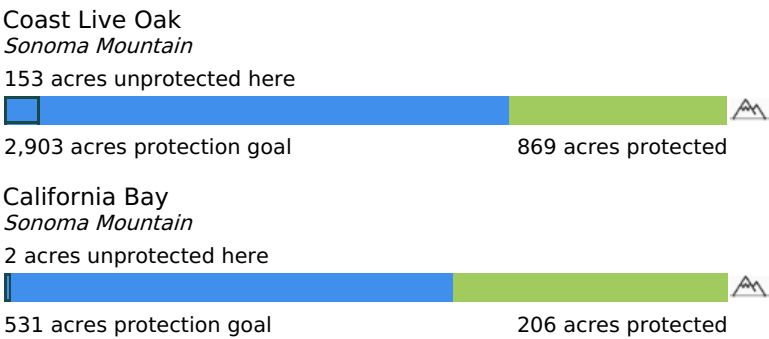


Highlights

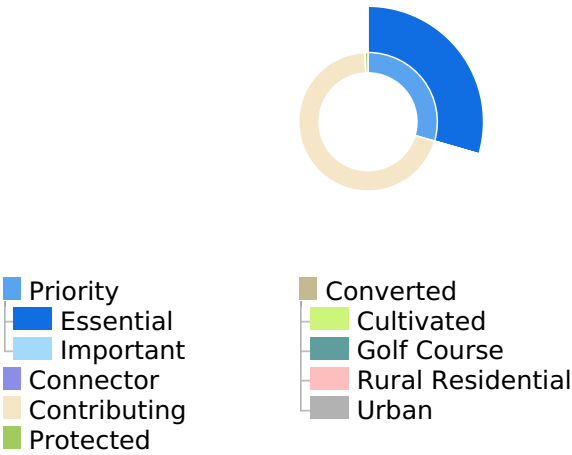
About Selected Circle

This area is 1,997 acres in size, located in the Sonoma Mountain landscape unit. This area consists primarily of Warm Grasslands and Coast Live Oak.

Top Regional Habitat Goals



CLN Land Classes



Top Stream Goals For Your Area

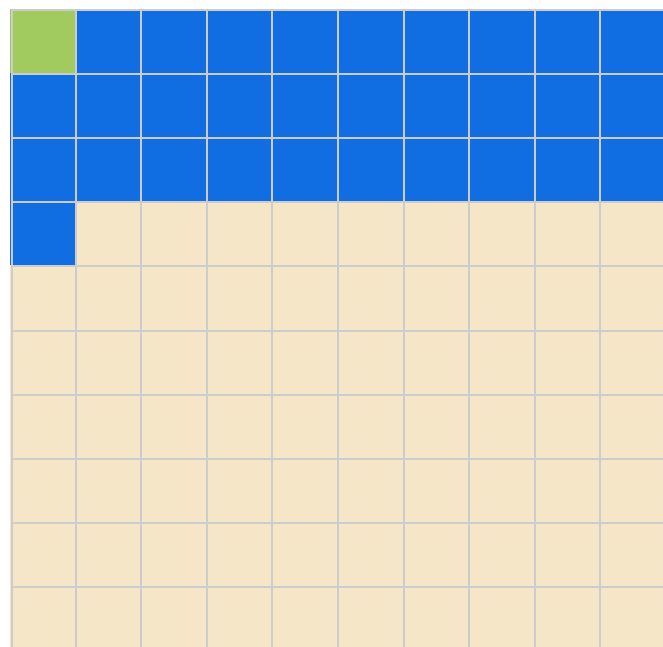
Stream	Aquatic Species	Miles
Adobe Creek	rainbow trout (anadromous)	1.7
Rodgers Creek	California roach, Sacramento pikeminnow, Sacramento sucker, rainbow trout (anadromous), cottid sp.	1.4

Important note
Users of the Conservation Lands Network Explorer are strongly encouraged to verify the information provided in this report with site visits and biological surveys.

These are highlights of the property. See the following pages for full conservation values.



CLN Land Classes



- (0.7%) Protected (13 acres)
- (29.5%) Priority (589 acres)
 - (29.5%) Essential (589 acres)
 - (0.0%) Important (0 acres)
- (69.8%) Contributing (1,393 acres)
- (0.0%) Connector (0 acres)
- (0.1%) Converted (1 acres)
 - (0.1%) Cultivated (1 acres)
 - (0.0%) Golf Course (0 acres)
 - (0.0%) Rural Residential (0 acres)
 - (0.0%) Urban (0 acres)

Conservation Targets

Coarse Filter Vegetation Targets			Selected Area		Regional Protection Goal			
Vegetation Type	Landscape Unit	Rarity Rank	Total Acres	Gap * Acres	Total Acres	Goal Acres	Protected Acres	Gap * Acres
Coast Live Oak	Sonoma Mountain	2	158	153	3,870	2,903	869	2,033
California Bay	Sonoma Mountain	2	2	2	708	531	206	325
Warm Grasslands	Sonoma Mountain	3	1,651	1,644	30,626	15,313	8,522	6,791
Interior Mixed Hardwood	Sonoma Mountain	3	77	77	13,450	6,725	5,127	1,598

* Coarse-filter conservation targets are sizable habitat patches and are defined by combining vegetation types with Landscape Units (e.g. Blue Oak in Vaca Mountains West). The area you selected is part of one or more Landscape Units. Some Landscape Units have reached their protection goals for different coarse-filter conservation targets, but most still require additional protection for each target. The 'Gap' column under 'Selected Area' quantifies the additional acres toward the target goal that would result from the protection of this area. The 'Gap' column under "Regional Protection Goal" quantifies the remaining acres needed to achieve the goal for a given coarse-filter conservation target.





Conservation Targets

Fine Filter Species and Habitat Targets: Points

			Selected Area		Regional Protection Goal			
Species / Target	Landscape Unit	Rarity Rank	Total	Gap *	Total	Goal	Protected	Gap *
Pond	Sonoma Mountains	3	10	10	285	142	46	97

* Fine-filter conservation targets are individual species or small habitats that might not be captured by the vegetation-based coarse-filter conservation targets. The area you selected is part of one or more Landscape Units. Some Landscape Units have reached their protection goals for different fine-filter conservation targets, but most still require additional protection for each target. The 'Gap' column under 'Selected Area' quantifies the additional acres toward the target goal that would result from the protection of this area. The 'Gap' column under "Regional Habitat Goal" quantifies the remaining acres needed to achieve the goal for a given fine-filter conservation target.





Conservation Targets

Stream Conservation Targets

Totals: 0 miles of Priority 1 stream targets

3 miles of Priority 2 stream targets

Stream Name and Watershed	Priority *	Length miles	Fish Species
Adobe Creek Petaluma River Watershed	2	1.7	rainbow trout (anadromous)
Rodgers Creek Sonoma Creek Watershed	2	1.4	California roach, Sacramento pikeminnow, Sacramento sucker, rainbow trout (anadromous), cottid sp.

* Priority 1 Streams: Coho salmon streams and inland steelhead streams (including adfluvial rainbow trout streams)


Priority 2 Streams: Inland native fish-bearing streams and coastal steelhead streams

More information on priority streams can be found in the CLN 2.0 final report at www.bayarealands.org




Beyond Biodiversity

A piece of land can hold value to us for many reasons, from its native biodiversity to its value for recreation, food production, or public safety.

 **Recreation**

Publicly accessible open spaces within 1 mile of this area:
Petaluma Adobe State Historic Park


Regional trails: Bay Area Ridge Trail

 **Visibility**

The Bay Area's iconic scenery is a key value, driving not only a sense of well-being for local residents, but also a massive tourist economy.

Visibility from major roads and populated places

Very High	0%
High	7%
Moderate	8%
Low	85%

 **Food Production**


The Farmland Mapping and Monitoring Program and the Storie Soil Index together provide a broad picture of a land's value for food production.

Farmland

0 acres	(0%)	Prime Farmland
0 acres	(0%)	Farmland of Statewide Importance
116 acres	(6%)	Farmland of Local Importance
0 acres	(0%)	Unique Farmland
1,827 acres	(91%)	Grazing Land

Storie Soil Index

0 acres	(0%)	Grade 1 - Excellent
50 acres	(2%)	Grade 2 - Good
536 acres	(27%)	Grade 3 - Fair
1,068 acres	(53%)	Grade 4 - Poor
256 acres	(13%)	Grade 5 - Very Poor
0 acres	(0%)	Grade 6 - Nonagricultural

 **Fire Hazard Reduction**

Careful land management can reduce the risk of catastrophic fires. These indices show how likely a wildfire is to happen in this area and how intense a fire might be.

Fire Probability 2001-2025

0%


Bay Area Range

60%

Your Area (14% - 18%)


Fire Intensity

No Data

 **Wildland Urban Interface**

The zone of transition between unoccupied land and human development, and likely including communities that are within 0.5 miles of the zone. These wildland urban interface (WUI) lands and communities adjacent to and surrounded by wildlands are at risk of wildfires.


Wildland Urban Interface: 1,758 acres (88%)

 **Flood Hazard Reduction**

When rain is falling, some areas are more likely than others to be in harm's way. At the same time, flooding can provide rich and varied wildlife habitat. Preserving flood zones helps provide natural buffers for people and the built environment.

100-Year Flood Zone: 0 acres (0%)


500-Year Flood Zone: 0 acres (0%)

 **Carbon Storage**

Healthy habitats store carbon and climate change makes this service is ever more critical. High-storage areas could be candidates for climate mitigation.

52,068 metric tons of greenhouse gas equivalent is stored in this area in the above-ground vegetation.

This property stores more carbon per acre than **25%** of natural areas in the region.

 **Water Supply for People**

Many people rely on local watersheds for drinking water, whether from streams and reservoirs or from wells that draw on groundwater.

Municipal Drinking Water Supply Watersheds: 0 acres (0%)

Sustainable Groundwater Mgmt. Act (SGMA) Basins:
Petaluma Valley Groundwater Sustainability Agency

Where Is It?

Size 1,997 acres

Coordinates 38.283, -122.570

Conservation Lands Network Landscape Unit(s) Sonoma Mountain

Conservation Status

Areas Essential to CLN Goals: 602 acres

Areas Important to CLN Goals: 0 acres

Areas Contributing to CLN Goals: 1,393 acres

Conservation Suitability: Highly Suitable (270)

Protection vs Conversion

Protected Lands: 13 acres

Converted Lands: 1 acres

Elevation

High points anchor viewsheds and watersheds.
Low points shelter wetlands and receive runoff.

Minimum Elevation: 257 ft

Maximum Elevation: 1,438 ft

Slope

Steep slopes can be unbuildable, while flat lands are often under pressure from development and agriculture.

Very Steep (30%+): 17%

Steep (20-30%): 23%

Moderate (10-20%): 40%

Flat (0-10%): 20%

Nitrogen Deposition

Emission of nitrogen from vehicles and agriculture stimulates annual grass growth that crowds out native wildflowers, builds up thatch, and increases fire fuels. Grassland management (primarily grazing) is essential where deposition is high.

7 kg/ha/yr (High)

Critical Linkages

The **Bay Area Critical Linkages** project considers habitat and movement needs of more than 60 species in the San Francisco Bay Area and San Benito, Monterey, Mendocino, and Lake Counties. **Linkages** are broader regions of connectivity important to facilitate the movement of multiple species and maintain ecological processes. These linkages seek to connect **Large Landscape Blocks** areas of high ecological integrity that build upon the existing conservation network in the region.

Largest Linkage None

Large Landscape Blocks None

Suitable Habitat for Species

Birds

Acorn Woodpecker, Burrowing Owl, California Quail, Hutton's Vireo, Loggerhead Shrike, Northern Harrier, Northern Spotted Owl, Pileated Woodpecker, Warbling Vireo, White-Tailed Kite, Wrentit, Yellow Warbler

Mammals

American Badger, Black Bear, Black-Tailed Deer, Bobcat, Brush Rabbit, California Kangaroo Rat, Dusky-footed Woodrat, Long-eared Myotis, Mountain Lion (Puma), Pallid Bat, Red Tree Vole, Ringtail, Tule Elk, Western Gray Squirrel

Plants

Blue Oak, Brittle Leaf Manzanita, California Foothill Pine, Dutchman's pipe, Napa False Indigo, Pitcher Sage, Purple Needlegrass, Valley Oak, Wild Hyacinth

Reptiles & Amphibians

Alameda Whipsnake, California Giant Salamander, California Kingsnake, California Red-Legged Frog, California Tiger Salamander, San Joaquin Coachwhip, Western Pond Turtle, Western Toad, Yellow-Legged Frog

Invertebrates

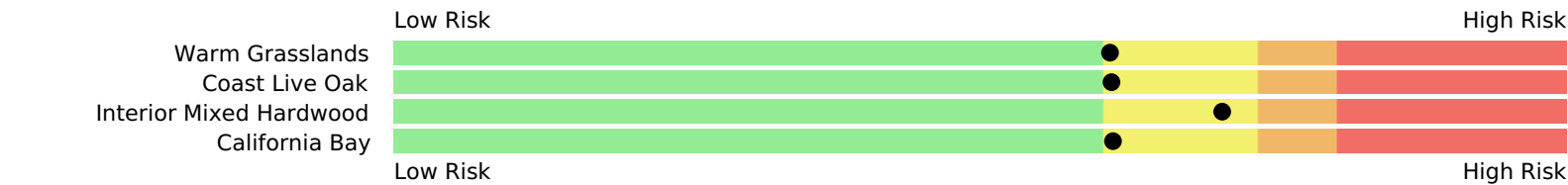
Bay Checkerspot, Myrtle's Silverspot

How Resilient Is This Area?

Climate change adds new kinds of uncertainty to conservation planning, so it's important to look at multiple measures of resilience.

Vegetation Risk

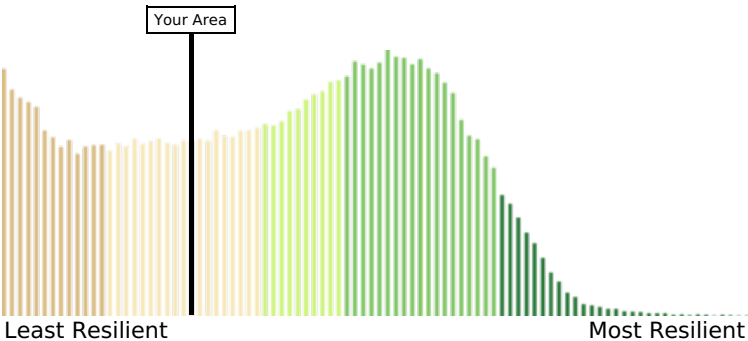
Some vegetation types in this area are more at risk from climate change than others. This chart indicates which of the top 10 plant communities in this area are close to the edges of their comfort zone and will require additional stewardship.



We developed an estimate of how close to the edge of the climatic “comfort zone” - drought tolerance - a given stand of vegetation is at present. This information can be used to identify vegetation stands that may require extra consideration and/or effort - for example, monitoring for mortality, managing soils for maximum moisture retention and below-ground flow, or restoring hydrologic connectivity lost to road building or other diversions. Local topography can also guide interpretation - stands on drier microsites, such as upper slopes and hilltops with thin soils, or south-facing slopes, may be more vulnerable.

Landscape Resilience

The resilience of the entire landscape depends on the availability of water and the ease with which plants and animals can move and adapt.

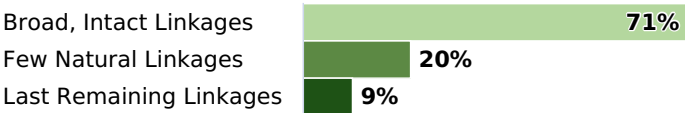


We compared your area of interest to the whole Bay Area, as shown at left. Protecting areas that are more resilient can measurably improve regional resiliency. Areas that are less resilient need careful attention if they are home to native plant communities or other important conservation values.

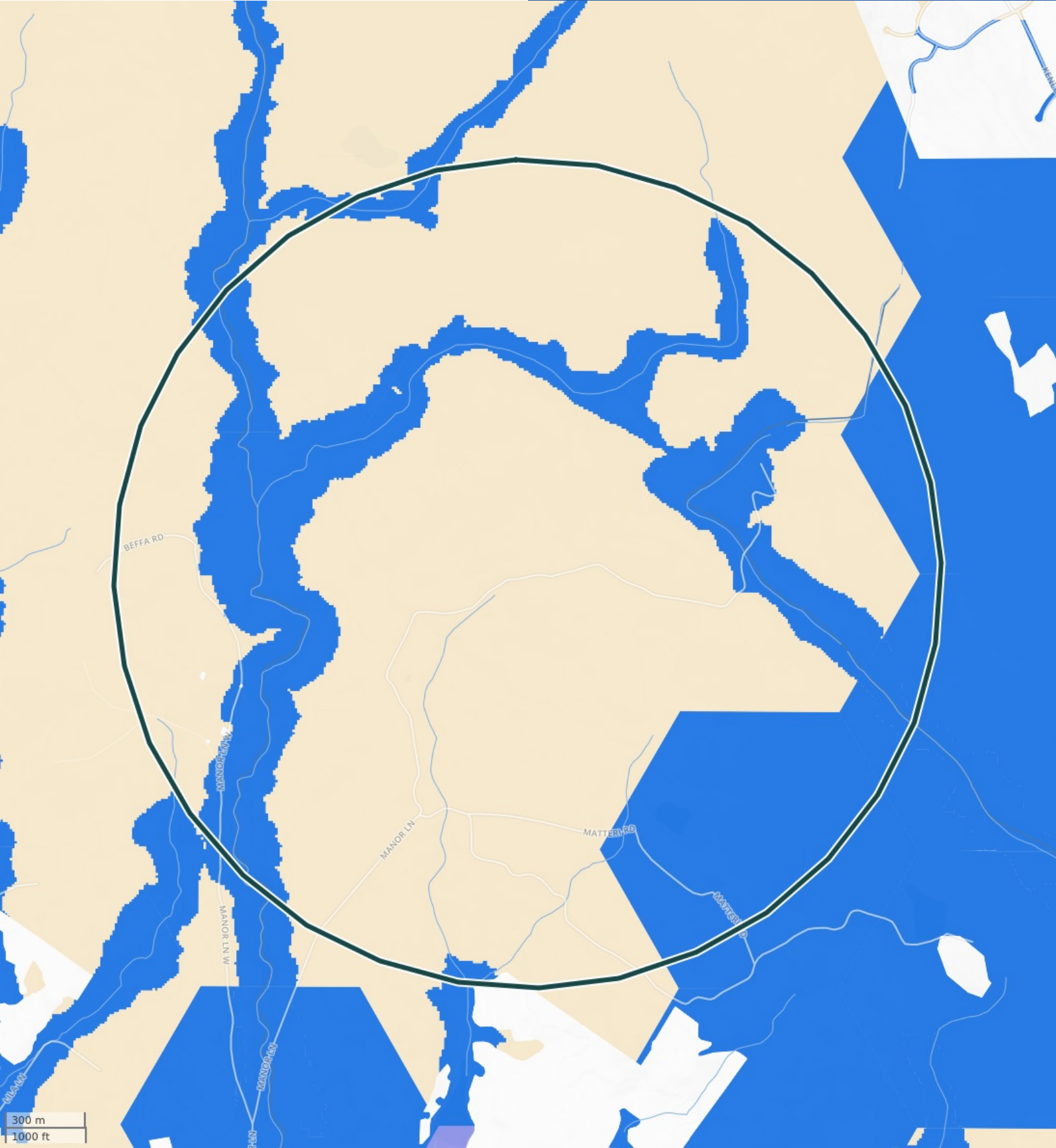
Landscape Connectivity

Landscape connectivity is a measure of the ability of plants and animals in a region to move among patches of habitat.

Acres in your area measured with OmniScape, a wall-to-wall picture of landscape connectivity for plant and animal species whose movement is inhibited by developed or agricultural land uses (data created by The Nature Conservancy).



See previous page for information about Critical Linkages in this area.



See Next Page for Legend

Map Legend

Conservation Lands Network (2018)

- Areas Essential to Conservation Goals
- Areas Important to Conservation Goals
- Areas That Ensure a Connected Network
- Contributes to Conservation Goals

Stream Conservation Targets (Draft)

- Priority 1

Stream Conservation Targets (Draft)

- Priority 2

Stream Conservation Targets (Draft)

- Priority 3

County Boundaries

- County Boundary

Climate and Water

This section of the report shows current and predicts future climate and water reports for the selected area.

Recent Climate and Water Averages

Summer (Jun, Jul, Aug) Maximum	28.6 °C	Evapotranspiration	577 mm/year
Winter (Dec, Jan, Feb) Minimum	4.6 °C	Climatic Water Deficit	654 mm/year
Precipitation	925 mm/year	Cloud Cover	26% of days Jul to Sep
Runoff	209 mm/year	Fog and Low Cloud Cover	4.9 hrs/day
Recharge	138 mm/year		summertime average

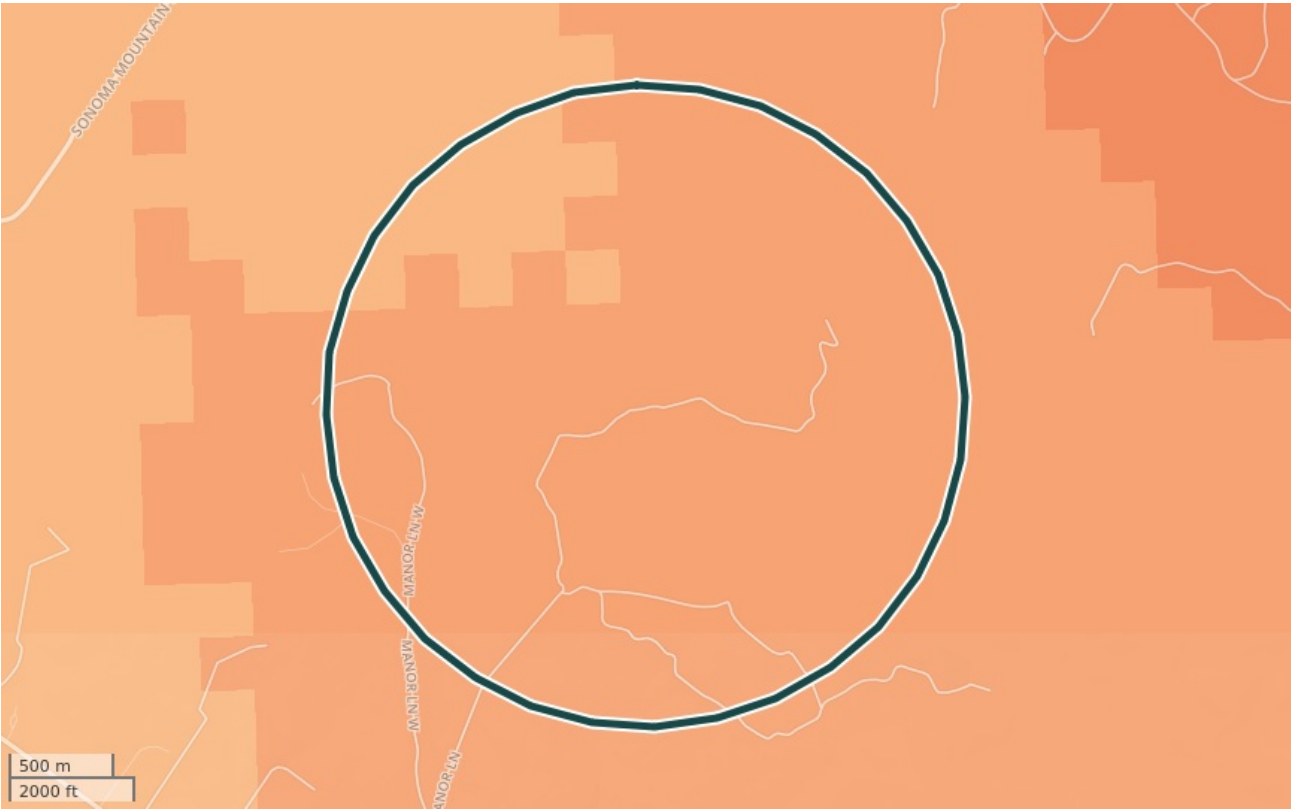
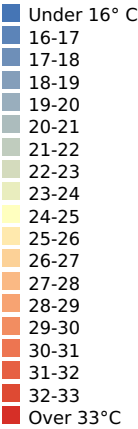
Scenario	Time	AET mm/yr		CWD mm/yr		Winter Minimum °C		Summer Maximum °C		Precipitation mm/yr		Recharge mm/yr		Runoff mm/yr	
Baseline	1951-1980	577	-	654	-	4.6	-	28.6	-	925	-	138	-	209	-
Recent	1989-2018	568	-9	673	+19	4.9	+0.3	28.3	-0.3	892	-33	119	-19	224	+15

All data values show change from the baseline of 1951-1980.

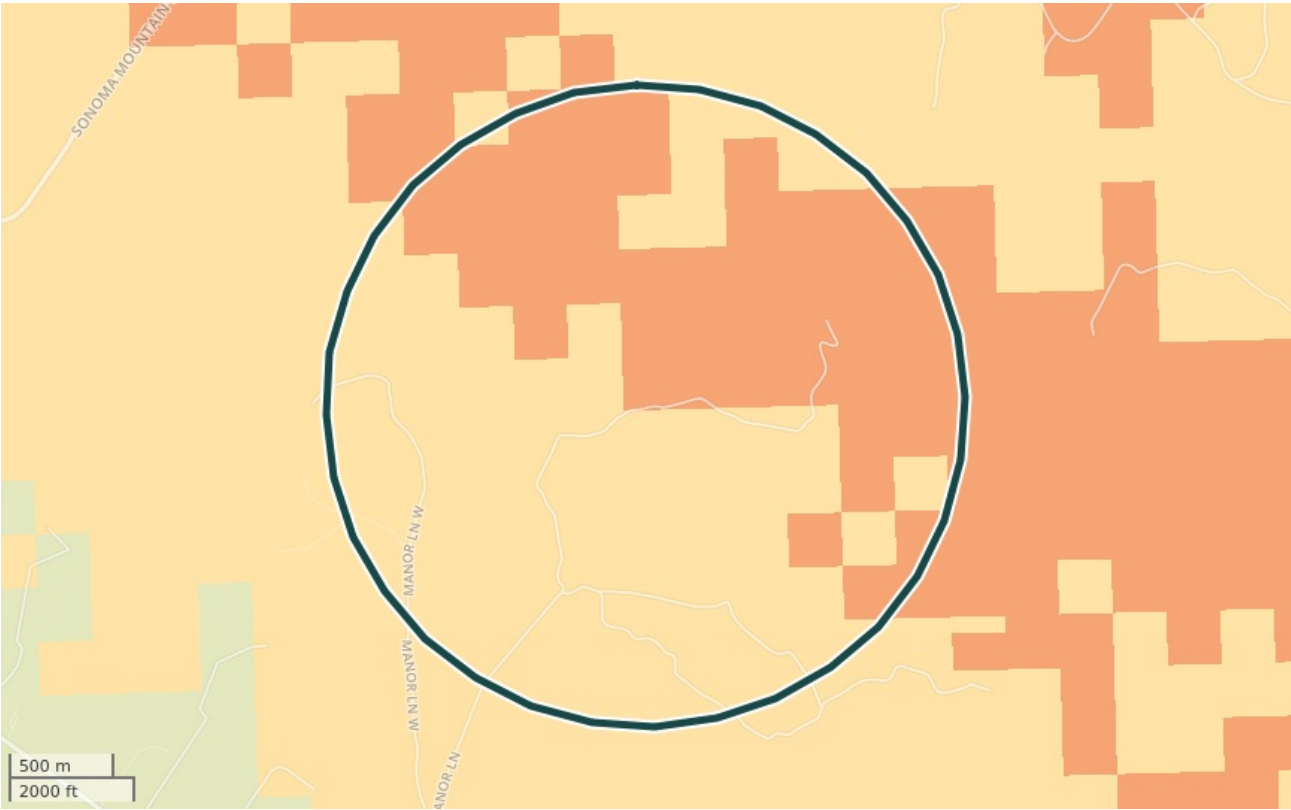
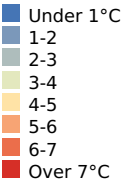
How do these numbers relate to on-the-ground considerations?

- Actual Evapotranspiration (AET):** The amount of water transferred from the soil to the atmosphere through vegetation and direct surface evaporation. Decreased AET means less vegetation productivity. Increased AET means more vegetation productivity.
- Climatic Water Deficit (CWD):** An integrated measure of seasonal water stress and aridity. It is the additional amount of water that could have evaporated had it been freely available. It is calculated as a cumulative sum over the dry season. Increased CWD means higher water stress for vegetation, and greater risk of fire. Greatly increased CWD (50-100+ mm/year over 30 years) can lead to death of existing vegetation through drought stress. Decreased CWD means less water stress and potentially lower fire risk.
- Fog and Low Cloud Cover:** Coastal fog (Fog and Low Cloud Cover or FLCC) is the signature summer weather of the SF Bay Area, and profoundly affects ecosystems from redwoods, maritime chaparral, to lichen encrusted rocks and trees. FLCC shades the land and water, reducing temperatures and increasing humidity, and in select locations with well-placed trees produces fog drip that can exceed 40 inches of water during the dry season that maintains soil moisture and streamflow (Torregrosa et al 2019).
- Winter Temperature Minimum (Tmin):** Average winter (December through February) daily minimum temperature. The average minimum temperature over the coldest months (December-February) is a prime determinant of frost and freeze frequency, and chilling hours for winter dormant plants.
- Summer Temperature Maximum (Tmax):** Average summer (June-August) daily maximum temperature. The average summer maximum temperature in the three warmest months (June-August) is a prime determinant of heat wave extremes, and is an important contributor to AET and aridity.
- Precipitation (PPT):** The total annual precipitation in mm. Increased PPT directly increases runoff, may increase recharge if distributed through the rainy season, and can ameliorate aridity if it falls in March-May (higher AET and lower CWD). Decreased PPT directly decreases runoff and recharge, and increases aridity (lower AET and higher CWD).
- Recharge:** The amount of water that drains below the rooting zone and becomes groundwater for more than a month. Recharge is affected greatly by bedrock permeability and soil depth. Because recharge provides natural subsurface storage that provides the sole source of stream baseflow in the dry season, and many Bay Area communities depend on well water, it is a precious resource. Conservation of high recharge areas is a critical climate change adaptation. Increases in recharge result in greater groundwater aquifer storage and maintenance of baseflow (stream flows during periods absent precipitation) during multi-year droughts. Decreases in recharge results in less groundwater storage and loss of baseflow, especially during multi-year droughts.
- Runoff:** The amount of water that feeds surface water stream flow, and generally occurs during storms when the soil is fully charged with water. Runoff occurs on shallower soils more rapidly than on deeper soils.

Maximum Temperature (deg C), Recent 1989-2018



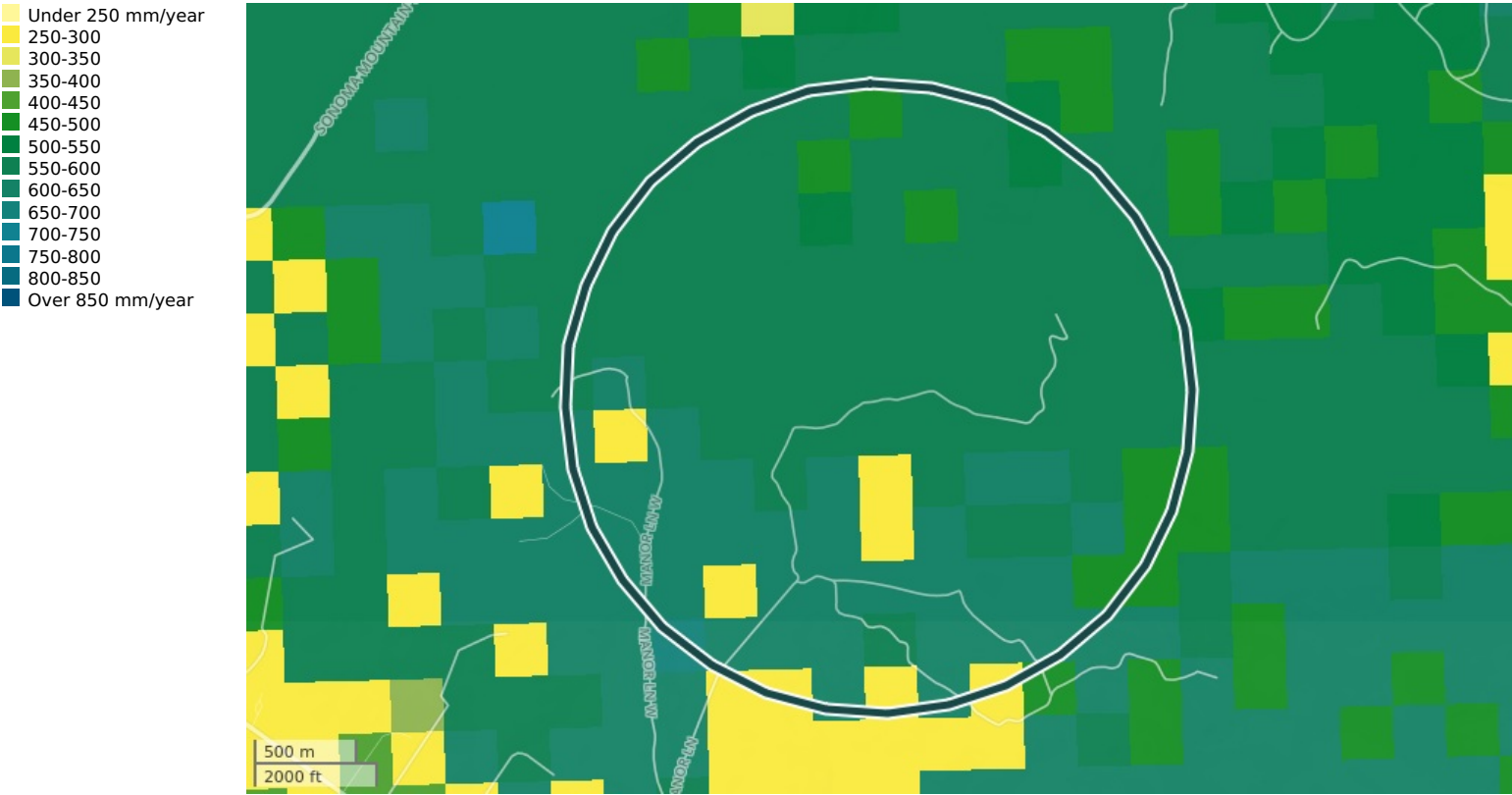
Minimum Temperature (deg C), Recent 1989-2018



Climate Water Deficit (mm/yr), Recent 1989-2018



Evapotranspiration (mm/yr), Recent 1989-2018



Data Sources

Beyond Biodiversity

Recreation data sources

Publicly accessible open spaces: Bay Area Protected Areas Database
Regional trails: Bay Area Ridge Trail Council, MTC/ABAG (San Francisco Bay Trail), California Coastal Commission/Conservancy (California Coastal Trail)
Compiled by Bay Area Open Space Council and Greenbelt Alliance

Visibility data sources

Areas visible from major roads and populated places in order to help communities maintain their visual character: USGS 10-meter Digital Elevation Model (2018), TIGER Major Roads (2018)
Analysis by Bay Area Open Space Council

Food Production data sources

Farmland: [Farmland Mapping and Monitoring Program, 2016 Edition](#)
Storie Soil Index (based on soil characteristics that govern the land's potential utilization and productive capacity; lands with an index score of 80-100 are statutorily defined as prime agricultural land): [Methods](#) | Data: [USDA - Soil Survey Geographic Database](#)

Fire Hazard Reduction data sources

Fire Probability 2001-2025: Probability estimate of fire occurring within a 25-year period (a function of mean fire return interval) for 2001-2025. The estimate is based on natural and human factors and effects of climate change (an average of GFDL and PCM climate models and the A2 emissions scenario) as analyzed in [Mann et al. 2015](#)
Fire Intensity: [CAL FIRE Fire and Resource Assessment Program \(FRAP\)](#). Fire Regime and Condition Class (FRCC) GIS layer (GRID format, v03_2) of historical fire regime and condition class. Fire intensity is a function of deviation from the historical regime and condition.

Wildland Urban Interface data sources

The University of Wisconsin: Map layers that support inquiries into the effects of housing growth on the environment, such as where housing and vegetation intermingle or where housing is in the vicinity of contiguous wildland vegetation.

Flood Hazard Reduction data source: 100- and 500-year flood zones: [FEMA, 3/18/2019](#). The "100-year flood" zone has a 1% chance of flooding each year. The "500-year flood" zone is beyond the 100-year zone and has a 0.2% chance of flooding each year.

Carbon Storage data source: Aboveground Carbon Storage: The amount of carbon stored in live vegetation such as trees, shrubs, and grasses as calculated by [Gonzalez et al. 2015](#). Converted lands (urban, cultivated) were removed.

Water Supply for People data source: Municipal drinking water supply watersheds. Watersheds that supply water to a water utility.
Source: [The Nature Conservancy](#)

Where is it?

Coordinates: Latitude and longitude in World Geodetic System (WGS84) decimal degrees.

Conservation Status: Conservation Lands Network 2.0 Land Classes

Protection vs. Conversion: Bay Area Protected Areas Database, 2017 Edition; CLN 2.0 Converted Lands Layer

Planning Watersheds: [CalWater 2.2.1](#) (State Water Resources Control Board, California Department of Water Resources, California Department of Forestry and Fire Protection, California Teale GIS Solutions Group, California Department of Fish and Game)

Elevation: USGS 1/3 arc-second (~10-meter) Digital Elevation Model - The [National Elevation Dataset](#)

Slope: USGS 1/3 arc-second (~10-meter) Digital Elevation Model - The [National Elevation Dataset](#). Analysis: Bay Area Open Space Council

Nitrogen Deposition: [National Atmospheric Deposition Program](#)

Critical Linkages

Linkages, Large Landscape Blocks, Suitable Habitat for Species: [Critical Linkages: Bay Area and Beyond project](#)

Data Sources

How Resilient Is This Area?

Vegetation Risk data source: Vegetation: Evveg (USFS); 1981-2010 average Climatic Water Deficit (USGS California Basin Characterization Model, 2014). An estimate of proximity to the edge of their "comfort zone" for a given stand of vegetation using the climate variable [Climatic Water Deficit](#) (CWD). The 95th percentile CWD value was determined via Cumulative Distribution Function for each natural vegetation type in the 10-county Bay Area. The 95th percentile was used as a proxy for a given stand's upper tolerance limit for CWD. In other words, stands with CWD values beyond the 95th percentile are assumed to be at very high risk of drought. Stands with CWD values approaching the 95th percentile are assumed to be at high risk.

Landscape Resilience data source: Resilient Sites, a custom TNC product. An index that indicates the presence and accessibility of microhabitat options by quantifying both the permeability of the landscape and the diversity in potential "wetness" and "heat" based on topography. Learn more about this dataset: [Resilient Land page on Conservation Gateway](#)

Connectivity data source: Omnidirectional Circuitscape "OmniScape", a custom TNC product. Regional habitat connectivity for plant and animal species whose movement may be inhibited by developed or agricultural land uses. Data were produced by the The Nature Conservancy, California using modeling methods developed by [McRae et al. \(2016\)](#). Learn more about this dataset: [OmniScape Explorer](#)

Climate and Water

All climate variables except fog: California Basin Characterization Model, 2019. Methods are the same as [California Basin Characterization Model version 8 \(2017\)](#) except with unique time horizons (Mid-century 2036-2064, End of century 2070-2099) to match the California Fourth Climate Assessment.

Fog data source: [Torregrosa, A., et al. 2016](#). More at [Climate Commons](#)

Grids showing the hours per day of summertime fog and low cloud cover (FLCC) over a decade for North and Central Coastal California on either a monthly or annual basis.