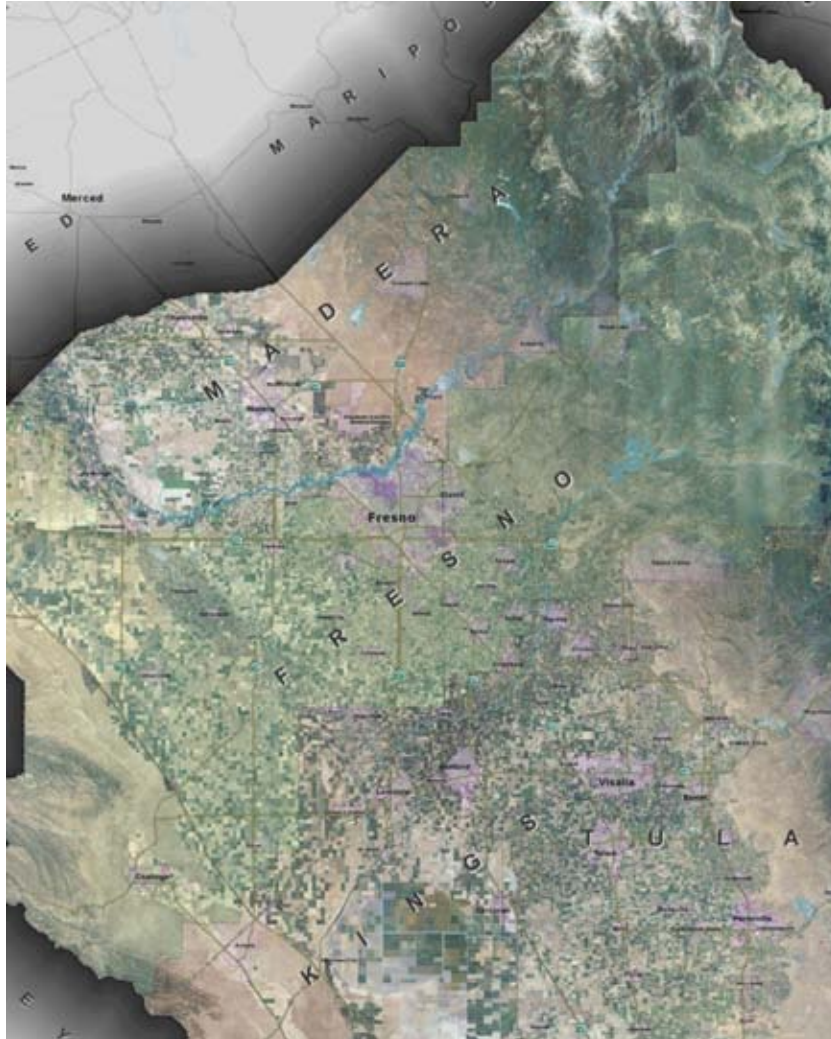


**TreeTOPS: A Regional Urban Forest Initiative**  
Regional Opportunities for Trees, Trails, and Open Space in  
Madera, Fresno, Kings, and Tulare Counties  
Central Valley, California

**May 17, 2010**



**This plan made possible by:**  
California Department of Forestry and Fire Protection  
Urban Forestry Innovative Grant #8CA07818  
and  
San Joaquin River Parkway and Conservation Trust

## **TreeTOPS: A Regional Urban Forest Initiative**

Regional Opportunities for Trees, Trails, and Open Space in  
Madera, Fresno, Kings, and Tulare Counties  
Central Valley, California

### **TreeTOPS Leadership Team:**

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Prepared by AECOM

San Francisco

May 2010



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# Introduction

In November 2009, the first phase of planning for Madera, Fresno, Kings, and Tulare Counties began under the TreeTOPS grant from the California Department of Forestry and Fire Protection (CAL FIRE), administered through the San Joaquin River Parkway and Conservation Trust (Trust). This summary report provides a narrative and graphic overview of the planning work and results. The work took place from November 2009 through January 2010 with a stakeholder workshop on November 19, 2009, in Fresno, California, and a presentation of the TreeTOPS opportunities on January 29, 2010, in Kingsburg, California.

This work is the first step in a longer term regional planning effort that will require additional data collection, a strong leadership and management team, and continued consensus building among the region's community members and many planning entities. Additional information compiled for this project, including the grant agreement, is on file at the Trust's office in Fresno.

The primary purposes of the first phase of the grant are to:

- map key resources (four-county scale) for a regional approach;
- prioritize zoning and conservation efforts to advance the TreeTOPS concept;
- identify priority areas of overlapping importance for next-phase projects;
- develop a common "greenprint" language within the four-county region;
- develop a geographically based opportunities map for trees, trails, and open space; and
- define data needs and next steps for future planning and implementation.

The original proposal for TreeTOPS (Trees, Trails, and Open Space) was developed by Fresno community member Lee Ayres with assistance from Trust staff. The proposal called for a regional planning process that would look beyond the four counties' political boundaries to envision how trees, trails, and open space could help define the region in the future. The goal is to ensure that future planning for the region incorporates these urban forestry elements to create a healthier and more economically and ecologically sustainable region. This is based on the premise that trees, trails, and open space areas provide important values and strong connections between people, land, and water in this portion of the Central Valley.

The Visioning Session, held on November 19, 2009, featured Mayor Ashley Swearengin, co-founder of the TreeTOPS initiative when she was leading the Regional Jobs Initiative, and Dr. Desiree Backman of the Sacramental Tree Foundation, who made a presentation on the health benefits of trees. In stakeholder discussion groups, the 55 participants expressed an interest in the following key themes:

- |   |                             |
|---|-----------------------------|
| • Regional and local trails               | • Habitat protection        |
| • Parklands as focal areas for recreation | • Future growth patterns    |
| • Healthy communities                     | • Linkages and connectors   |
| • Conservation lands                      | • Cultural focal areas      |
|   | • Education and stewardship |

After the stakeholder workshop the initial geographic information system (GIS) mapping for the four-county project area was created and embellished. It was then used to develop the key concepts and ideas that form the plan for TreeTOPS. A summary of the planning process and outcome was presented on January 29, 2010, as described below.

## TreeTOPS Vision Statement

***Special places in the four counties are preserved and celebrated through the creation of a regional system of interconnected parks, trails, and linear forests, agricultural lands, and natural areas that provide healthy recreational, educational, cultural, and scenic experiences.***

# TreeTOPS Guiding Principles

Purpose & benefits of TreeTOPS, a regional urban forest, trails, and open space preservation initiative

## Themes

- Special places are preserved, connected, and celebrated
- Compliment the Blueprint Plan and the “Greenprint” for the region
- Implemented incrementally through projects, programs, and General Plan updates
- Engage a wide spectrum of citizens
- A vision that illuminates many benefits: ecological, health, economic, and social
- Resource and recreation lands are woven together by trails and trees
- Productive landscapes are protected
- Travel ways are green

## Urban Forest

- Linear Forest – to delineate corridors<sup>1</sup> and the boundaries of urban areas. Width, design, and vegetation appropriate to the location, mitigation challenge, and aesthetics.
- Tree canopy – for bike lanes, sidewalks, parking lots, and trails
- Air quality law – provide carbon sequestration and foster active transit to implement state legislation, AB32 and SB375
- Health and Safety – the calming effect and healing benefits of trees
- Shade – for energy conservation, places to play and explore, and wildlife habitat

## Trails

- Regional trail system – a signature amenity to connect our cities and environmentally significant resources<sup>2</sup>
- Active transit – help achieve health and air quality objectives
- Walkable neighborhoods – add value, recreation, convenience, and community building
- Economic impact – attract and retain knowledge workers, reduce the cost of living, and geotourism: draw visitors to our rivers, conservation trust lands, national parks, and national forests with the San Joaquin River Trail, the Golden State Trail, and the Sierra to the Sea Trail
- Foster outdoor activity - to improve fitness, mental health, cardio health, and child development.

## Open Space Preservation

- Foster outdoor activity; provide safe places to play
- Ground water recharge
- Air quality, habitat, and recreation benefits of vegetated landscapes
- Mental health, eye health, visual relief, and aesthetics
- Respect working farms and ranches
- Separate urban areas to contain sprawl and enhance community i

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<sup>1</sup> Freeways, irrigation canals, rivers, railroads

<sup>2</sup> Sierra Mountain Range, Coastal Range, Pacific Ocean, national parks, national forests, lakes, and rivers



# TreeTOPS Opportunities Development

The TreeTOPS vision is unique in that the project area encompasses a larger, four-county planning area that does not follow current political boundaries and seeks to provide a regional approach to developing the following geographic and resource-based elements:

- Incorporate or create linear forests and greenways.
- Promote regional and local multiuse connections.
- Protect valuable farmland.
- Identify future conservation lands.
- Conserve quality habitats.
- Recognize critical water resources.

The opportunities for TreeTOPS was developed using existing publicly available data that were compiled, edited, and managed to create GIS maps of the four-county area for the project. The following data were collected and mapped:

- Four-county aerial photos
- Existing city limits
- Watershed boundaries
- Existing railroads
- Publicly owned and protected land
- Data from the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation
- California Natural Diversity Database (CNDDDB) data
- Existing trails and public land in the San Joaquin River Parkway

To ascertain what future lands could become part of the TreeTOPS plan, lands that are currently in public ownership and protected as park, conservation, or wilderness form the base layer of GIS maps created for the project area. These areas are integral to developing future trail connections, conservation lands, farmland, and opportunities for vegetated greenways. A map of these lands within the project area is included as Attachment 1.

A separate map was created to depict farmland in the region based on classification within the FMMP; this map is included as Attachment 2. The CNDDDB map, Attachment 3, shows potential occurrences and ranges of plant and animal species documented through the California Department of Fish and Game. Subsets of the FMMP and CNDDDB data were used to develop the TreeTOPS opportunities and are described in more detail below. Development of the GIS data for the project area is a first step in creating TreeTOPS opportunities; however, to improve and preserve data integrity, these data must be verified, maintained, and managed in the future. It is also assumed that additional GIS data will be added as more focused project areas are defined and a finer level of data is desired.

# TreeTOPS Opportunities

The TreeTOPS opportunities are shown in Attachment 4 and encompasses a subset of the base data layers described above, as well as criteria that further define the framework for future trees, trails, and open space features. The layer depicting public protected lands was overlaid with consolidated themes from the California Natural Diversity Database and Farmland Mapping and Monitoring Program. To illustrate the potential for future limitations on urban growth, a dashed line was placed around existing urban centers that represent an area for future growth, however limited. This urban boundary or buffer should be envisioned as a transition from urban to agriculture or strategic conservation lands. Implementation can take place using the criteria for vegetated corridors described below.

Using the above-noted layers as a combined base, the features were created to collectively provide future geographic and resource-based locations as criteria to further implement a plan for TreeTOPS in the region. These are separate features, as described further below; together, however, they provide a reinforced and comprehensive framework for future implementation. Individually, these features serve as criteria for determining lands that would best serve as features or assemblages in implementing a plan for TreeTOPS. They can be used as criteria on their own or in concert with each other. Ideally, lands that contain all these features provide many of the values that are intended to be encompassed in a plan for trees, trails and open space.

**Watershed Buffers** are shown as a subset of the watershed boundaries within the project area and define the valley floor. The concept for these buffers is to ensure high-quality surface water and groundwater within the valley. The delineation of buffers will vary in size and location depending on the current land use and more detailed parcel characteristics. High-quality habitat areas or lands that can contribute to clean surface water or groundwater quality should be a priority for these buffers. The buffers are generally shown in the higher elevations of the valley watershed, but they could be incorporated within and around the other plan features. These buffers can also be undeveloped or vegetated lands that are part of other land uses; however, regional planning efforts should consider the ability of buffers to help ensure high water quality and, if possible, increase water quantity (e.g., through rainwater harvesting or creative stormwater management).

**Habitat Blocks** were conceived as areas where plant and animal habitats are of high quality and worthy of future protection. Species habitats are the main component of this feature; therefore, delineation of habitat blocks should consider the factors that contribute most to the protection of species, particularly those that are federally or state listed as rare, threatened, or endangered. Habitat blocks were developed by looking at the distribution of CNDDDB data and defining larger “blocks” to demonstrate how these areas can be connected and form a larger cohesive and high-quality habitat or mosaic of habitats. A character sketch of a potential habitat block is included as Attachment 5.

**Riparian Corridors** are corridors that buffer the major rivers in the region and can also include other natural riparian areas throughout the four counties. These were conceived to recognize these water-based landscape features as major defining elements in the region and to protect them as assets that can contribute to the TreeTOPS regional plan. The concept for these corridors closely follows what is already being done by the Trust, the Kings River Conservancy, and others. Because of the nature of the major rivers and their east/west alignments, these corridors can present major opportunities for trail and habitat connections between the Coast Ranges and the Sierra Nevada. The width and location of these corridors

will vary; however, regional planning efforts should consider protecting the river(s) or waterways and their associated habitats or defining landscape features that contribute to healthy riverine ecological function. Further parcel or assemblage analysis can also locate lands in riparian corridors with other resource values, such as contributing to the visual quality of the corridor. The ability to provide an important pedestrian or cycling connection that will allow for educational or interpretive opportunities and a high-quality visitor experience should also be considered when mapping out these buffers. A character sketch of a riparian corridor is included in Attachment 6.

**Eco-connectors** are shown as arrows and are principally locations where there are opportunities to further link habitat blocks. The size and exact location of these will be further defined by those lands or assemblages that would provide wildlife corridors (e.g., linking smaller areas of high-quality habitat to the larger blocks). These connectors could also include farmland, opportunities for adding vegetated corridors, and trails. The primary theme of the eco-connectors is linking more natural areas to allow lands currently unencumbered by infrastructure and development to become the basis for this feature. Additionally, if development is in place or being planned in these areas, it would be advantageous to secure an open space corridor that could provide this type of link.

**Regional Connectors** are generally linear features that coincide with infrastructure corridors such as railroads, canals, transmission lines, or the future Metro Rural Loop. These are envisioned as corridors that could have pedestrian trails and bikeways and could provide for vegetation or tree plantings for enhancement and a healthy urban forest network. These corridors can also be laid out and placed to link up with other plan features to provide stronger internal linkages or trail loops for recreation or commuter use. Regional connectors could also be located within developed areas to allow easy non-motorized access from residential communities and commercial areas, thus reducing car trips. A character sketch of a regional connector is included as Attachment 7.

When the opportunities are used with all of the above elements, there are areas in which many of the features coincide and overlap. This overlapping principally occurs in five major areas of the region: in and around the Mendota Wildlife Area, to the north and northeast of Fresno and east of Madera, in and around Lemoore and Hanford, south and west of Porterville, and north and east of Visalia. Further analysis is needed to verify the current mapping and ensure that it encompasses the values necessary for plan implementation and to further test and confirm the criteria for trees trails and open space. However, areas of overlapping features could be considered priority locations for further analysis, more detailed mapping suitability and implementation of specific projects demonstrating the TreeTOPS concept.

# Tools for Implementation

Below are examples of land use planning and funding mechanisms that can be incorporated into existing county and city zoning codes and general plans and considered for use in the protection of resource sensitive lands. These provide various options for obtaining land conservation and trail/public use easements or incorporating opportunities for urban forestry or vegetation programs into proposed development projects. Additionally, codes can be tailored with specific urban forestry and vegetation management programs. Please note that these are tools that have been successful in other places and may not be inclusive.

## Land Use Mechanisms

### Conservation Easements

A conservation easement is a permanent restriction placed on a piece of property to protect its ecological, agricultural, or other open space values. A landowner voluntarily donates or sells certain development rights associated with the land, such as the right to subdivide. The conservation easement is a flexible instrument that can limit development as much as the landowner desires. The agreement is legally binding, and it applies even if the land changes hands. A third party, either a nonprofit organization or public agency enforces the easement to ensure that the landowner complies with its terms.

### Purchase of Development Rights

Purchase of Development Rights (PDR) is similar to a conservation easement, except that a landowner willingly relinquishes all rights to develop land as real estate. A third party, typically a local agency or land trust, compensates a landowner for the value of the development rights, which usually varies from 30% to 80% of the property's fair market value. The landowner maintains ownership of the land, and other uses such as agriculture or forestry may continue. The agreement results in a permanent deed restriction that applies even if the property changes hands.

### Transfer of Development Rights

A Transfer of Development Rights (TDR) program is similar to PDR in that the landowner receives compensation for the development value of the land. However, instead of acquisition of the land, the TDR system relies on the free market to redistribute development rights from open land to development areas. In some TDR programs, rights transfer directly between properties: a landowner sells development rights to preserve open space, and a developer buys these rights in order to develop at greater densities than currently permitted in a particular area. In other TDR programs, a municipality purchases development rights and maintains them in a development rights bank until a buyer is located.

### Cluster Development

Cluster development concentrates new residential development on a portion of a land parcel, thereby retaining the remaining land for open space preservation. A zoning ordinance or other local regulation specifies minimum standards for open space protection and residential density. Cluster development allows the same number of units as under regular zoning; however, increased residential densities or reduced minimum lot sizes or setbacks limit development to a portion of the parcel.

## **Urban Growth Boundaries**

An urban growth boundary or “urban limit line” is an officially adopted and mapped line that defines where growth should and should not occur. Urban growth boundaries contain or control development within a specific area while protecting ecological, agricultural, or other open space values of the lands outside the boundary. A government body at the city, county, or regional level adopts an urban growth boundary for a finite period as a long-term strategy to manage growth.

## **Funding Mechanisms**

### **Mitigation Banking**

A mitigation bank is a wetland, stream, or other resource area that has been restored, established, enhanced, or (in certain circumstances) preserved for the purpose of providing compensation for unavoidable impacts to aquatic or other resources. A mitigation bank may be created when a government agency, corporation, nonprofit organization, or other entity undertakes these activities under a formal agreement with a regulatory agency (US EPA website <http://www.epa.gov>). Mitigation banking can be used as a tool to preserve or protect resource sensitive land however is generally used this way with an agreement with a regulatory agency with permitting authority.

### **Bond Financing**

Bond financing is a type of long-term borrowing that state and local governments frequently use to raise money, primarily for long-lived infrastructure assets. They obtain this money by selling bonds to investors. In exchange, they promise to repay this money, with interest, according to specified schedules. The interest the state has to pay investors on the bonds it issues for public infrastructure is exempt from their federal and state income taxes, which makes the state’s interest cost on the bonds less than it otherwise would be (California Legislative Analyst Office website [www.lao.com](http://www.lao.com)). There have been many bond sales in California that result in funding for the acquisition of open space or other land protection for the purposes of protecting natural and cultural resources that benefit the public.

### **Foundation and Government Grants**

Grants are financial mechanisms that generally originate from an organization or government entity to provide money for particular activities that further the mission of the donor. Typically, grants require an application that defines the purpose and use of the money and also requires that there be matching funds or in kind services provided by the applicant. This project was funded by such a grant. Grants can be provided for a wide range of services and activities and include projects that would implement the TreeTOPS mission.

### **Corporate/Philanthropic Donations**

Corporate or philanthropic donations are monies that are provided by corporations, foundations or not-for profit entities for the purpose of providing services, objects or financing for public projects. These are used for a variety of purposes but are often utilized for the protection of open space, trail easements or other related projects that further the TreeTOPS purpose. Typically, donations further the mission of the donating organization.

**Sale of Naming Rights**

The right to name a piece of property, either tangible property or an event, usually granted in exchange for financial consideration. Institutions like schools, Institutions like schools, places of worship and hospitals have a tradition of granting donors the right to name facilities in exchange for contributions. Securing the naming rights for stadiums, theaters, and other public gathering places is seen by companies as a form of advertising, and naming rights deals worth millions of dollars have been made (Wikipedia).

# TreeTOPS Phase II Work Plan

## Prop 84 SGC Planning Grant

The compelling benefits of a TreeTOPS<sup>i</sup> Urban Greening plan for the region are as follows:<sup>ii</sup>

- Trees improve air quality, the walking and bicycling experience, physical health, mental health, ground water recharge, community appearance and property values.
- Trees reduce the cost of living, crime, and energy use.
- Trails promote walking, bicycling, geo-tourism<sup>iii</sup>,
- Trails reduce obesity, the cost of living, and the number of auto trips.
- Open space preservation enables us to have more outdoor activity, ground water recharge, safe places to play, working farms and ranches, habitat protection, and greenbelts that contain sprawl and mitigate land use conflicts.
- Open space preservation improves air quality, eye health, visual relief and aesthetics.

The work plan for TreeTOPS (Phase 2) Urban Greening Plan is based on page 7, UG Planning Guidelines:

- Needs Assessment: See Phase 1 below, supplemented as required
- Development of the Plan's Goals, Objectives, and Action Steps to address:
  - The urban forest on the boundaries of the river corridors, freeway corridors, rail corridors and cities;<sup>iv</sup> and prepare prototype planting plans appropriate to the setting (see "Plant Palette" below)
  - A definitive Tree Canopy plan for each city with an inventory and implementation plan
  - Definitive plans for trails of regional significance and an implementation plan
  - Definitive plans to preserve strategic open space and an implementation plan
  - Prototype Urban Greening General Plan amendments for each county and city with supporting documentation and plans.
- Public Outreach and Stakeholders Meetings: Form and staff a TreeTOPS Urban Greening network of residents, planning professionals and strategic partners
- Coordination: Complement the COG and Caltrans Blueprint plans
- Developing first draft of the Plan and Plant Palette
- Public Review of the Draft Plan
- State Review of the Draft Plan
- Completion of the Plan

Phase 1, funded by a Prop 84 Cal Fire grant, provides the following material to support Phase 2:

- Vision statement; Guiding Principles
- Compiled and edited data to prepare GIS maps for the four county area
- TreeTOPS Opportunities
- Powerpoint Presentation

Shorthand for Trees, Trails, and Open Space preservation

<sup>1</sup> Madera, Fresno, Kings, and Tulare and adjacent counties as required

<sup>1</sup> Sierra mountain range, Coastal Range, Pacific Ocean, three national parks, two national forests, lakes and rivers

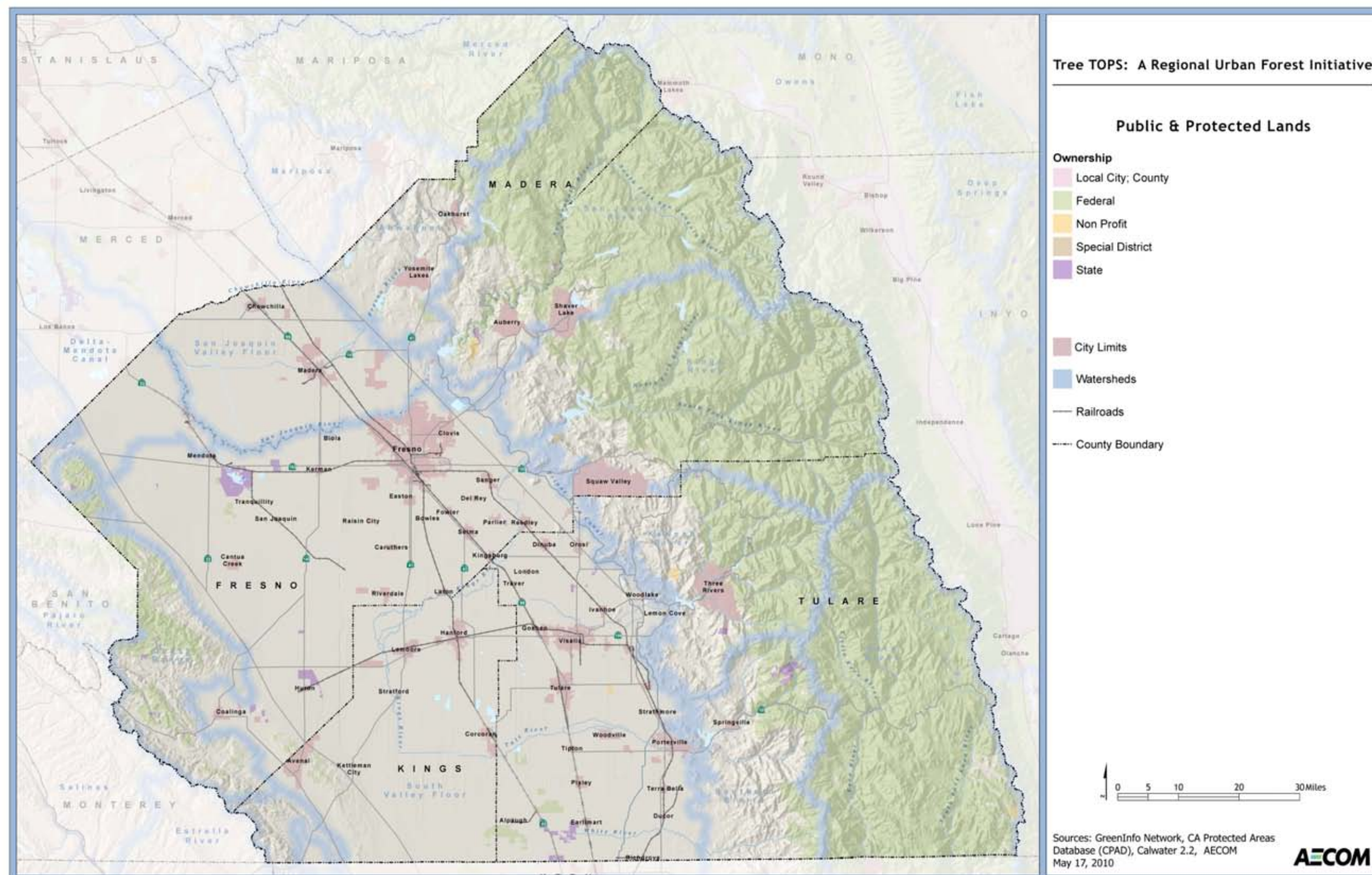
<sup>1</sup> Communities with 5,000 or more people

## **ATTACHMENT 1**

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Public Protected Lands Map



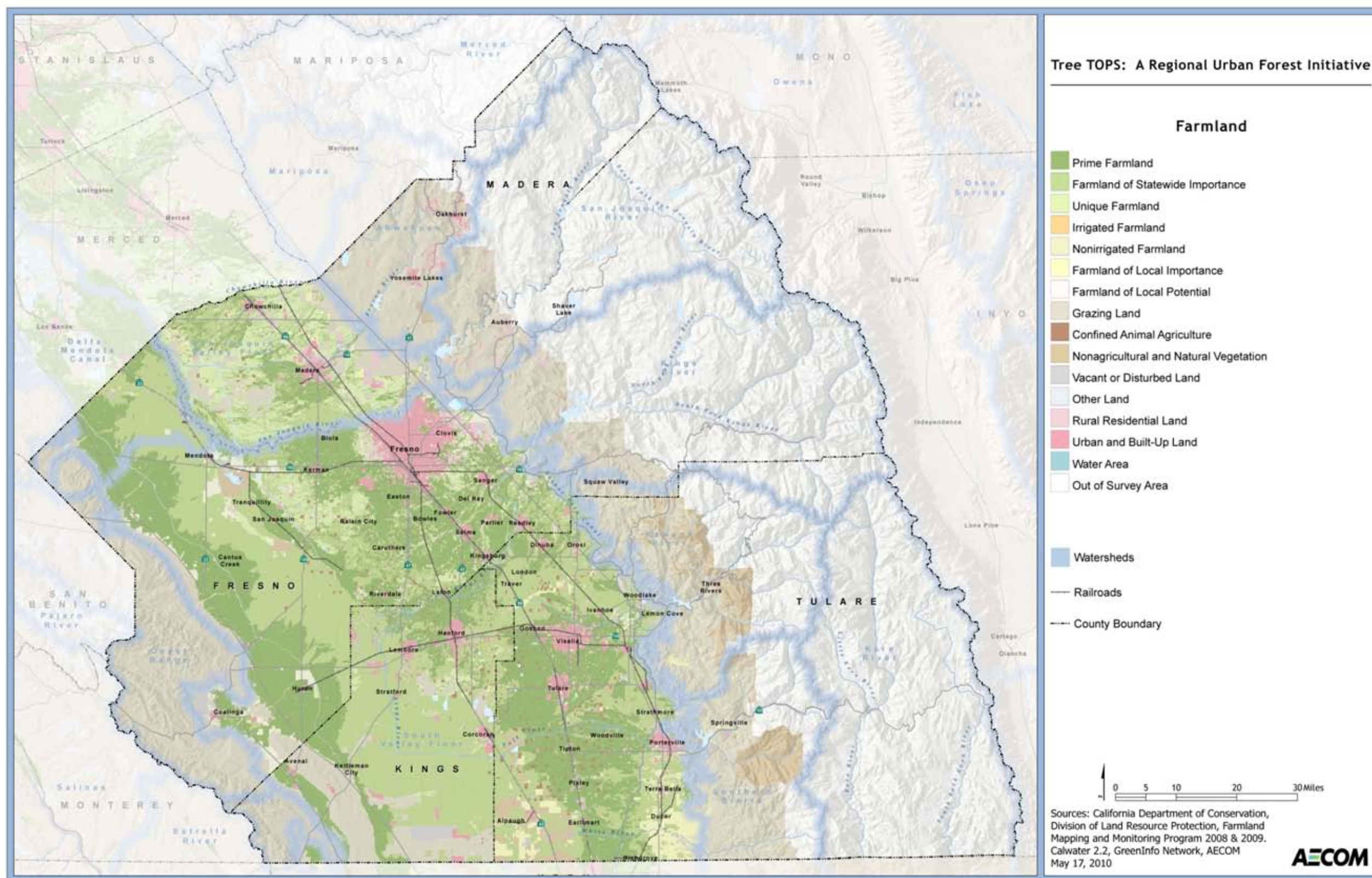


## **ATTACHMENT 2**

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State Farmland Mapping and Monitoring Program Map



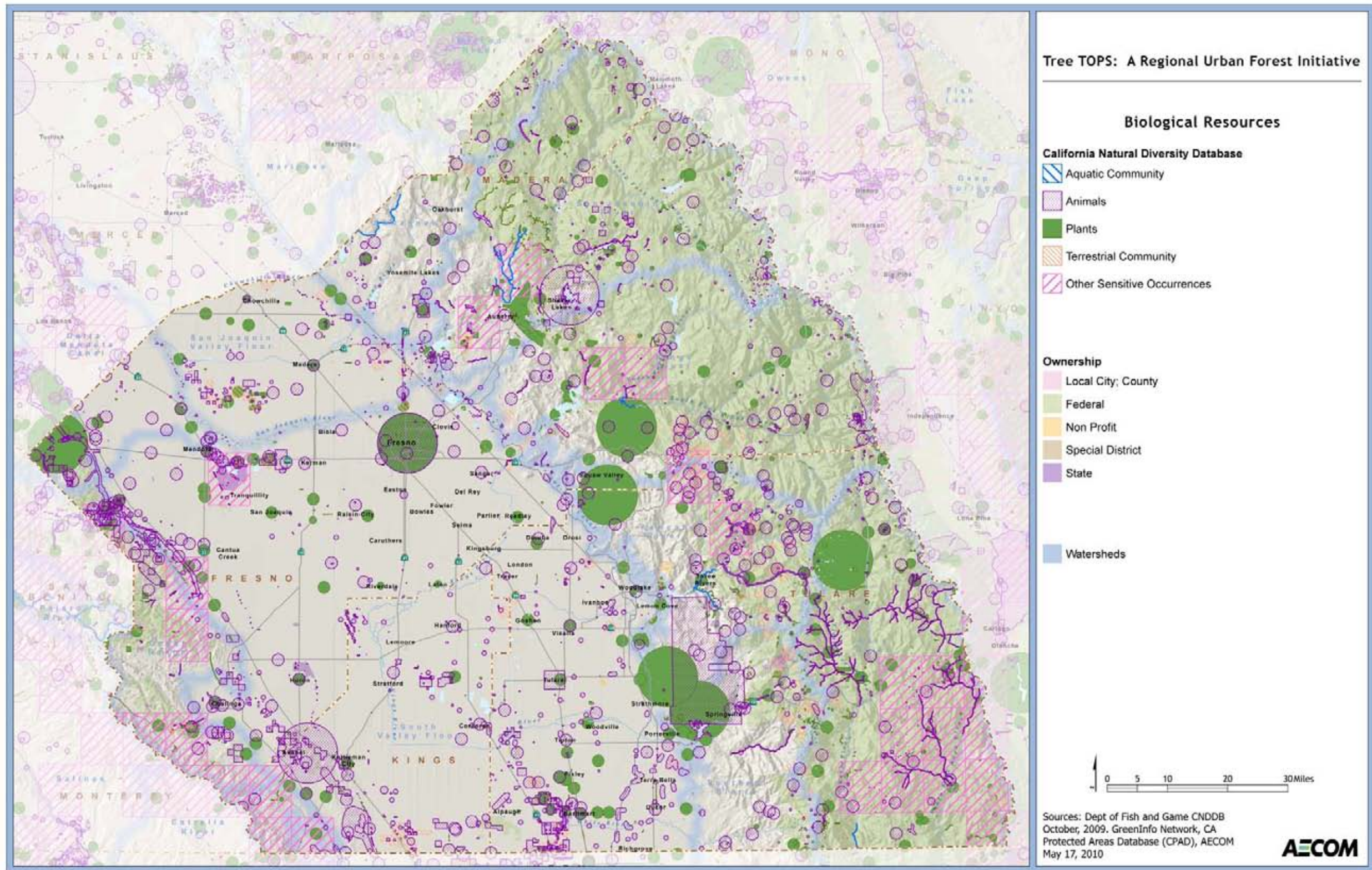


## **ATTACHMENT 3**

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California Natural Diversity Database Map





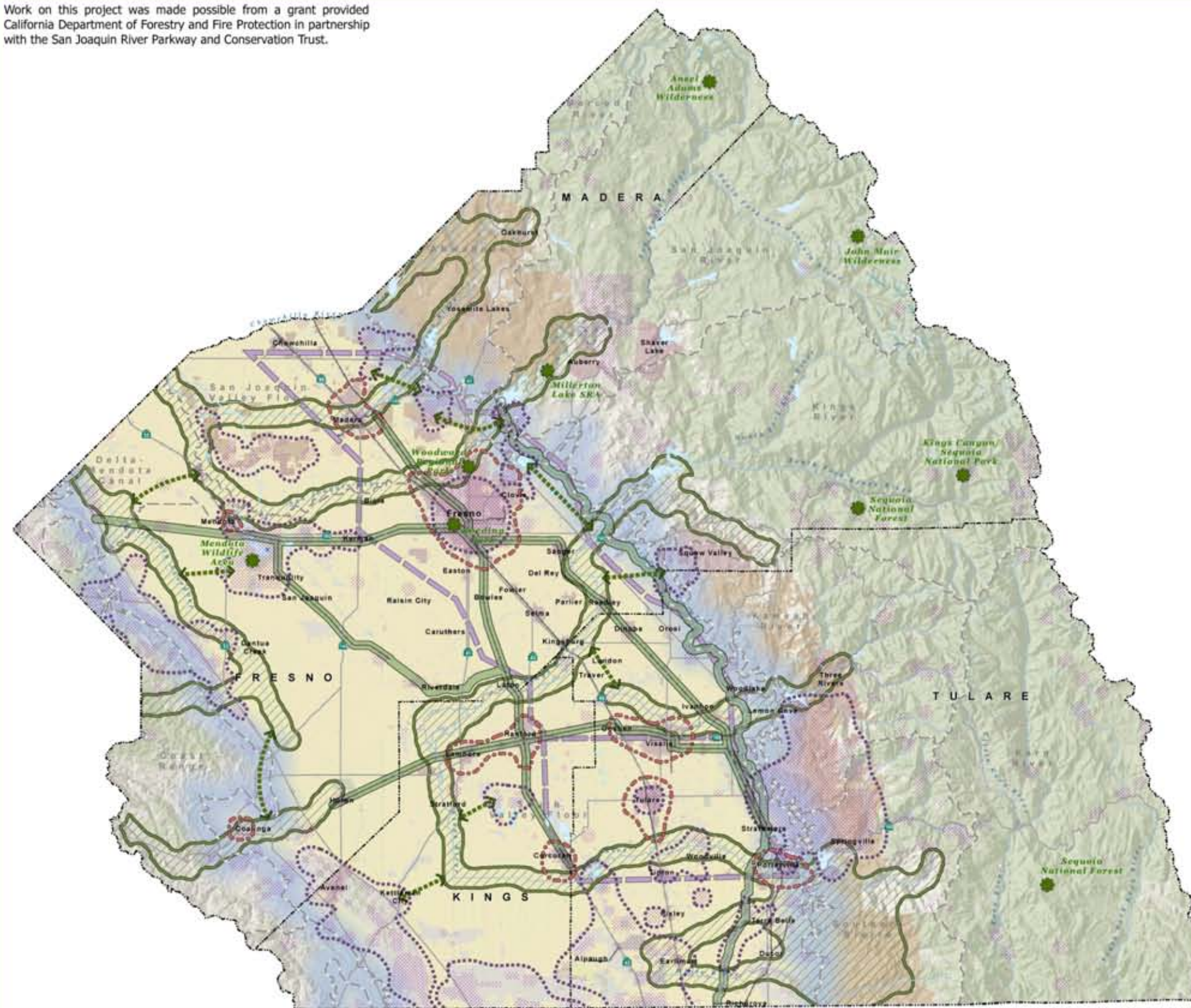
## **ATTACHMENT 4**

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TreeTOPS Opportunities



Work on this project was made possible from a grant provided California Department of Forestry and Fire Protection in partnership with the San Joaquin River Parkway and Conservation Trust.



## Tree TOPS: A Regional Urban Forest Initiative

### Tree TOPS Opportunities

#### Linear Forest Types

##### Regional Connectors

— Friant-Kern Canal/Railroads (Pedestrian & Bikeways)

— 2110 Rural Metro Loop (Vegetated Corridors)  
(location approximate)

— Eco Connectors

— Riparian Corridors

— Habitat Block

— Urban Growth Center Limit

— Select Natural/Cultural Nodes

— State and Federally listed threatened, endangered, rare plants and animals and terrestrial communities (all occurrences)

— Grazing

— Prime Farmland, Farmland of Statewide Importance & Unique Farmland

— Public Protected Land

— Watershed Buffer

— Watersheds

— City Limits

— Railroads

— County Boundary

Widths shown for proposed corridors and buffers are for graphic purposes and will be variable, based on confirmation of site conditions and future plan implementation.



Sources: AECOM, 2010;  
Farmland Mapping and  
Monitoring Program, 2006 & 2008;  
CA Natural Diversity Database, Oct. 2009  
May 17, 2010

**AECOM**

## **ATTACHMENT 5**

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### Opportunities for Regional Trails



# Opportunities For Regional Trails

## TreeTOPS Plan, Phase I

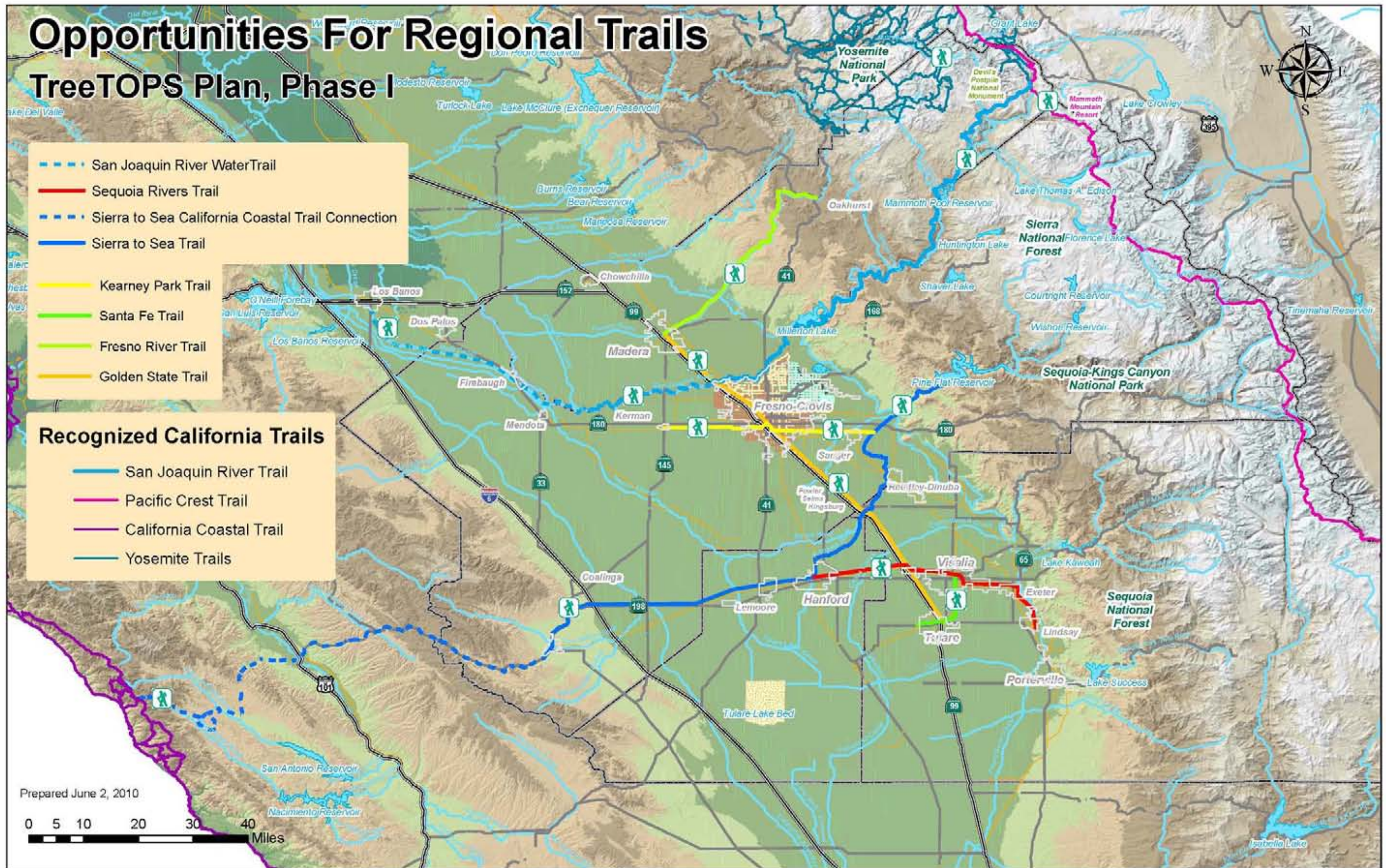
- San Joaquin River Water Trail
- Sequoia Rivers Trail
- Sierra to Sea California Coastal Trail Connection
- Sierra to Sea Trail
- Kearney Park Trail
- Santa Fe Trail
- Fresno River Trail
- Golden State Trail

### Recognized California Trails

- San Joaquin River Trail
- Pacific Crest Trail
- California Coastal Trail
- Yosemite Trails

Prepared June 2, 2010

0 5 10 20 30 40 Miles



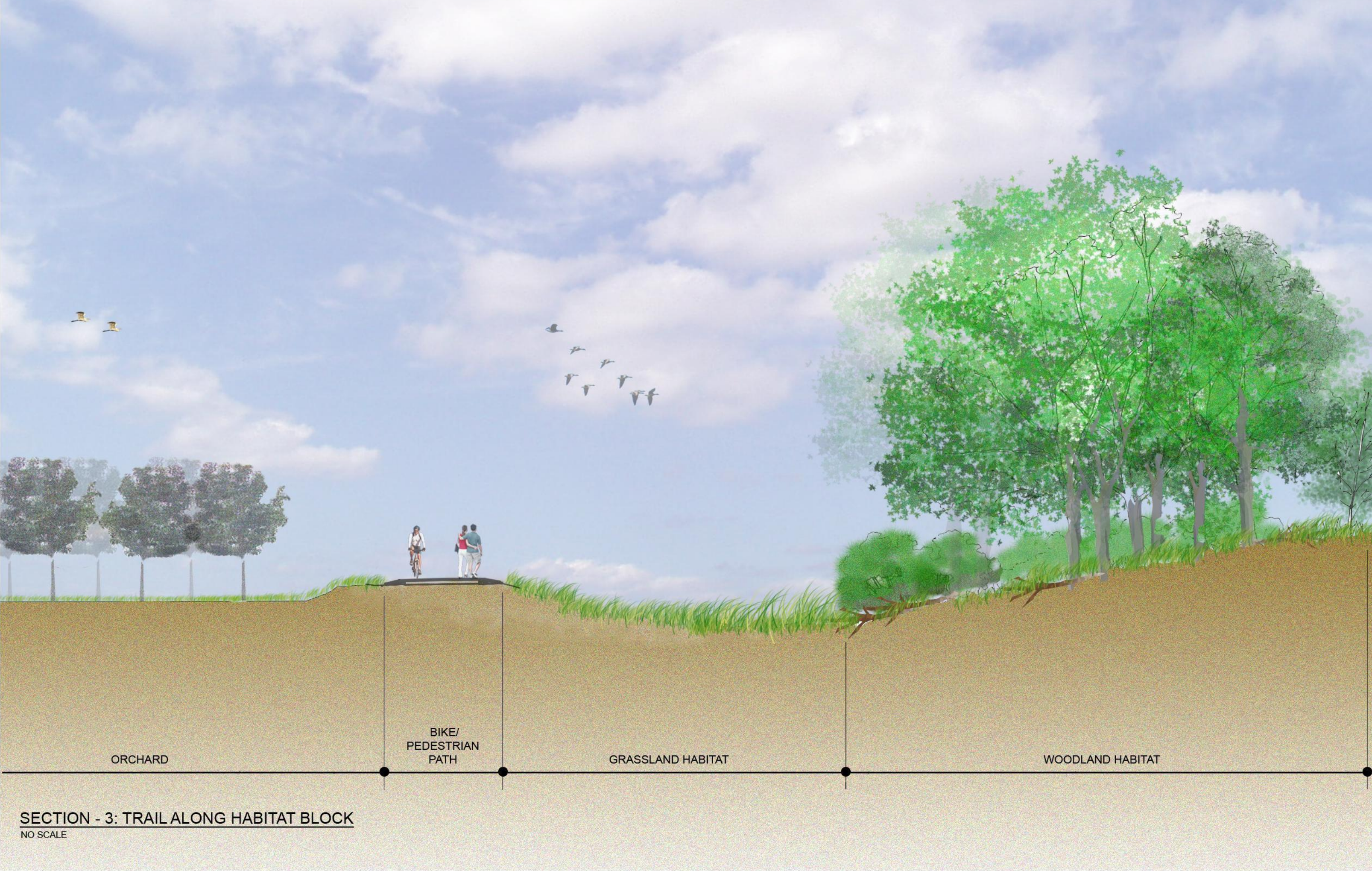


## **ATTACHMENT 6**

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### Habitat Block Character Sketch





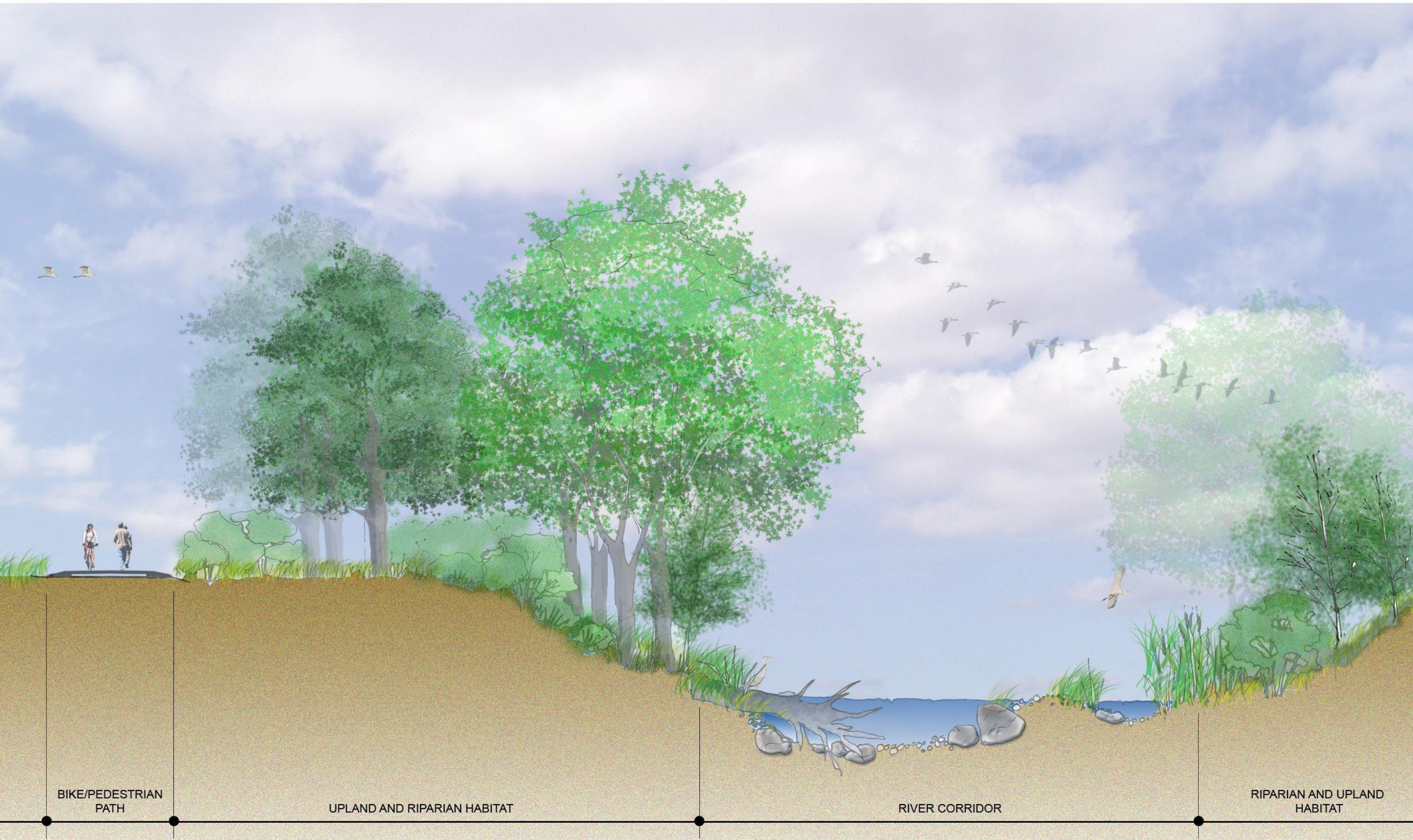


## **ATTACHMENT 7**

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### Riparian Corridor Character Sketch





**SECTION - 1: TRAIL ALONG RIPARIAN HABITAT**  
NO SCALE

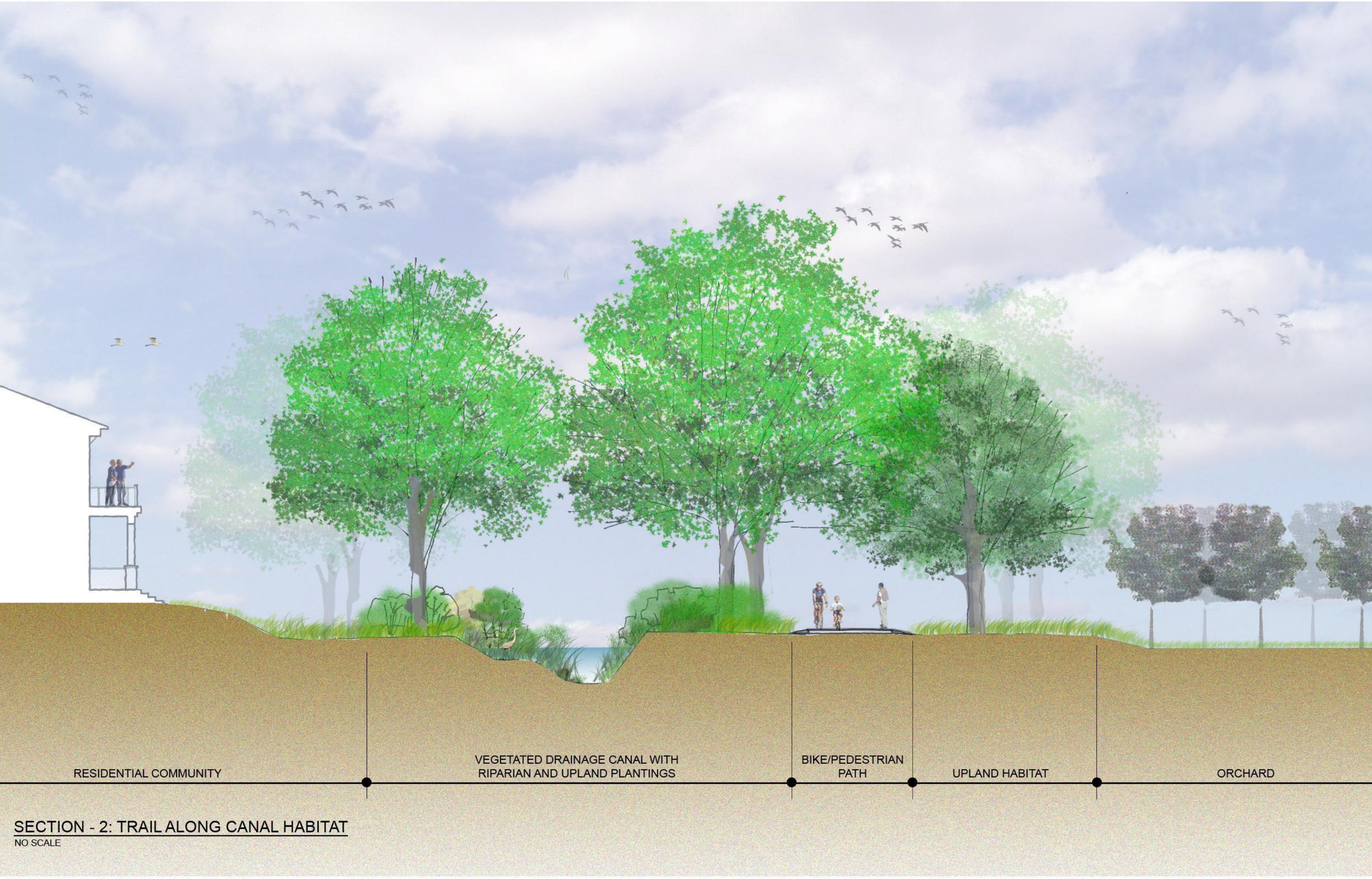


## **ATTACHMENT 8**

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### Regional Connector Character Sketch





**SECTION - 2: TRAIL ALONG CANAL HABITAT**  
NO SCALE



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<sup>i</sup> Shorthand for Trees, Trails, and Open Space preservation  
<sup>ii</sup> Madera, Fresno, Kings, and Tulare and adjacent counties as required  
<sup>iii</sup> Sierra mountain range, Coastal Range, Pacific Ocean, three national parks, two national forests, lakes and rivers  
<sup>iv</sup> Communities with 5,000 or more people