SAN JOAQUIN VALLEY PROJECT PRIORITIZATION TOOL

Manual for Conducting Preliminary Evaluations of Land Protection and Stewardship Projects Using Data Basin

AMERICAN FARMLAND TRUST (AFT)

USDA NRCS GRANT NO.: NR199104XXXXG009

SEPTEMBER 2020

ACKNOWLEDGMENTS

AUTHORS: Justin Bodell, Kara Heckert, Samuel Madrigal, Teresa O'Connor

American Farmland Trust wishes to thank the following organizations and individuals for their support of the San Joaquin Valley Project Prioritization Tool:

- USDA Natural Resources Conservation Service for providing funding and support to develop the Project Prioritization Tool through a Conservation Innovation Grant; and
- Conservation Biology Institute: Director James Strittholt, a Senior Conservation Biologist and creator of Data Basin; and GIS analyst Justin Brice who led the technical work and co-authored the manual.

A Research Report of the
HELEN K. CAHILL CENTER FOR
FARMLAND CONSERVATION POLICY INNOVATION

This project was conducted under the auspices of the Helen K. Cahill Center for Farmland Conservation Policy Innovation. The Cahill Center supports the research, policy and conservation work of American Farmland Trust in California. Its namesake, Helen Kennedy "Peggy" Cahill (1916–2013), was a proud fourth generation descendant of California pioneers who in 1849 founded the city of Stockton. A teacher, outdoors enthusiast and philanthropist, Peggy had an abiding interest in the conservation of farmland, especially in the San Joaquin Valley. In her memory, her family has endowed the Cahill Center as a living legacy for future generations who will depend on the land that feeds and sustains us.

COVER IMAGE BY DAMKAZ/ISTOCKPHOTO.COM

CONTENTS

INGA SPENCE/ALAMY

Introduction

PHOTOPOSTER/ISTOCKPHOTO

California's San Joaquin Valley is one of the world's most productive agricultural regions. Encompassing eight counties over more than 27,000 square miles, the San Joaquin Valley produces more than half of California's agricultural output. More than five million acres of irrigated farmland support more than 300 different types of agricultural products.[1] The diverse agricultural output includes grapes, tomatoes, cucumbers, nuts, cotton, and many other fruits and vegetables not grown elsewhere. In 2005, it was home to five of the 10 most agriculturally productive counties in the United States.[2] Recently, agriculture in the San Joaquin Valley generated almost $160 billion in gross domestic product annually.[3]

Despite San Joaquin Valley's great importance to California and the nation's food supply, the region faces great challenges. Water scarcity, climate change, new regulations, and a growing population threaten the future of agriculture in the valley. Over the past three decades, more than one million acres of California farmland have been removed from agriculture. This not only threatens the nation's food security but also the state's 2030 greenhouse gas emission reduction goals to mitigate climate change.

Greenhouse gas emissions from an acre of urban land are 58–70 times higher than from an acre of agricultural land, according to UC Davis and AFT research. California's Department of Conservation estimates the state loses approximately 50,000 acres of farmland every year primarily to urban expansion. This accelerates the loss of the most productive, versatile, and resilient soils, as well as important food crops for the nation. It also limits the ability of the top agricultural region in the United States to mitigate climate change, create a resilient food supply for the nation, and protect the health of vulnerable communities.

New water pressures, particularly from climate change and the 2014 Sustainable Groundwater Management Act, are further pressuring agriculture in the San Joaquin Valley. Several groundwater basins are considered critically over-drafted here and are required to become sustainably managed. With pressures mounting, farmland protection and effective resource management have never been more important.

Let us expend our limited resources wisely: protecting this region's most productive, versatile, and resilient agricultural land while at the same time implementing stewardship practices where most effective. Some land has better soil health, better access to variable water supplies, higher capacity for groundwater recharge, and other traits that help us identify it as among the most productive, versatile, and resilient agricultural land in the

1 Water and the Future of the San Joaquin Valley, Public Policy Institute of California (Feb. 2019), p. 6, available at https://www.ppic.org/wp-content/uploads/water-and-the-future-of-the-san-joaquin-valley-february-2019.pdf.

2 T. Cowan, California's San Joaquin Valley: A Region in Transition, Congressional Research Service (Dec. 12, 2005), page 1.

3 Water and the Future of the San Joaquin Valley, PPIC, p. 6.

region. By prioritizing efforts to protect this highly desirable land, the greatest impact can be achieved with limited resources.

This manual describes how to use Data Basin and the Project Prioritization Tool (PPT) for planners, local agencies, and nonprofits to identify the agricultural land most important to protect in the San Joaquin Valley.

The information in this report builds upon AFT's more than 37 years on the ground working in the San Joaquin Valley. Over the decades, AFT has participated in or led numerous coalitions, studies, and reports, such as the *A Landscape of Choice: Strategies for Improving Patterns of Community Growth,*[4] the San Joaquin Valley Greenprint,[5] *Saving Farmland, Growing Cities,*[6] and most recently the *San Joaquin Land and Water Strategy.*[7] Because of the region's unique productivity and growth pressures, the San Joaquin Valley remains AFT's highest priority area in California.

4 A Landscape of Choice: Strategies for Improving Patterns of Community Growth, The Growth Alternatives Alliance (April 1998), available at http://www.fresnocog.org/wp-content/uploads/publications/Landscape%20of%20Choice.pdf.

5 Thorne, JH, NE Roth, RM Boynton, N Woodard. 2014. The San Joaquin Valley Greenprint State of the Valley Report. Fresno Council of Governments, Fresno, CA, available at https://www.fresnocog.org/wp-content/uploads/publications/Greenprint/SJVGreenprint_FullReport_Web_101714.pdf. See also, San Joaquin Valley Greenprint: Phase II Summary Report (Mar. 31, 2017), avilable at https://www.fresnocog.org/wp-content/uploads/publications/Greenprint/August_2017/Final_Greenprint_Phase_II_Report_2017.pdf.

6 Saving Farmland, Growing Cities: A Framework for Implementing Effective Farmland Conservation Policies in the San Joaquin Valley, American Farmland Trust (Jan. 2013), available at https://s30428.pcdn.co/wp-content/uploads/sites/2/2019/09/FINALSJVREPORTPDF1-14-13.pdf.

7 San Joaquin Land and Water Strategy: Exporing the Intersection of Agricultural Land & Water Resources in California's San Joaquin Valley, American Farmland Trust 7 Conservation Biology Institute (July 2018), available at https://s30428.pcdn.co/wp-content/uploads/sites/2/2019/09/2018_AFT-SJVLW_-web.pdf.

San Joaquin Land and Water Strategy

In 2017, AFT and Conservation Biology Institute assessed the capacity and resilience of agricultural production in the San Joaquin Valley by analyzing the distribution and quality of the region's farmland and water resources while also considering future impacts. Using the San Joaquin Valley Gateway, part of the Data Basin online mapping platform created by CBI, AFT and CBI determined where prime agricultural land and reliable water resources intersect.

JIM WEST/ALAMY

In 2019, this spatial analysis mapping platform was used to identify projects and support a successful funding application for AFT's first agricultural conservation easement pilot projects with groundwater recharge elements. The platform supported regional stakeholders in land use planning and prioritizing agricultural land acquisition projects. It also helped target areas for technical assistance and identify on-the-ground projects (like Flood-MAR).

The San Joaquin Land and Water Strategy uses maps and summarizes data analysis to show how the risk to agricultural land from future development could be significantly reduced by implementing more compact and efficient development patterns.

The Greenprint and the San Joaquin Land and Water Strategy provided the background and supporting structure for the next phase of the project on the Data Basin platform: The Project Prioritization Tool (PPT).

Scope of this Guide and the Project Prioritization Tool

C12/ALAMY

Based on the data analysis of the San Joaquin Land and Water Strategy, AFT and CBI developed the PPT as a conservation decision-making support tool to help increase the adoption of water infiltration practices, improve groundwater recharge, and protect agricultural land in the San Joaquin Valley (SJV).

This manual will demonstrate how SJV stakeholders can use this tool to select and support projects that meet priority criteria and have the greatest potential to effectively infiltrate and conserve water. With this tool, AFT will work with SJV stakeholders to identify and prepare priority agricultural land acquisition and technical assistance projects, while supporting land use planning decision making.

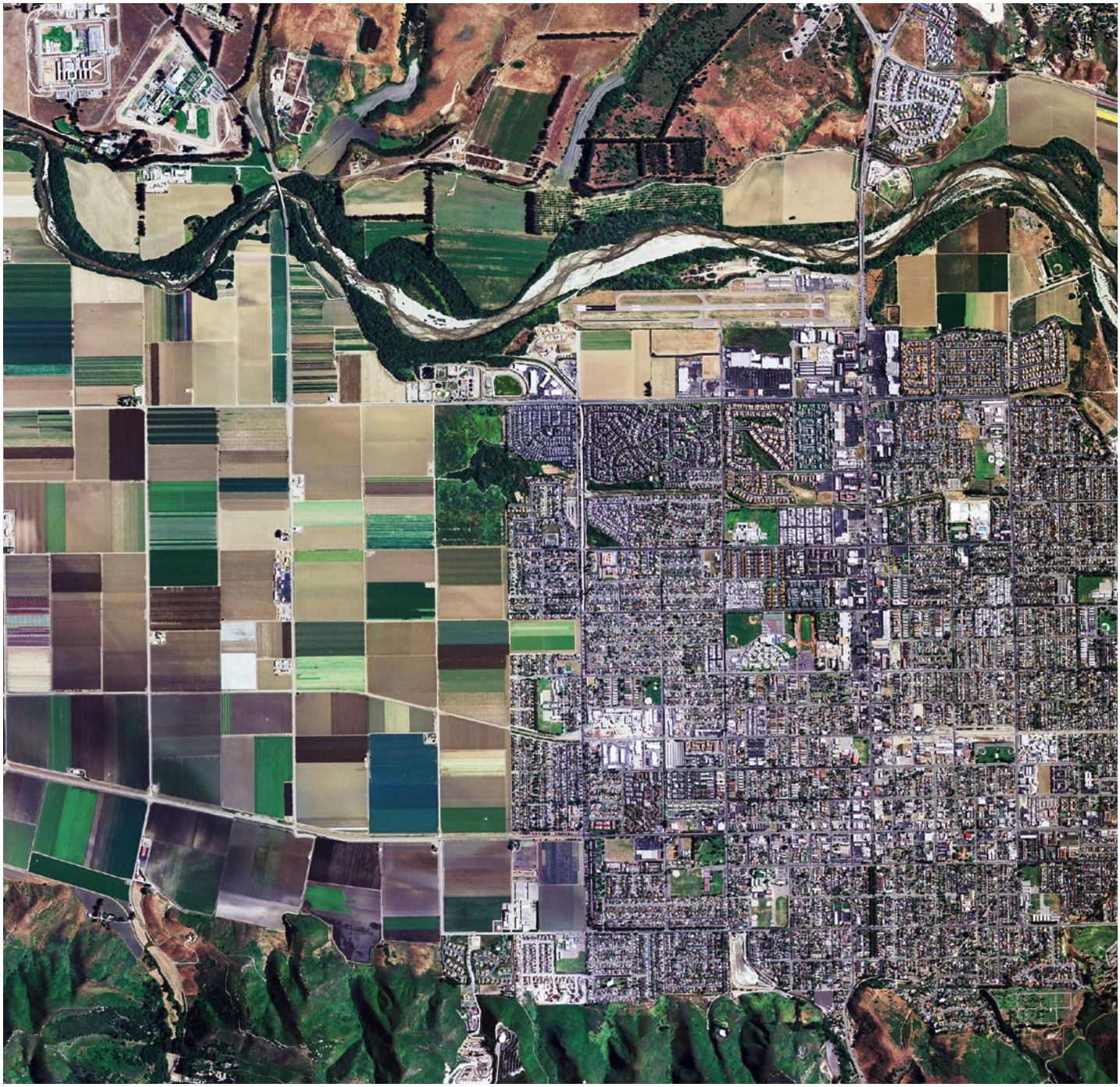
AFT and CBI created the PPT as a tool that consolidates relevant and public information to identify and protect the most productive, resilient, and versatile farmland in California and support land use planning. The interactive and modular mapping platform provides users with a default "start-up map" that has layers dedicated to farmland quality, development threat level, crops, and water resources among other data.

Users can turn map layers on or off to assess the unique characteristics of their focus area and create unique public or private maps for their intended purposes. The tool can be used at a high level to evaluate regional trends or can be zoomed in to see characteristics of an individual parcel of land.

The PPT can be used as a first level of review for farmland protection and stewardship practices, as well as other functions. Because the map layers can be isolated, removed, or used in conjunction with other available layers in the San Joaquin Valley Gateway, the tool could be used for several other types of evaluation. For example, layers created by others to optimize solar energy facility siting, or layers related to wildlife corridors, could be used to evaluate the potential for transitioning to other land uses.

The layers included in the start-up map are the ones we found most useful. However, there are many more layers that can be added to the map, allowing users to create custom maps for their specific purposes. These layers are available in the "Galleries" section.

This manual guides users on how to navigate Data Basin's workspaces, galleries, case studies, and maps. It explains the PPT start-up map and how to use tools within Data Basin that may be helpful for the start-up map. The manual also describes map layers included in the start-up map and identifies other map layers that users may add to the start-up map.



AERIAL ARCHIVES/ALAMY

This manual explains how to use the mapping tool; however, it does not determine how individual users will use the tool or determine the criteria to use for selecting certain projects. The PPT is a decision support tool that can be used to identify and prioritize projects, but it does not take the place of a thorough site analysis, planning, design, and the permitting required to complete a project.

Data Basin Fundamentals

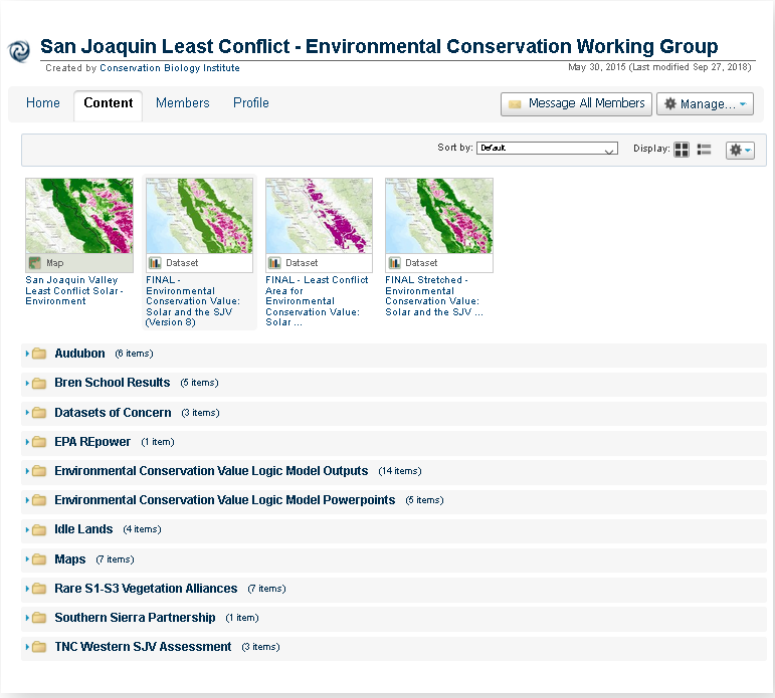
Data Basin is a free online, cloud-based, spatial data library created by CBI with powerful mapping and analysis tools, which allow for collaborative problem solving and support for learning, research, and sustainable environmental stewardship. Datasets can be organized into Groups, Galleries, Maps and further elaborated on in the Guides and Case Studies feature. While it is not necessary to create an account to use Data Basin, many of the tools and functionalities are only available by setting up a free account.

First time users are encouraged to explore the Videos and Webinars to become familiar with the platform.

Groups

One of the helpful features of Data Basin is the ability for users to collaborate in **GROUPS** or **GROUP WORKSPACES**. These can be public groups or users can choose to keep their group (and the data) private. Within these workspaces users can create custom maps to share their work with friends and colleagues to gather feedback, engage with stakeholders using the commenting and drawing tools, and keep the group organized with **FOLDERS** and Galleries.

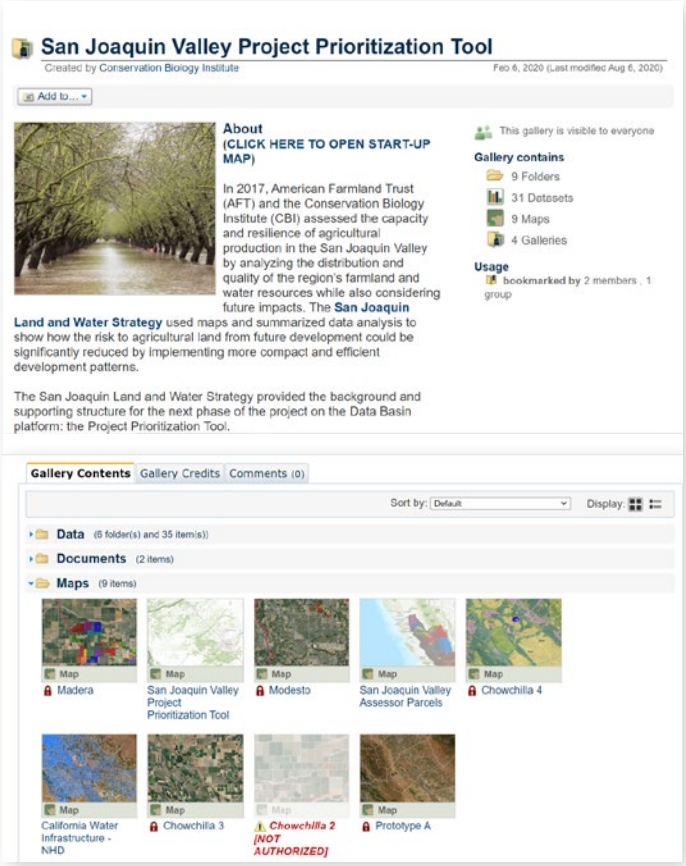
This video provides an overview of Groups: Using Groups. Below are screen captures for creating a Group and example Group.



Galleries

GALLERIES are useful tools for organizing data with the flexibility to create folder structures and include non-spatial data such as excel tables, documents, and pdfs.

This video provides an overview of Galleries: Creating a Gallery. Below is an image of a Gallery content page.



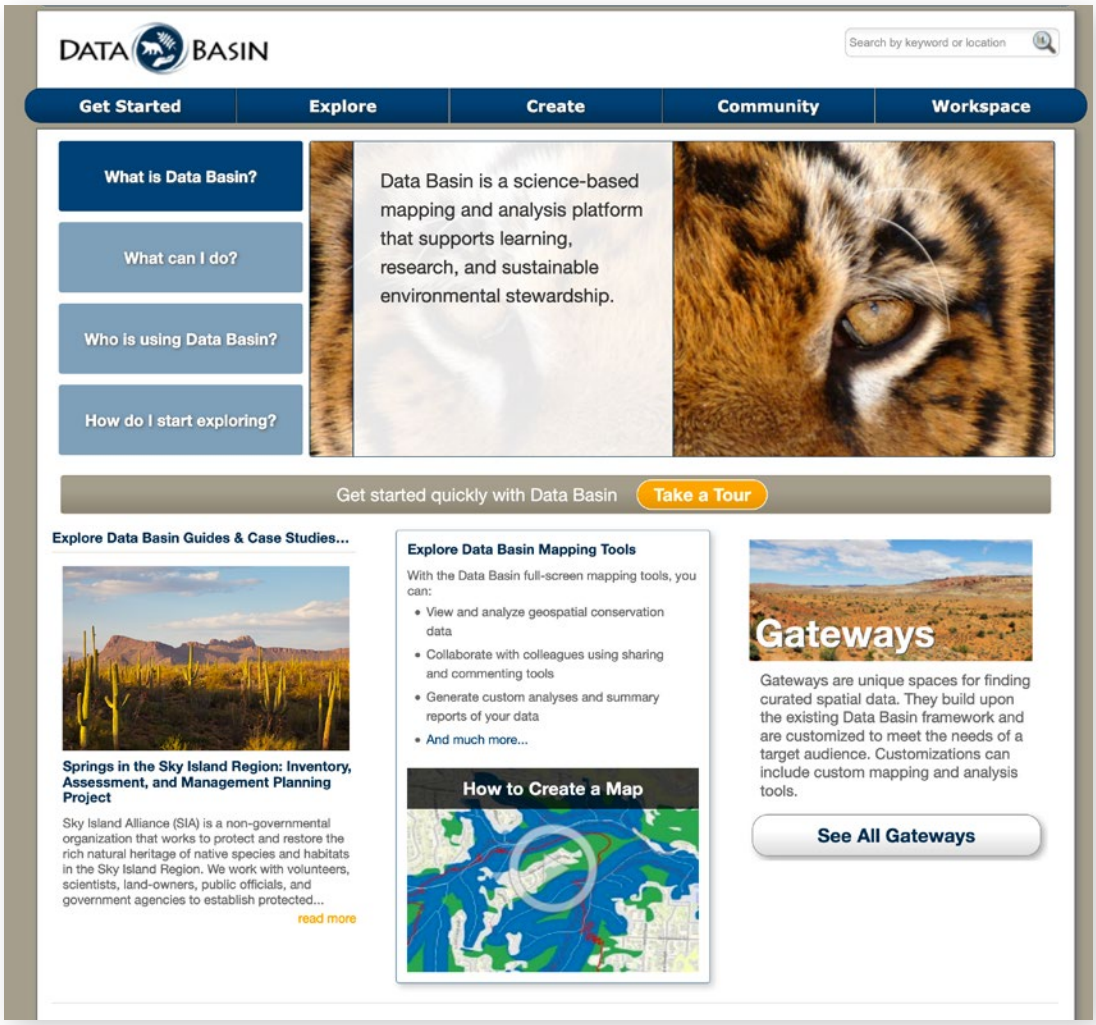
Maps

MAPS are the key feature with Data Basin. Spatial datasets can be added and explored, which allows for collaborative problem solving and flexibility to quickly review and provide feedback in real time. Data Basin has been used to gather feedback in many workshops and stakeholder led projects. Users can create and save maps to their workspaces. Users can save a copy of an existing map and remove/add layers to explore different views of the data.

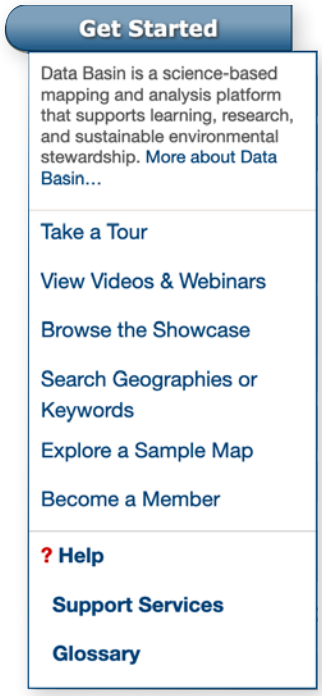
How to Navigate Data Basin

This is the landing page for Data Basin: https://DataBasin.org/

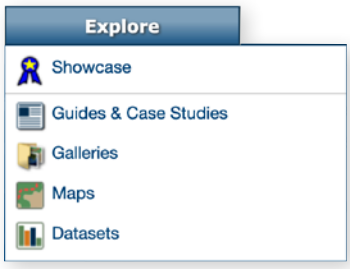
The ribbon at the very top shows the user account with **MESSAGES**, **NOTIFICATIONS**, a **SUPPORT** dropdown, and a **LANGUAGE** dropdown. Beneath that is a **SEARCH BAR** for searching all of Data Basin for specific keywords
or locations.



In the blue bar there are five dropdown tabs.

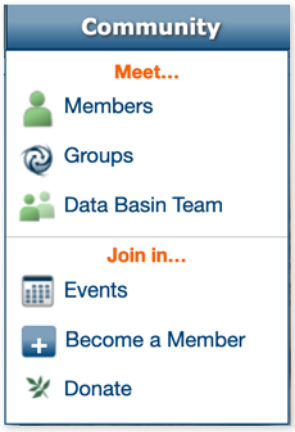


The **GET STARTED** tab provides some useful links to get familiar with Data Basin.

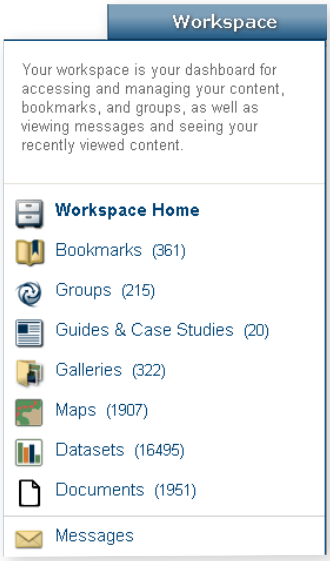


The **EXPLORE** tab offers overviews of Guides and Case Studies, Galleries, Maps, and Datasets.

The **CREATE** tab is for quickly creating a Map, Group, Gallery, and Guide/Case study as well as import data.



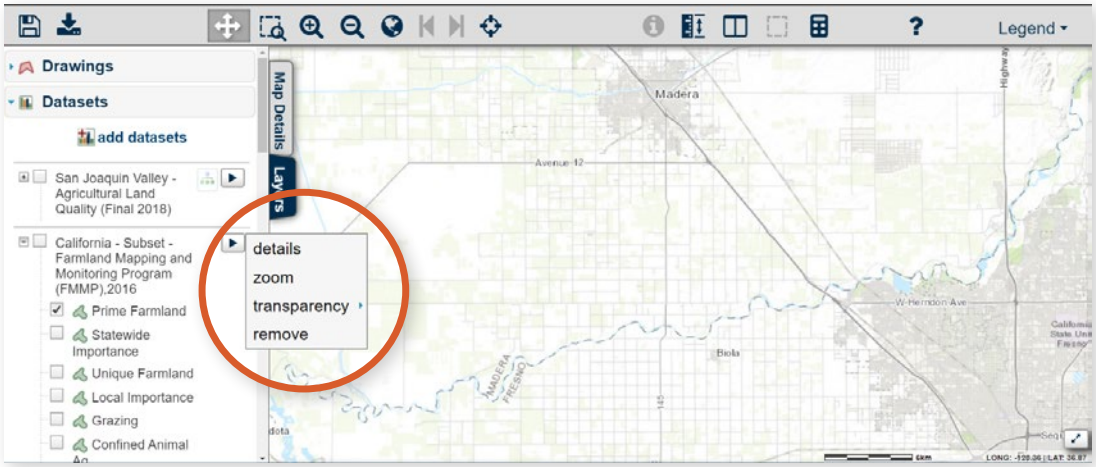
The **COMMUNITY** tab offers links to explore Data Basin members, Groups, and the Data Basin team. It also includes links to events and a donate button.



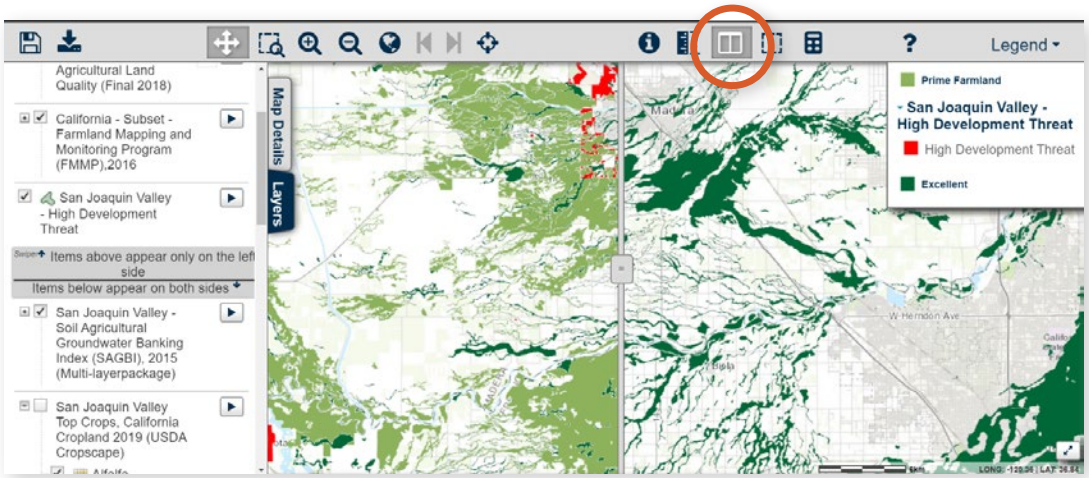
The **WORKSPACE** tab provides quick links to navigate to the Workspace Home, Bookmarks, Groups, Guides and Case Studies, Galleries, Maps, Datasets, Documents, and Messages.

PPT Start-up Map and Useful Tools

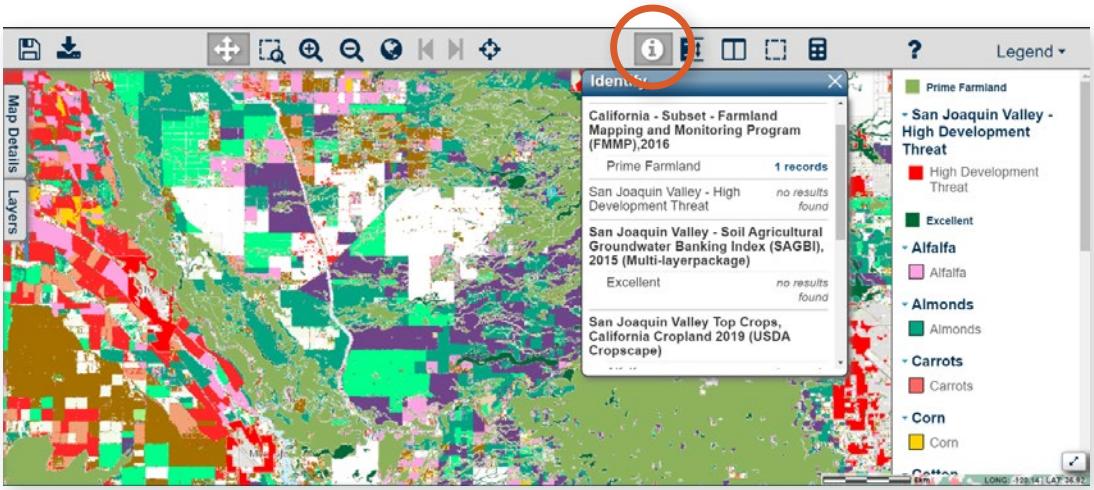
The PPT Startup Map shows a base map of the San Joaquin Valley. To begin applying layers for analyses, click on the "Layers" tab to the left of the screen. From this operation tab, layers can be turned on or off by clicking the selection square to the right of the layer name. Clicking on the arrow to the right of any layer name opens a menu that shows details about a layer such as a brief description, contributors, and a link for the layer homepage. The layer menu also allows users to adjust transparency and style of the layers.



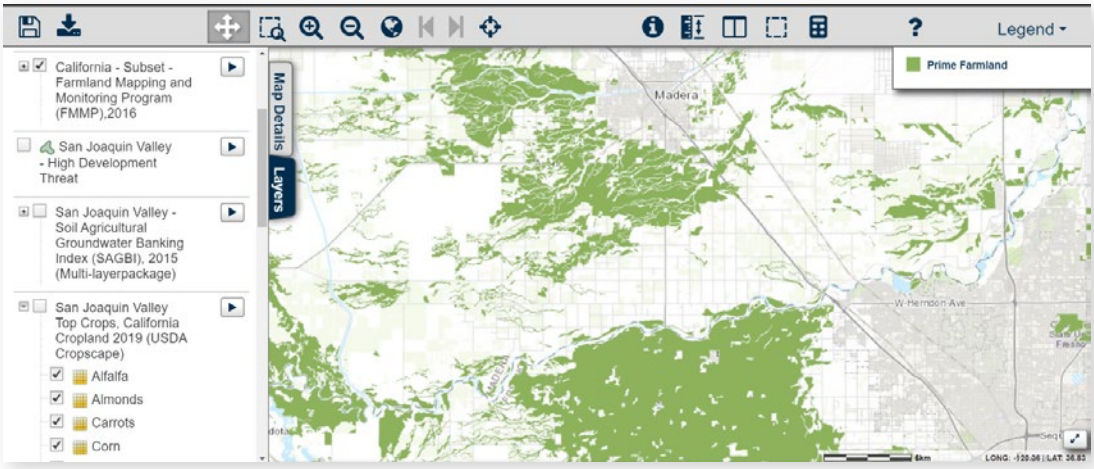
SWIPER TOOL. When analyzing several layers of data, the swiper tool can be helpful by showing underlying layers on one side of the swiper tool and all layers on the other side. Click and drag the vertical swiper bar to the left or right on the map to reveal the underlying layers. The layers shown on either side of the swiper can be changed by moving the "swiper" text up or down in the layers tab, or by moving the layers above or below the "swiper" text in the layers tab.



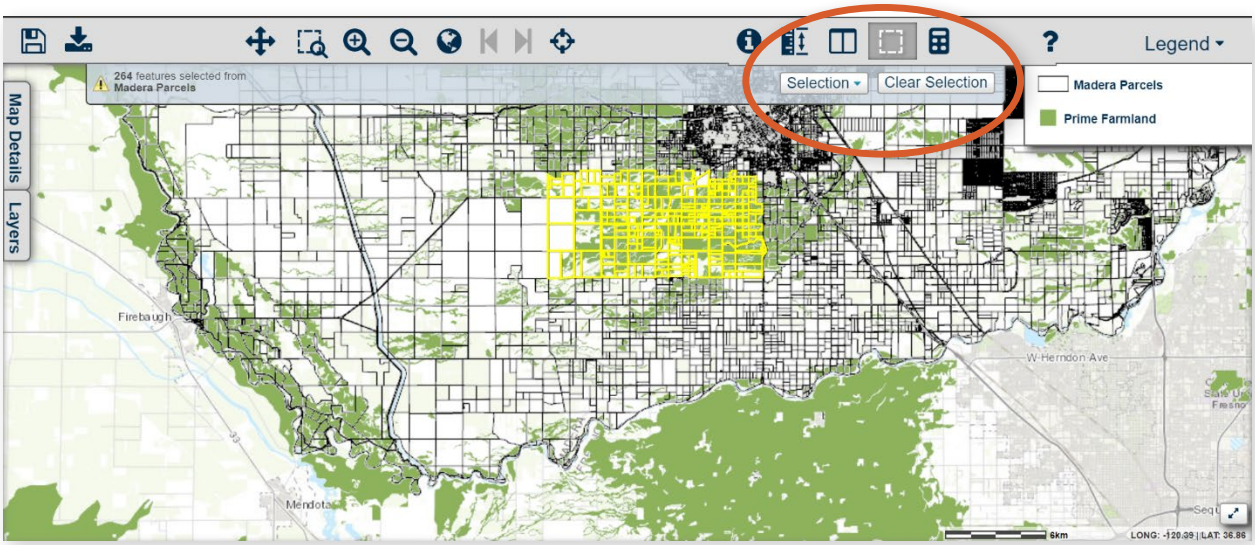
IDENTIFY TOOL. The Identify Tool provides information about all the layers that are turned on at the selected location. Selecting a location with Identify Tool opens a window that provides the data. Clicking on the "records" hyperlink within the window provides further information.



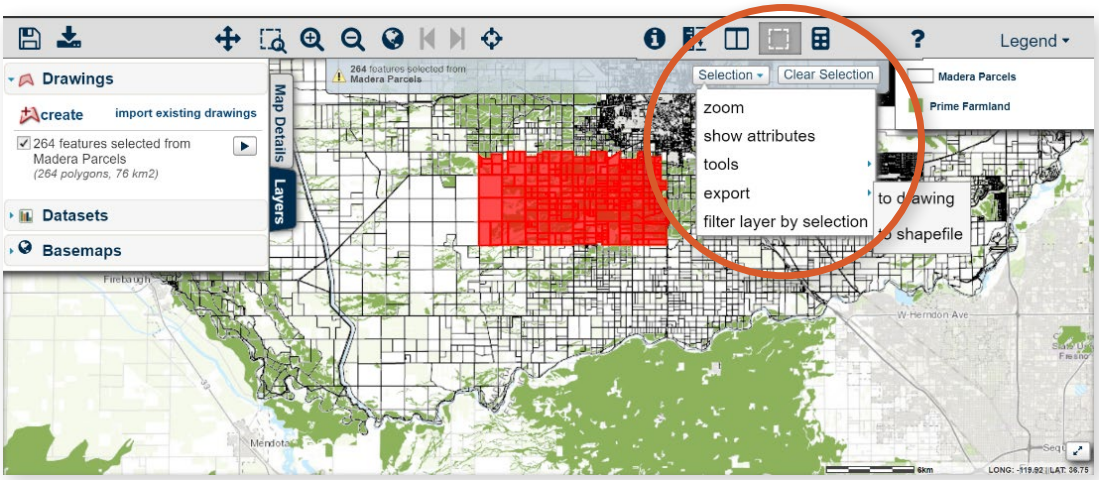
LAYER TRANSPARENCY. The standard transparency of a layer can sometimes block the underlying information. The transparency can be changed by clicking the arrow next to the layer name and selecting "transparency" in the menu that appears.



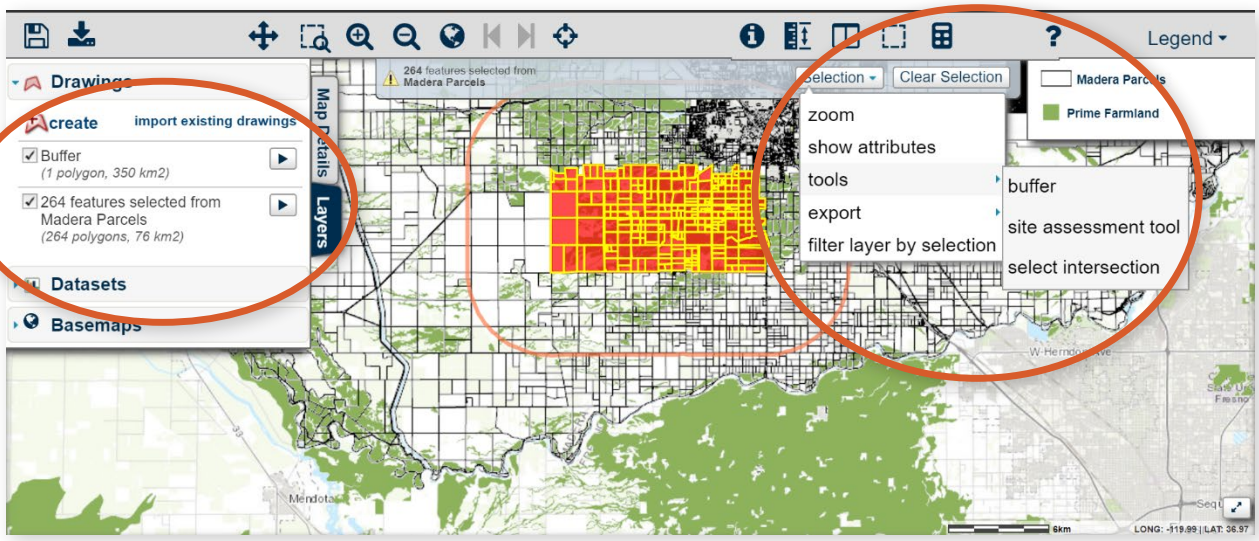
SELECT TOOL. This feature works with the top layer that is turned on. Other layers can be on at the same time, but it will still only select data from the top layer. The location of a layer in relation to other layers can be changed by left-clicking the layer name in the layer tab and dragging it up or down. This enables users to select parcels that meet specific criteria and save them in a map that can be shared with others.



The selected area can also be exported and stored under the **DRAWINGS** drop down bar within the **LAYERS** tab. Non-contiguous selections can be created by pressing the **CTRL** key while selecting to add on to a selection that hasn't been exported to a drawing yet.



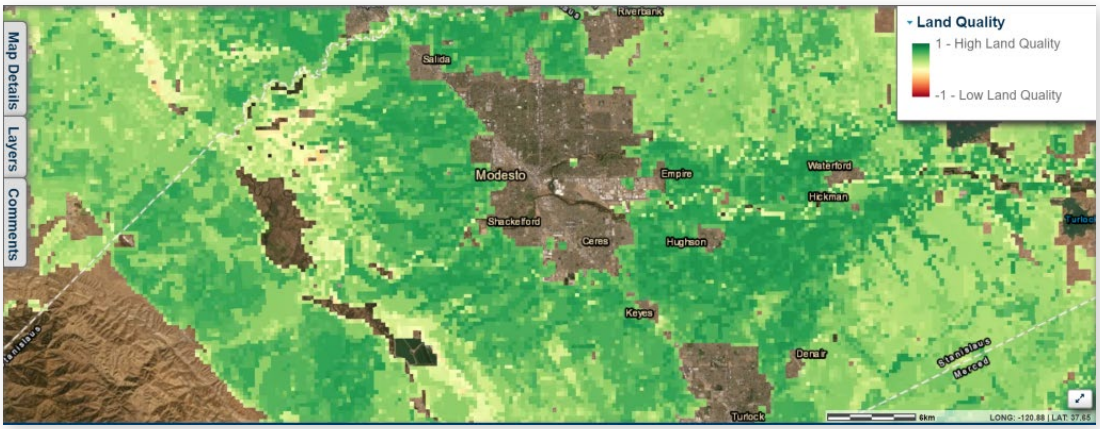
- ***Changing Appearance of Layers.*** The **STYLE** of layers can be changed by clicking the arrow next to the layer name and selecting "style" in the menu that appears. The color of the layer and the color and line type of the "border," or outline of the layer, can be changed to improve the readability of the map. There are several ways that layers can be reformatted.
- ***Buffer Zones.*** **BUFFER ZONES** are a tool that can be used to create focus zones around a geographic region, such as a city. To use this, first create the perimeter of the buffer zone. In our work we used **PARCEL DATA** and the Select Tool to create a perimeter around a given city and generated our buffer zones from that outline. This enabled us to narrow the search to parcels meeting our search criteria within a two-mile radius around a given area.



Map Layers: Using the PPT to Assess Potential Projects

San Joaquin Valley—Agricultural Land Quality

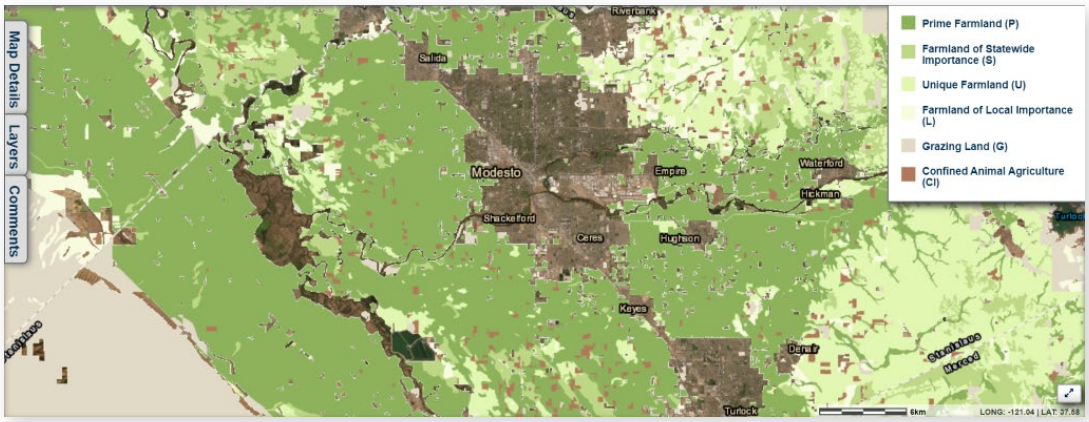
Agricultural Land Quality data is provided by AFT and CBI. The layer was created by incorporating data such as soil sodicity and salinity, Storie Index, groundwater depth, pattern of recent fallowing, and citrus microclimate into one layer that provides an overview of the quality of the agricultural land. This data can be used to assess base-line prioritization levels of a given landscape. Interpretations of data can be used to begin understanding areas of interest for organizations involved in the project prioritization process. The San Joaquin Land and Water Strategy report, located here on AFT's Farmland Information Center contains more detailed information about the data and its uses.



Data provided by: Dustin Pearce, CBI

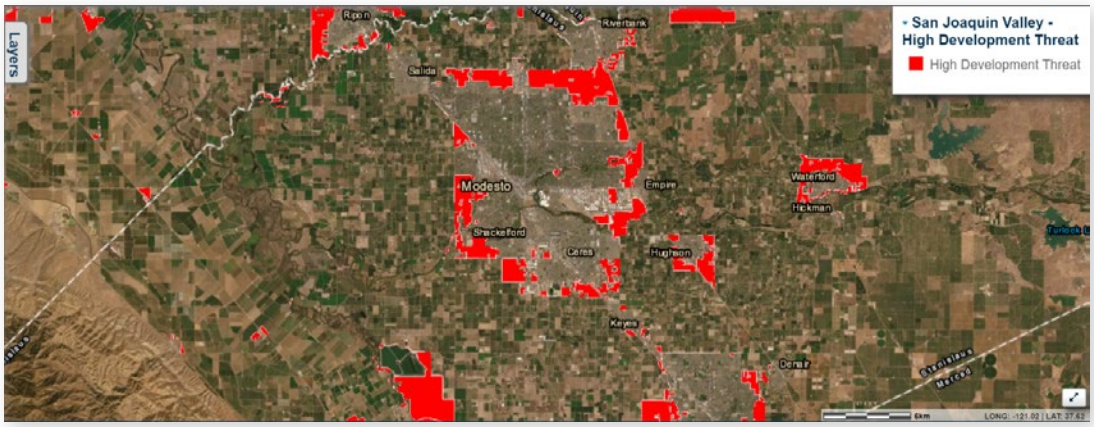
FMMP—California subset

Similar to the Agricultural Land Quality Layer, the FMMP layer can be used to identify high-quality farmland, in addition to other land uses such as urban, grazing, etc.



Data provided by: California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program

High Development Threat Level



Because the threat of low-density development on our most valuable farmland is so high, it is critical to understand the areas in the valley that are most threatened. This layer was created by combining city limits, spheres of influence, and general plan designation of land for development. By protecting farmland that is close to our towns and cities, we encourage higher-density development while safeguarding our groundwater recharge and agricultural production areas.

Data provided by: Dustin Pearce, CBI

Sustainable Agricultural Groundwater Banking Index

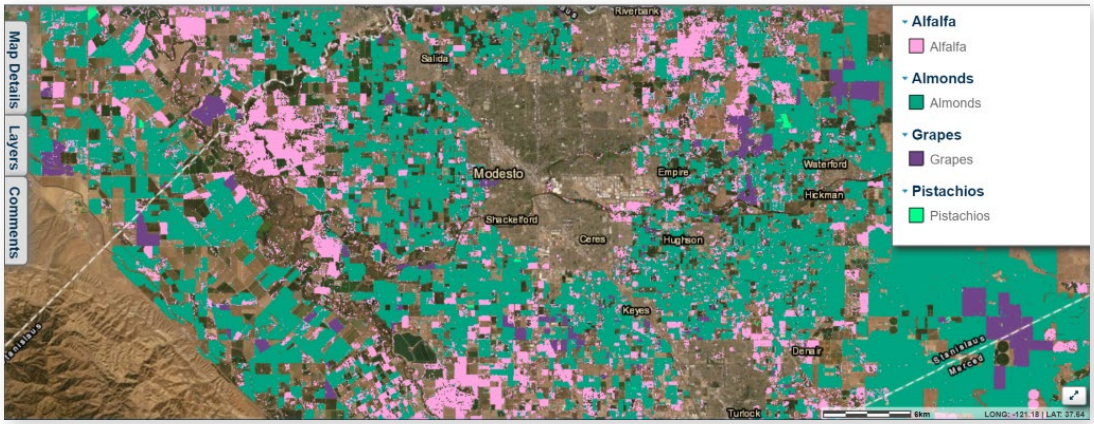
SAGBI data can be used as a preliminary assessment of the recharge potential of a focus area. It cannot take the place of detailed site analyses, including geotechnical and hydrogeological studies, required to fully plan and implement groundwater recharge projects. However, this data can be very useful in quickly identifying focus areas that have high potential for groundwater recharge.

"The Soil Agricultural Groundwater Banking Index (SAGBI) is a suitability index for groundwater recharge on agricultural land. The SAGBI is based on five major factors that are critical to successful agricultural groundwater banking: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition. More details can be found in the SAGBI article in California Agriculture."

Data provided by: A.T. O'Geen, UC Cooperative Extension Matthew B.B. Saal, UC Davis Helen E. Dahlke, UC Davis David A. Doll, UC Cooperative Extension Rachel B. Elkins, UC Cooperative Extension Allan Fulton, UC

California Cropland

California cropland data is provided to understand the patterns of crops being grown in a given focus area and can be useful in identifying areas with potential for FloodMAR, or Flood Managed Aquifer Recharge, which is the practice of diverting flood flows during wet winters into agricultural fields to recharge groundwater supplies. While the final assessment of suitability of certain crops for FloodMAR is still being conducted, preliminary analysis and anecdotal information suggest that vineyards, orchards, and alfalfa may be suitable for these groundwater recharge practices. The layer in the PPT start-up map includes the top 10 crops grown in the San Joaquin Valley and allows users to isolate individual crops on a map, allowing for a quick assessment of the location of these crops in a focus area. Other crop data is available in the galleries.



Data provided by: United States Department of Agriculture (USDA), National Agricultural Statistics Service (NASS), Research and Development Division (RDD), Geospatial Information Branch (GIB), Spatial Analysis Research Section (SARS)

Corcoran Clay—Extent, Depth and Thickness

Corcoran Clay dataset shows the extent depth and thickness of the clay layer in the valley floor. This information in conjunction with other identifiable factors, such as crop usage, can help to confirm whether FloodMAR, or other groundwater recharge practices might be effective. Additionally, the depth and thickness of clay layer can also help to clarify to what degree crop and field flooding may take place and give a clearer idea of how much groundwater may be recharged in a given geography of the central valley floor.

Data provided by: USGS

Streams and Rivers

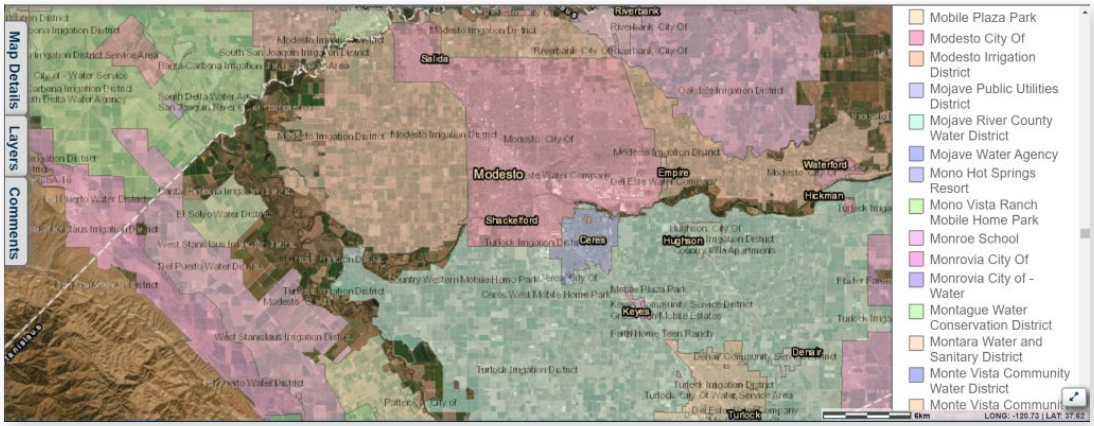
"The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system." The California dataset can be useful when determining the recharge potential of a given area when considering the proximity of land to waterways that may generally have greater flow during years with more rain or snow cap melt. It may be ideal to prioritize these pieces of land due to the ease of pumping water from surface waterways onto fields in closest proximity to them. This information may also be used to identify potential locations for passive recharge projects, such as floodplain restoration.

Data provided by: U.S. Geological Survey, et. al.

California Water Districts

Water district data can be valuable in understanding the water availability in an area. Many water districts provide surface water for farming, although not all. The districts that provide surface water may also have the right to use flood flows for recharge and may be implementing recharge projects to implement Groundwater Sustainability Plans. Areas that are located outside water districts with surface water rights, or "white areas," and areas that are reliant entirely on groundwater will likely face restrictions on groundwater pumping in the near future. Some of these areas also are designated as Prime Farmland. One of the challenges in implementing SGMA is ensuring that the most productive farmland stays in production, while mitigating the adverse environmental, economic, and social consequences.

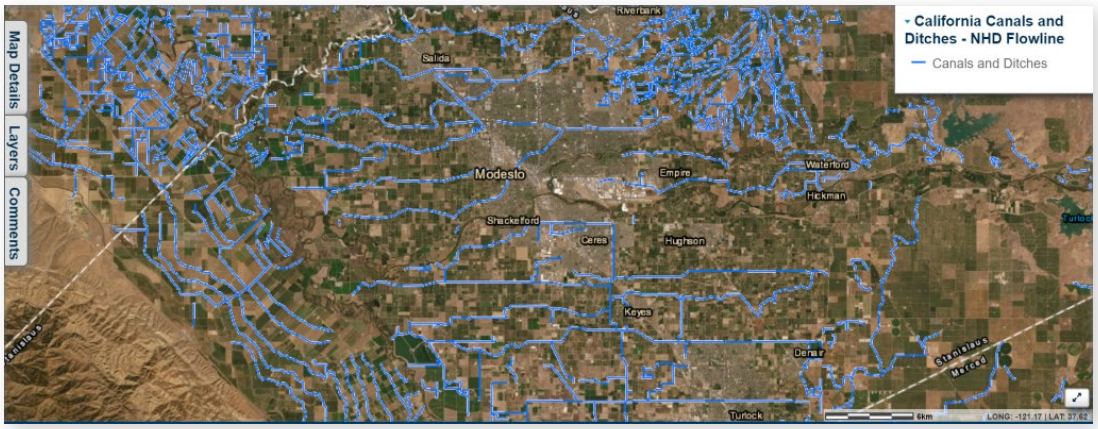
This dataset represents polygon boundaries of all public water agencies in California including public water systems, agricultural water districts, urban water districts, federal and state water contractors, wholesalers, retailers, and other public or private utilities that deliver water to the end user.



Data provided by: IRWM/ Siran Erysian

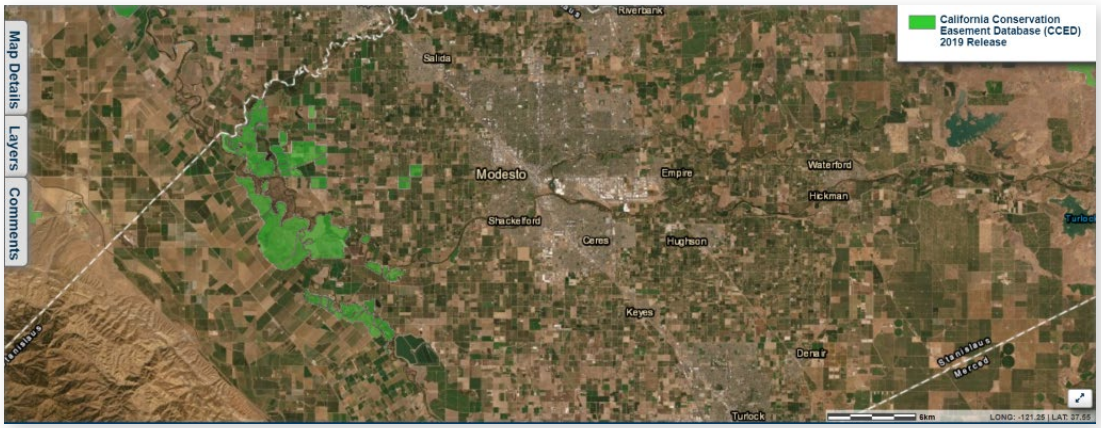
California Canals and Ditches

Like the previous description of the water district layer, information about the location of canals and ditches can provide information about water availability. This data can be used to preliminarily assess the potential for FloodMAR practices. Areas with existing surface water infrastructure like canals and ditches will be more likely candidates for recharging groundwater with flood flows in wet years.



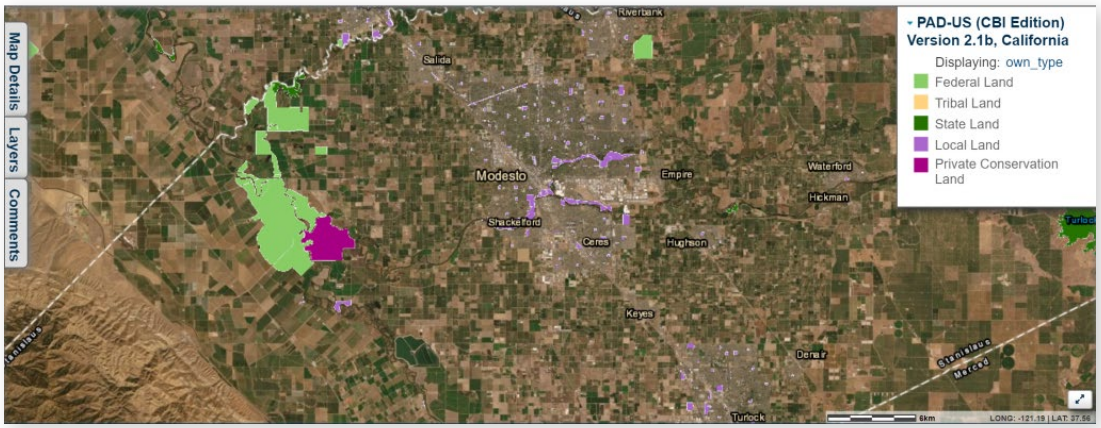
Data provided by: USGS

California Conservation Easement Database



Protected Area Database

Two datasets in the start-up map, the California Conservation Easement Database (CCED) and the Protected Area Data (PAD), provide information about protected areas that are owned in fee, or have conservation easements that protect the areas from development. Information about protected areas can be useful in determining the efficacy of protecting areas from development. For example, a potential agricultural conservation easement on the edge of



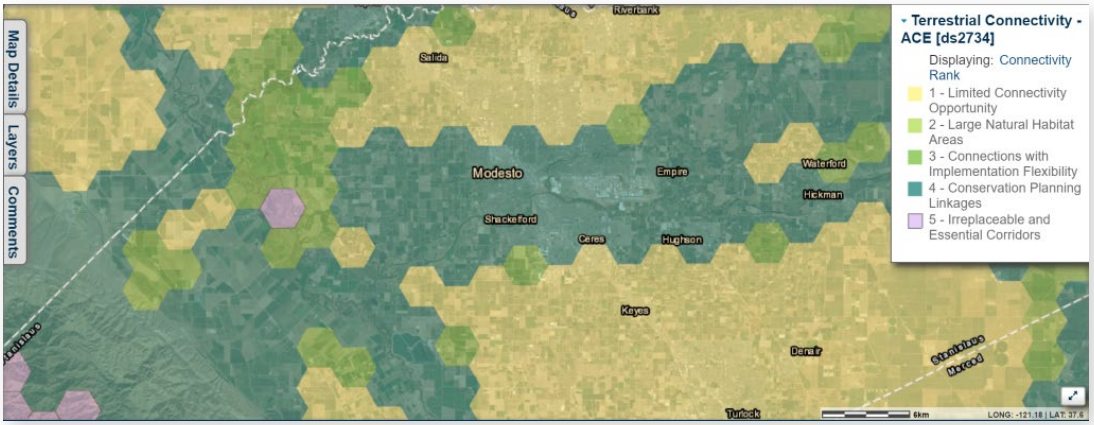
a city will be more effective as a barrier to low-density growth if it is adjacent to other farms protected by conservation easements, creating a greenbelt. Similarly, the effectiveness of a conservation easement that protects native species habitat will be increased if it is located near another area protected area.

The California Protected Areas Database (CPAD) contains data on lands owned in fee by governments, non-profits, and some private entities that are protected for open space purposes. Data includes all such areas in California, from small urban parks to large national parks and forests, mostly aligned to assessor parcel boundaries

The California Conservation Easement Database (CCED) contains data about conservation easement lands. Lands are under easement with governments, non-profits, and private entities. Easement types include conservation, agricultural, forest, and homeowner association protected areas. Utility, right-of-way, and other maintenance easements are not included. Data includes all known easements in California. Easements are typically defined by the entire parcel, though easements typically only cover a portion of the parcel. Data is known to be incomplete and include errors. Data has been compiled from existing datasets and thus accuracy varies greatly between areas.

PAD and CCED data provided by: GreenInfo Network,GreenInfo Network

Terrestrial Connectivity

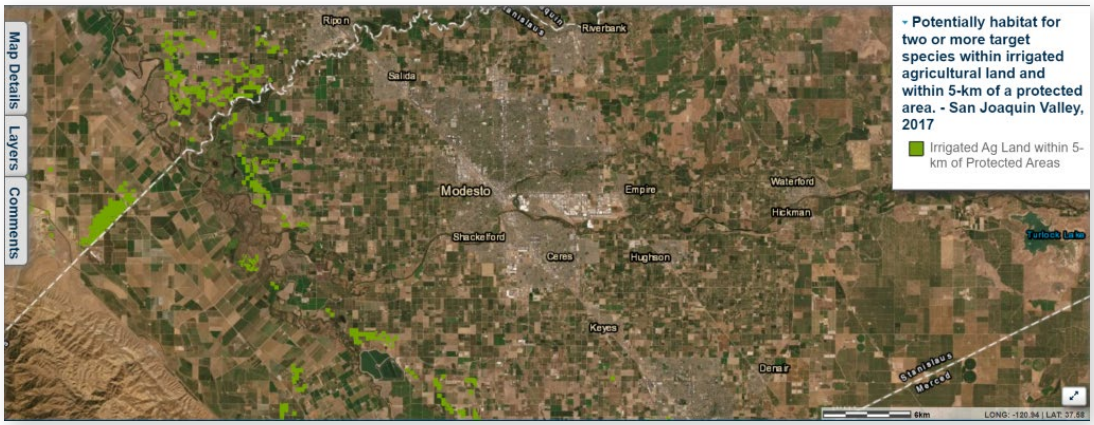


Terrestrial connectivity data can be useful, in conjunction with the protected area data, to identify areas that have high terrestrial connectivity and may be important to protect for the native species habitat value. As Groundwater Sustainability Plans are implemented, some irrigated areas may be converted to natural habitat, or may incorporate native habitat or wildlife-friendly farming practices. This layer can assist in the preliminary assessment of that potential.

The California Department of Fish and Wildlife (CDFW) Areas of Conservation Emphasis (ACE) is a compilation and analysis of the best-available statewide spatial information in California on biodiversity, rarity and endemism, harvested species, significant habitats, connectivity and wildlife movement, climate vulnerability, climate refugia, and other relevant data (e.g., other conservation priorities such as those identified in the State Wildlife Action Plan (SWAP), stressors, land ownership). ACE addresses both terrestrial and aquatic data.

Data provided by: California Department of Fish and Wildlife

TNC: "Potentially suitable habitat for two or more target species within irrigated agricultural land and within 5-km of a protected area"

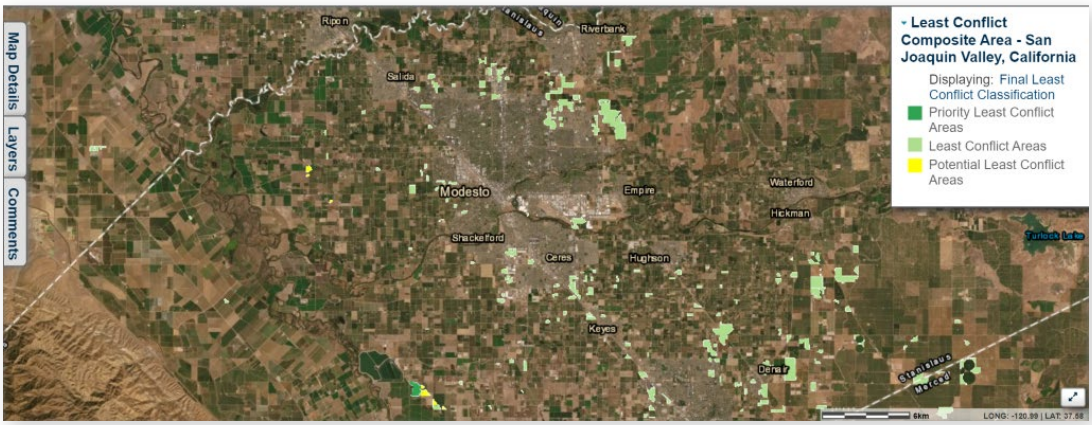


The Nature Conservancy report, *Identification of Potentially Suitable Habitat for Strategic Land Retirement and Restoration in the San Joaquin Desert*, released in December 2017 provides an opportunity assessment for protecting lands suitable for habitat restoration that may be taken out of production due to the SGMA. Included in the PPT basemap is one of the maps created by TNC for that report: "Potentially suitable habitat for two or more target species within irrigated agricultural land and within 5-km of a protected area." This layer, which incorporates data from the CCED and PAD, can be used to preliminarily assess the potential for suitability as habitat. This preliminary assessment cannot take the place of the full site analysis required to plan and implement a habitat project.

Data created by The Nature Conservancy. Butterfield, H.S., R. Kelsey, A. Hart, T. Biswas, M. Kramer, D. Cameron, L. Crane, and E. Brand. 2017. Identification of potentially suitable habitat for strategic land retirement and restoration in the San Joaquin Desert. Unpublished report. The Nature Conservancy, San Francisco, California. 25 pages.

Least Conflict Composite Solar Development

Another project associated with the San Joaquin Valley Greenprint, the Least Conflict Solar Development Layer, is the result of a collaboration among stakeholders in the solar, farming, ranching, and environmental communities to identify areas in the San Joaquin Valley that represent areas of least conflict for their respective interests. This data can be used to provide a preliminary assessment of the potential suitability of a focus area for solar energy development. Other data in the Galleries can be used to further this analysis. This data does not take the place of a full site assessment that would be required to pursue such a project.



This map shows composite least conflict areas (areas of least conflict agreement for both the agricultural farmland and the environmental conservation stakeholders) within the solar stakeholder boundary.

Data provided by: Conservation Biology Institute

Additional Data

San Joaquin Valley, California, County General Plans and Zoning. Data layers from this gallery contain city and county level land use plans throughout the San Joaquin Valley. Data can be useful for interpreting when land or parcels may be subject to urban development and expansion, which can then better prepare groups for engaging with stakeholders around procurement of land for easement and other preservation programs.

California Cropland 2019 (USDA Cropscape). This layer is a full cropscape of California. Data can be used to further understand the relationship between land and water use, as well as the potential for groundwater recharge in conjunction with SGMA policies that may require the use of flooding.

SSURGO Percent Soil Clay for California, USA, SSURGO Percent Soil Silt for California, USA, SSURGO Percent Soil Sand for California, USA, SSURGO Percent Soil Organic Matter for California, USA. This layer set contains data on the soil composition for California soils. Information from these layers can be useful in interpreting the potential for groundwater recharge by better enabling agencies to understand the potential for groundwater recharge via composition and infiltration/holding capacities of water.

Parcel Data. These datasets are useful for outlining and identifying specific parcels for easement.

Data provided by: CBI

Further Guidance for Users

We are here to help!

The Data Basin team is available to answer questions and provide member support. CBI also offers a range of consulting services for individuals, groups, and organizations who wish to take full advantage of Data Basin's mapping, analytical, and collaboration tools. For assistance specifically related to the San Joaquin Valley Gateway, the startup map, or any of the layers included in this manual, please contact American Farmland Trust's California Regional Office.

For More Information

- **farmland.org/California**
- **AFT Sacramento office:** 916-448-1064
- **farmland.org/project/san-joaquin-land-and-water-strategy/**

American Farmland Trust

American Farmland Trust
SAVING THE LAND THAT SUSTAINS US

American Farmland Trust (AFT) is the largest national organization dedicated to saving the land that sustains us by protecting farmland, promoting sound farming practices and keeping farmers on the land. AFT unites farmers and environmentalists in developing practical solutions that protect farmland and the environment. We work from "kitchen tables to Congress"—tailoring solutions that are effective for farmers and communities and can be magnified to have greater impact. Since our founding, AFT has helped to protect more than six and a half million acres of farmland and led the way for the adoption of conservation practices on millions more.

Conservation Biology Institute

CONSERVATION BIOLOGY INSTITUTE

Conservation Biology Institute (CBI) has been a valued partner to AFT in the San Joaquin Valley. Their expertise in research, mapping, and data analysis, and their experience working on conservation projects in the San Joaquin Valley, have been invaluable in identifying conservation needs facilitating solutions. CBI collaborates with a wide diversity of partners and uses a range of tools—both social and technical—to support wise planning, policy, and management for biodiversity, ecosystems, climate, energy, and water resources.

ANTHONY DUNN/ALAMY

American Farmland Trust
SAVING THE LAND THAT SUSTAINS US