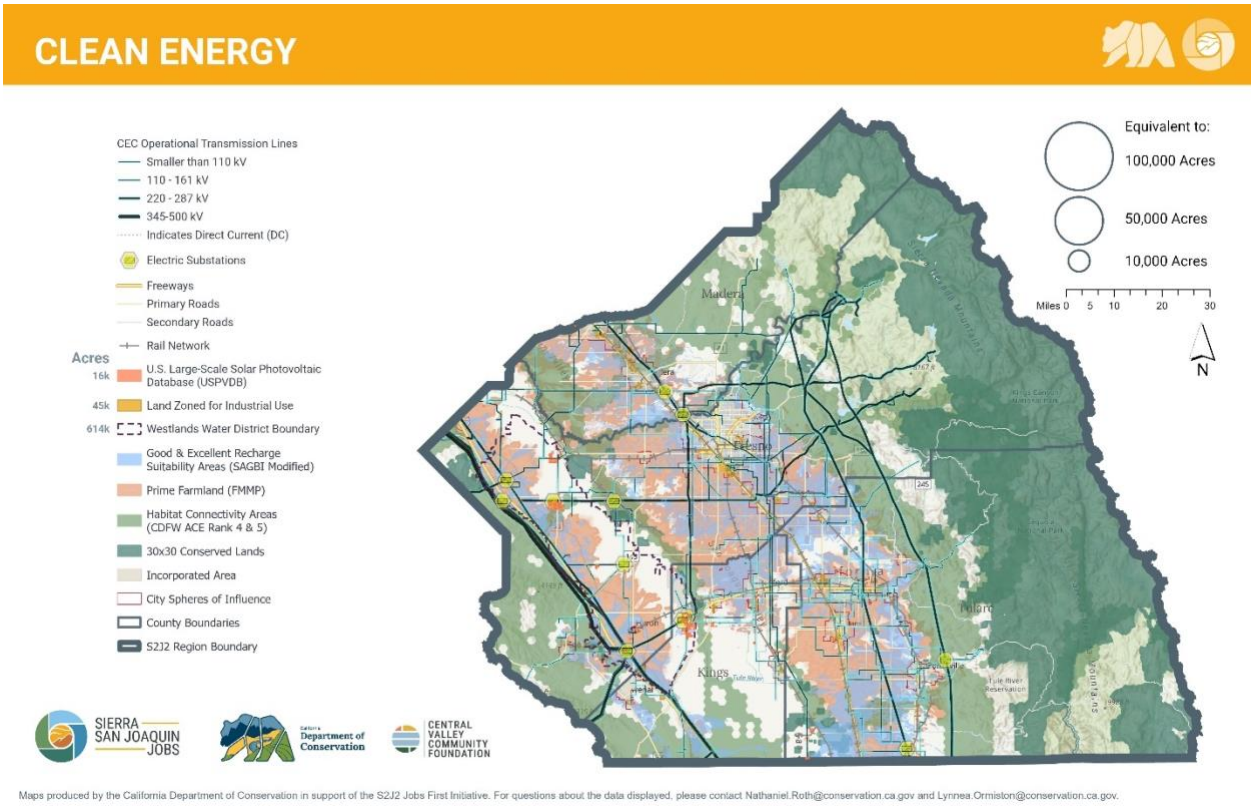
Risks to Water Quality

The natural geology as well as human action have created conditions on large portions of the San Joaquin Valley floor where the availability of safe drinking water is a challenge. Many pollutants both natural and human are present within the groundwater at depths reached by domestic wells. The Drinking Water Quality from the State Water Resources Control Board dataset presents an analysis identifying areas that may have greater or lesser risks of drinking water from domestic wells that may not meet standards. This dataset should not be used as an indication that contaminants are present in any

particular well. Instead, the areas provide a high-level view of areas that may require additional regular testing and likely remediation to ensure a safe water supply.

Data List:

- Ground water quality: Water Quality Risk by Section (All Chemicals) (SWRCB)
    - Domestic Depth Groundwater Quality (Water Quality Risk)

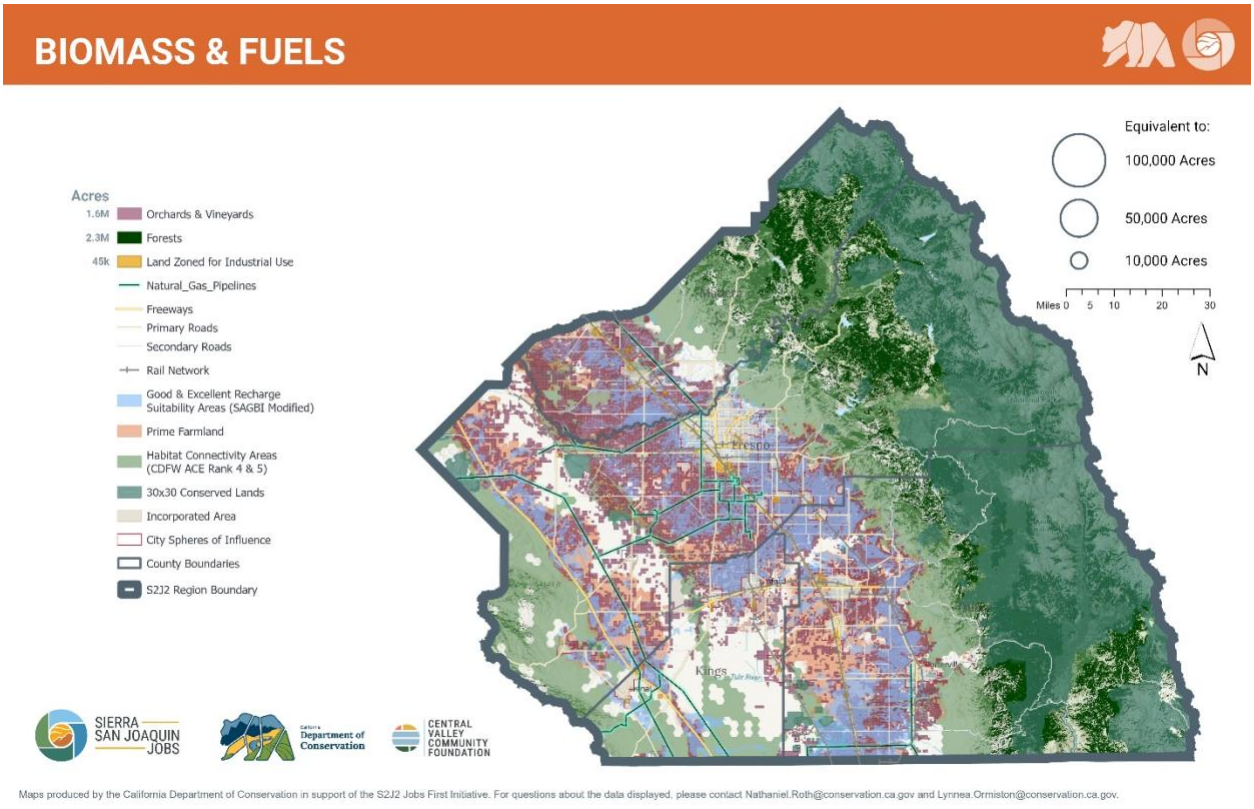


Clean Energy

Solar and wind power generation will play a part in the future of the Sierra San Joaquin Region. Abundant sun and areas of consistent strong winds combined with existing and expandable transmission infrastructure, availability of industrial zoning, and the road and rail infrastructure to support the manufacture, installation, and maintenance are an opportunity for the region. This map includes existing electrical transmission infrastructure (Ca. Energy Commission), substations identified in partnership with the California Energy Commission likely to have capacity for bringing additional power onto the grid on a planning timescale as well as existing large-scale solar installations, industrial zoning, and road and rail infrastructure. These are intended to inform discussions about the location and scale of clean energy industry growth in the region.

Data List:

- CEC transmission lines (Ca. Energy Commission)
    - Link
- Distance to Electrical Substations (CEC)
    - Substations identified as >100kV and >100MW based on the 2039 Busbar analysis performed by the CEC and CPUC.
- Current Solar Facilities (LBNL, USGS)
    - US Large-Scale Solar Photovoltaic Database. https://eerscmap.usgs.gov/uspvdb/viewer/#3/37.25/-96.25
- Industrial Zoning
    - Assembled for this effort using data from all counties and cities in the region by the Ca. Department of Conservation.
- Roads from Open Street Maps
    - https://www.openstreetmap.org/
- Rail: California Rail Network (Caltrans)
    - https://data.ca.gov/dataset/california-rail-network



Biomass and Fuels

In addition to solar and wind, the Sierra San Joaquin region's forests and agriculture generate large volumes of biomass suitable for processing into fuel products such as biogas and hydrogen for transmission by pipeline, rail, or road. These fuels contribute to a

clean energy future for California and the combination of industrial zoning in proximity to large areas of orchards and vineyards with prunings and occasional removal, and a forested landscape that will generate large volumes of biomass from forest management to reduce fire risk and restore the forest habitat while contributing to natural and working land goals for carbon storage.

Data List:

- DWR 2020 Crops
    - As available from https://data.cnra.ca.gov/dataset/statewide-crop-mapping with 2020 selected to match the most recent available FMMP Important Farmland Dataset
- Simplified 2022 landcover derived from LANDFIRE V2.3.0 (Forested only)
    - A regrouped summary of high-level land cover updating the data used in the Natural and Working Lands Climate Smart Strategy (2021). Described in: https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Expanding-Nature-Based-Solutions/Appendix-F_04132022_ada.pdf. The landcover types reflected in this summarized dataset include agricultural, developed land, forest, grassland, open water, shrubland, snow-ice, sparsely vegetated, and wetland.
- Industrial Zoning
    - Assembled for this effort using data from all counties and cities in the region by the Ca. Department of Conservation.
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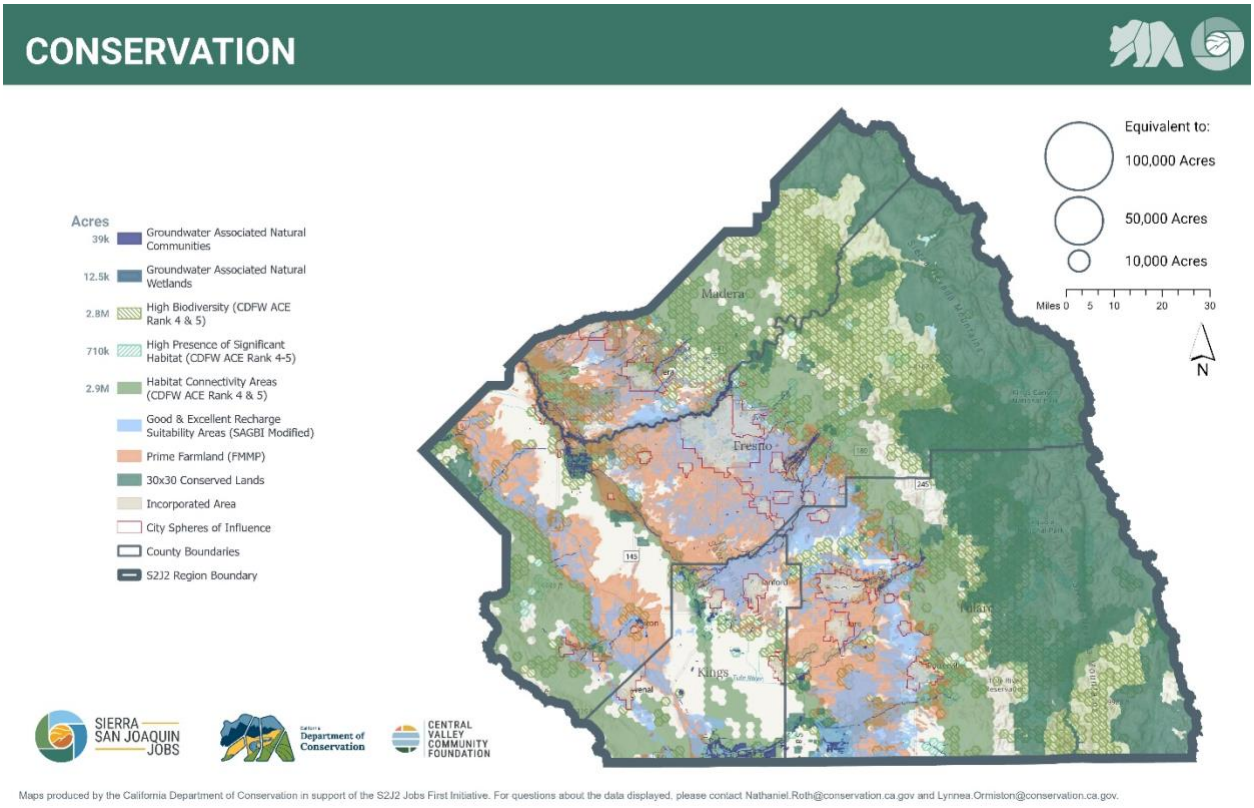

Conservation

Building on the habitat connectivity in the building blocks for the region, the Sierra San Joaquin's incredible natural variety presents an opportunity to conserve and restore lands and protect the state's incredible biodiversity. The region is home to many significant habitats as represented by the terrestrial significant habitat layer from the Areas of Conservation Emphasis dataset developed by the Ca. Department of Fish and Wildlife. Similarly, while heavily impacted by human activities the riparian corridors, upland landscapes, and the ecological gradient leading from the valley floor to the top of Mount Whitney present opportunities for conserving California's biodiversity. Additionally, and dependent on the region's efforts to manage its groundwater for the future, the valley is home to wetlands and natural vegetation communities associated with groundwater. The biodiversity and rich natural and scenic resources already conserved provide an additional economic draw for the region with access to internationally recognized national parks and habitat conservation efforts that can enrich the region.

Data List:

- CDFW Areas of Conservation Emphasis (ACE) Ecoregion Biodiversity Rank
    - This ACE datasets is a generalized and aggregated indicator of the presence or importance of ecoregionally weighted biodiversity using a five class system with class 5 indicating the highest importance and 1 the lowest. Zero

represents an unmapped area.
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150831&inline

- CDFW Areas of Conservation Emphasis (ACE) Significant Terrestrial Habitat Rank
    - This ACE datasets is a generalized and aggregated indicator of the presence or importance of terrestrial significant habitats using a five class system with class 5 indicating the highest importance and 1 the lowest. Zero represents an unmapped area.
      https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150834&inline
- Natural Communities Commonly Associated with Groundwater
    - Including both vegetation and wetlands layers.
      https://data.cnra.ca.gov/dataset/natural-communities-commonly-associated-with-groundwater