

# 1 Overview and Summary

## 1.1 Overview

The Sierra Cascade foothills are a unique California landscape in terms of their climate, geology, watersheds, vegetation, and wildlife. The foothill region has over 20 major rivers and watersheds running through it, and reservoirs vital to the storage and delivery of water supplies, hydro-power production, and flood protection. The water resources of the foothill region are not only key elements of the local ecosystems, but critical to functions in the Central Valley, the Bay Area, and throughout the state. Habitats of the Sierra foothill ecosystems provide a home for more than 400 vertebrate species, an uncounted numbers of invertebrates, and hundreds of plant species—some of these are unique to this region. While over 80% of the biodiversity of the entire “Range of Light” is found in the foothills, very little of this region is under public ownership or protected status. Development and growth pressures are intense and the threats of future land conversion are high.

This Sierra Cascade Foothills Area Conservation Report (Conservation Report), prepared by the Sierra Cascade Land Trust Council (SCLTC), is a collaborative project to identify, summarize, and synthesize new and existing research, and create maps of important natural resources—with an emphasis on water, conservation opportunities, and identification of possible climate change considerations in the region.

In this Conservation Report, we have placed emphasis on riparian corridors and water resources in the foothills for multiple reasons. First, the rivers and streams are natural migratory pathways for wildlife and fish. Second, climate change has a particularly large effect on river systems. Finally, the foothills’ water resource conditions and regional role in water supply and flood control systems will become increasingly important to future conservation strategies.

SCLTC envisions that the maps and Conservation Report will provide the scientific justification and rationale to help land trusts and local planning bodies prioritize increased land and water conservation efforts at local and regional scales. Further, we believe that the maps and Conservation Report will provide the basis for funding initiatives to focus attention on the critical need for increased land conservation in the region. Collectively, SCLTC member organizations have conserved over 225,000 acres of land in the past 18 years. They know how to protect and steward land if given adequate tools and resources. This Conservation Report aims to do just that.

## 1.2 Goals and Objectives

The maps and Conservation Report were created to inform and guide land trusts and planners in their strategic land protection work. Its focus includes lands from between approximately the 500–3,000 foot elevation, in a band that primarily includes five vegetation types and their corresponding habitats: Blue Oak Savanna and Woodland, Foothill Hardwood and Conifer Woodland, Foothill Chaparral, Foothill Grassland, and Foothill Riparian. The Conservation Report also identifies specific resources in five subregions



which comprise the Foothills Area: North (Shasta County), North Central (Butte, Plumas, Sierra, and Tehama counties), Central (Yuba, Nevada, Placer, and El Dorado counties), South Central (Amador, Calaveras, Mariposa, and Tuolumne counties), and Southern (Fresno, Madera, Kern, and Tulare counties).

While numerous high-quality studies have been undertaken in the past, they have addressed parts and pieces of the region. To date, none has addressed the entire water and biodiversity resources of the Foothills Area to see what has been protected and what could be protected. Rather than expend funds and many years on a whole new study, we have compiled, evaluated, and synthesized current plans to focus needed attention on identifying missing linkages of protected lands by conserving additional land and water resources. The resulting landscape-scale vision that emerges is needed to generate greater funding support for conservation of this critical region.

SCLTC envisions that the products we have developed will:

- Provide a landscape-scale report and maps on the Foothills Area that will support regional conservation efforts for land and water resources.
- Include current estimates of how climate change could affect hydrology and influence opportunities for land conservation in region.
- Provide the basis for a funding initiative to focus foundation, agency, and public attention on the critical need for increased land conservation in the Foothills Area.

- Provide support to help land trusts collaborate with new conservation partners and prioritize their conservation efforts for increased land and water conservation in the Sierra Cascade foothills.

## 1.3 Methods

The project has engaged more than a dozen land trusts and land conservation groups, as well as expert consultants working with the Geographical Information System (GIS) and mapping support from GreenInfo Network. Summarized and integrated into a GIS format, these data present the wider perspective that is needed to provide a defensible basis for implementing comprehensive regional conservation programs to address the many complex and competing conservation opportunities in the Foothills Area. An added benefit of this Conservation Report will be to encourage larger-scale, collaborative conservation projects between neighboring land trusts and other interested partners.

SCLTC assessed the distribution and conservation status of the foothill's natural resources by reviewing existing literature (including other assessments), databases, and mapped data. Because of the extent of private lands in the foothills, the local distributions of plant and animal species are not well documented. Thus, our map-based assessments focused on waterways, riparian corridors, and vegetation types; all of which have been inventoried and mapped throughout the foothills. In addition to physical and biological data, we applied mapped data for ownership type (e.g., public ownership), housing density (recent and projected), road densities, and land ownership to assess conservation status: existing



conservation, threats, and conservation opportunities. Ownership data was derived from parcel data by combining adjacent parcels with the same owners, to better indicate large private land holdings.

From these mapped data, we determined the extent of conserved, urban/suburban, and exurban areas, rural areas with fragmented ownership, and rural areas with large private land holdings (e.g., ownerships of greater than 360 contiguous acres of land). We also determined where projected development would affect large private landholdings. This information and natural resources were mapped and conservation status assessed.

## 1.4 Results

Assessments in this Conservation Report confirm the widespread loss and degradation of natural resources by human activities, reveal important gaps in the conserved lands, and identify numerous opportunities for additional conservation of the foothill's natural resources.

The Conservation Report reveals that within the Foothills Area, most land remains covered by natural vegetation: less than 2% of the area has urban or agricultural land cover, approximately 1.6% has been flooded by reservoirs, and barrens that include extensive mine tailings account for almost 1%. The remaining 96% of the Foothills Area is covered by natural vegetation.

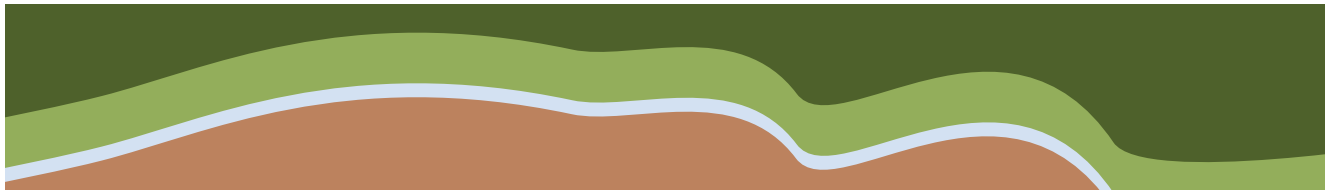
Human land uses are dispersed throughout the Foothills Area, however. Urban/suburban and exurban areas, and small parcels of land less than 40 acres account for one-quarter of the total Foothills Area, and 60% of the Central Subregion. The effects of roads, invasive species, fire suppres-

sion, groundwater pumping, altered drainage, and human disturbance (and associated habitat loss, simplification, and fragmentation) have been greatest in those areas.

Furthermore, the Foothills Area remains vulnerable to the additional spread of human land uses. Approximately one-third of the Foothills Area is publicly owned or otherwise conserved. However, montane vegetation covers much of the conserved area; foothill vegetation is underrepresented on conserved land. For example, of foothill vegetation in the North, Central, and South Central Subregions, only 10, 14, and 16%, respectively, are in public ownership or otherwise conserved.

Many sensitive habitats remain relatively unprotected. For example, more than 100 plant taxa (species, subspecies, or varieties) are endemic to the foothills and grow nowhere else. Almost half of these plants are critically endangered because of habitat loss or alteration, and for many of these species, only a small portion of remaining habitat has been conserved. For example, assemblages of endemic plants are associated with gabbro-derived soils in El Dorado County and Ione formation-derived soils in Amador County. Only 13 and 2% of these botanically significant landscapes have been conserved.

The Conservation Report further underscores that in many watersheds, conserved areas do not include linkages that provide connectivity along riparian corridors, among important natural areas, or from lower to higher elevations. Several recent assessments have identified many remaining areas of habitat for conservation because of their habitat values, the regional connectivity that they provide, or their value as working land-



scapes. Examples of unprotected, but key connectivity corridors include foothill riparian areas along most of the major rivers. Many of these are adversely affected by unregulated clearing of vegetation and by fluctuating levels of large reservoirs. While the overall percent of area occupied by reservoirs is just 1.6%, some geographic variability exists in the Foothills Area, since the North Subregion does not have any large reservoirs, but reservoirs cover 2.7% of the South Central Subregion.

Finally, this Conservation Report anticipates additional widespread development of natural areas in the future. During the next 30 years, additional development is anticipated to affect roughly 22% of the Foothills Area. This will correspond to a substantial increase in the extent of exurban development, but effects will be concentrated in areas that have already experienced greater habitat loss and alteration from human land uses. For example, in the Foothills Area as a whole, less than 10% of ownerships of greater 160 acres in rural / undeveloped areas will be affected by development and / or fragmentation of ownership, but in the Central Subregion, about a third of such large ownerships probably will be affected. Continued stress on local surface and ground water supply will result, as the water resources of the Foothills Area have a long history of commitments to downstream and out-of-region needs.