

The Conservation Lands Network



CLN 1.0 PROGRESS REPORT

Think Big. Connect More.
www.bayarealands.org



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Citation

This document should be cited as follows:

Bay Area Open Space Council. 2014. *The Conservation Lands Network 1.0 Progress Report*. Berkeley, CA.

Additional Copies and More Information

This report, the original Conservation Lands Network 1.0 Report, accompanying technical documents, and related tools for conservation practitioners are available online at www.bayarealands.org.



The Bay Area Open Space Council is a collaborative of member organizations actively involved in permanently protecting and stewarding important parks, trails and working lands in the ten-county San Francisco Bay Area.

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Cover Photo by Stuart Weiss

Foreword

The San Francisco Bay Area is one of the most unique places on Earth. It is one of the nation's six most important biodiversity hot spots and supports large numbers of endemic plant and animal species found nowhere else (Center for Biological Diversity, 2011). The region's natural beauty and innovative business sector have attracted a growing human population, making the Bay Area simultaneously a booming cultural region and a biodiversity hotspot.

Yet threats to the high quality of life in the Bay Area—for humans, plants and animals—are unprecedented, from budget cuts to poorly planned development, to a changing climate and the current impacts of drought. Especially now, fresh water for fish, wildlife and people is a precious resource as flows are diverted and streams are constrained and polluted. Habitat and landscape linkages vital to wildlife populations are being degraded, unmanaged or lost to development. Ranchers, whose vast grasslands and oak woodlands are integral to conserving regional biodiversity and who represent part of the region's rich historical culture, are facing economic pressure to sell.

At the same time, the push for sustainable communities at the state, regional, and local levels is also unprecedented. New and emerging policies aim to ensure that the Bay Area's high quality of life will not only continue but flourish. The region's economy depends on the quality of life that comes from healthy, functioning ecosystems that provide clean water, beautiful views and vistas, locally grown food, resilience to a changing climate, and accessible open spaces for recreation.

In response to such threats and opportunities, between 2006 and 2011 the Bay Area Open Space Council partnered with 125 experts to develop the Conservation Lands Network (CLN), a regional vision and guide to protect the Bay Area's irreplaceable landscapes.

The Conservation Lands Network 1.0 Progress Report tracks the collective achievements by land conservation agencies, organizations and individuals toward the goals set forth in the CLN. The overarching goal is the collective and strategic protection of 2 million acres of habitat and rare landscapes throughout the ten counties that comprise the Bay Area (listed clockwise, geographically): Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, Santa Cruz, San Mateo and San Francisco.

Through four Conservation Indicators—Protected Lands, Biodiversity and Habitat, Water Resources, and People and Conservation—the Conservation Lands Network 1.0 Progress Report illustrates both quantitative and qualitative achievements in regional and local land conservation since the 2011 release of the CLN 1.0 report.

Figure A: The Conservation Lands Network 1.0 Progress Report: Summary of Progress, by Conservation Indicator.

Conservation Indicator	Progress Metric	Progress Summary
Protected Lands	• Protected Lands	• 100,000 more acres protected than in 2010.
	• Connected Lands: Contiguous landscapes	• Protected lands around Mount Diablo now form a 75,000 acre contiguous area.
	• Connected Lands: Bay Area Critical Linkages	• 20,000 acres of Critical Linkages protected since 2010.
	• CLN acreage At Risk	• 19,000 acres taken “out of” risk since 2010.
Biodiversity & Habitat	• Protected Habitats	• 61% successful in meeting regional vegetation targets (up from 56% when CLN 1.0 was released).
	• Protected Rare Landscapes	• 19,000 acres (19%) of the 100,000 additional acres are rare landscapes.
Water Resources	• Protected Stream Miles	• 49 more Priority 1 and 2 stream miles protected than in 2010. • Currently, 29% of all Priority 1 and 2 stream miles are now protected (793 of 2,700 miles total).
	• Water Runoff Areas	• Protected lands currently provide roughly 30% of region’s runoff capacity; lands within the CLN provide an additional 41%.
	• Water Recharge Areas	• Protected lands currently provide roughly 30% of region’s recharge capacity; lands within the CLN provide an additional 34%.
People & Conservation	• Conservation of Private and Working Lands	• Currently, 26% of regional rangelands protected (nearly 500,000 acres of a total 1.9M acres).
	• Stewardship: Ownership of Protected Lands	• State agencies own and care for about 27% of protected lands (over 373,000 acres). California State Parks is the largest land-owning organization in the Bay Area. • EBRPD is second largest land-owning/managing organization, caring for 6.5% of protected lands (over 90,000 acres).
	• Stewardship: Land management, partnerships, outreach and education, and the value of volunteers	• Countless volunteers, partnerships and collaboratives have enabled ongoing land stewardship despite limited resources since 2010.
	• Access to Protected Lands, and Trails	• 36,000 more acres are publicly accessible than in 2010. • Currently, 73% of the region’s 1.37 million protected areas are accessible to the public. • 65 more miles of trail since 2010 on the three major regional routes: the San Francisco Bay Trail, the Bay Area Ridge Trail, and the California Coastal Trail.
	• Regional Conservation Policies and Funding	• A wide variety of funding sources have made progress possible since 2010.

Learn more at www.bayarealands.org

Today, 1.37 million acres of undeveloped lands are permanently protected in the 10-County Bay Area. This reflects a remarkable 100,000 more acres protected since 2010, regionally. Protecting the next 600,000 acres to reach the 2 million acre goal will be more difficult, as growth and development pushes urban boundaries to the north (in wine country), to the south (beyond Silicon Valley) and to the east (toward the Central Valley). Ensuring that the Bay Area’s greenbelt (comprised of parks, farms and ranches, redwood forests, healthy wetlands and more) not only remains intact, but that the gaps are filled in (by protecting the most important and rare landscapes) and the lands are well managed (by investing in stewardship and long-term care) will be the next wave of conservation priorities. The Bay Area is a unique landscape in more than one way, and we must all work together to “Think Big and Connect More.”

Project Funding

Funding for the Conservation Lands Network 1.0 Progress Report has been generously provided by the Gordon and Betty Moore Foundation and the California State Coastal Conservancy. Visit our funders at www.moore.org and www.scc.ca.gov.

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The Conservation Lands Network



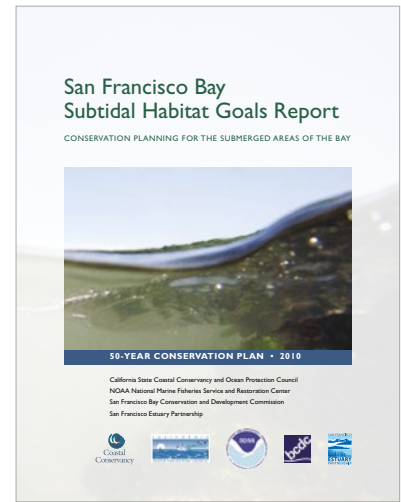
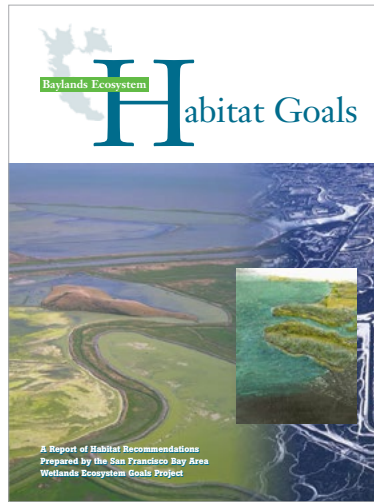
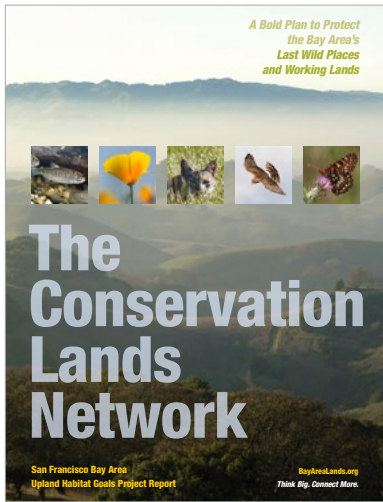
Photo by Annie Burke

The Conservation Lands Network (CLN) is both a vision to strategically protect 2 million acres of lands in the Bay Area, and a guide by which the vision can be achieved. The creation of a shared vision for biodiversity conservation is a valuable resource for the San Francisco Bay Area. The CLN and the goals it represents will only be achieved over the course of many decades and through the work of many partners using a variety of conservation tools. Collaboration and coordination are the keys to achieving the CLN's bold vision to think big and connect more.

As a Vision

As a vision, the Conservation Lands Network is a collaborative, science-based effort to conserve the Bay Area's irreplaceable landscapes and biodiversity. The "network" is made up of the types, amount and distribution of habitats that comprise the most essential lands needed to sustain the biodiversity of the San Francisco Bay Area. The network design prioritizes ecological integrity and watershed functions to ensure resilience to environmental disturbance. For more information about the approach and methods used to develop the CLN visit www.bayarealands.org.

Figure 1.1: The San Francisco Bay Area's trio of regional conservation plans. The Conservation Lands Network is one of three regional habitat conservation plans that, together, cover all the ecosystems of the Bay Area: from the ridge tops through the forests, grasslands and valleys (upland habitats) across the marshes and wetlands leading to the Bay (bayland habitats), and into the underwater landscapes of the Bay itself (subtidal habitats).



Inspiration for development of the Conservation Lands Network initially came from the Baylands Ecosystem Habitat Goals Project. Completed in 1999 by a consortium of public agencies, the Baylands Goals Project envisioned conservation of 100,000 acres of historic tidelands that ring the San Francisco Bay. The successful and ongoing implementation of the Baylands Goals Project has served as a model for development and tracking of the CLN, the region's conservation vision for the terrestrial upland habitats. The region's third conservation plan is the 2011 Subtidal Habitat Goals Project, a collaborative vision for the protection and restoration of submerged habitats in the San Francisco Bay.

As a Guide

¹ The Conservation Lands Network study area of 4.5 million acres does not include the SF Bay and Baylands Landscape Unit. The 2011 CLN study area was 4.3 million acres and did not include the SF Bay and Baylands Landscape Unit or Santa Cruz County.

However, the Bay Area Protected Areas Database (BPAD) does include lands protected within the SF Bay and Baylands Landscape Unit. Therefore, measurements of progress based on BPAD data include baylands acreage. The dataset used for tracking in each progress metric is cited, when relevant, in figure captions throughout the report.

As a guide, the Conservation Lands Network is not a list of specific parcels, but represents a mosaic of interconnected habitats. It is a regional biodiversity conservation plan covering 4.5 million acres¹. The CLN serves as a guide to help conservation practitioners, policymakers, regulators, funders, planners, and landowners make informed conservation investments, support collaborative conservation planning, and protect biodiversity throughout the region.

The Conservation Lands Network offers insight into the biodiversity value of a specific property, serving as a preliminary conservation plan for a subregion, or facilitating the identification of appropriate mitigation lands. A series of tools were created through development of the Conservation Lands Network: the network itself, a comprehensive report, the CLN Explorer Tool, a GIS database, and a website (www.bayarealands.org) where the CLN tools are free and readily available.

Tools: Conservation Lands Network

- **CLN 1.0 Report.** Published in 2011, the Conservation Lands Network 1.0 report documents the project data, methodology, conclusions and recommendations for implementation and continued progress tracking of the CLN.
- **CLN Explorer Tool.** The Conservation Lands Network Explorer is an interactive online mapping tool that makes the maps and underlying data of the CLN readily available. Through the CLN Explorer, a user can analyze the conservation value of any landscape in the Bay Area, and print comprehensive Biodiversity and Climate Profile reports, without requiring GIS software or capabilities.
- **CLN GIS Database.** All publicly available datasets used for the analysis and development of each version of the Conservation Lands Network.
- **Website: www.bayarealands.org** is the home base for the CLN. All tools, datasets, reports and steps to take action toward protecting land can be found at www.bayarealands.org. First launched in 2011 with the CLN 1.0 report, the website has been updated in conjunction with the release of the CLN 1.0 Progress Report.

Versions and Releases

The first version of the CLN, version 1.0, was released in 2011. The full report and supporting documents and data can be downloaded at www.bayarealands.org. The Bay Area Open Space Council is currently planning for CLN 2.0, anticipated for release in 2016. With each updated version of the CLN, the network will be re-delineated to represent the most accurate configuration of habitats essential for conserving the Bay Area's biodiversity. As new lands are protected—and as others are converted to urban or cultivated croplands—the configuration of the CLN will shift to account for the values those protected lands provide. Thus, the CLN is a dynamic and ever-evolving vision and guide.

Progress reports, like this one, will be released periodically to highlight regional and local achievements toward the vision and guide set by CLN 1.0. Details about the CLN Progress Report analysis and methodology can be found in the CLN 1.0 Progress Report Appendix at www.bayarealands.org.

Dates and data for progress reporting

The first version of the CLN, version 1.0, was released in 2011 but the geographic and spatial data used in its development were from 2010. Therefore, unless otherwise noted, all progress measurements reported in the CLN 1.0 Progress Report are a measure of change from 2010 to 2013.

Figure 1.2: The Conservation Lands Network 1.0. Built upon protected lands as of 2010, the Conservation Lands Network 1.0 captures the types, amounts, and distribution of habitats needed to conserve the 9-County Bay Area’s unique biodiversity and rare landscapes. The CLN categories are: (1) areas Essential to conservation goals (darkest blue); (2) areas Important to conservation goals (medium blue); (3) areas of the CLN that are Fragmented (light purple); and (4) areas for Further Consideration (light blue). (Note: CLN 1.0 did not include Santa Cruz County.) Data: CLN 1.0, 2011.

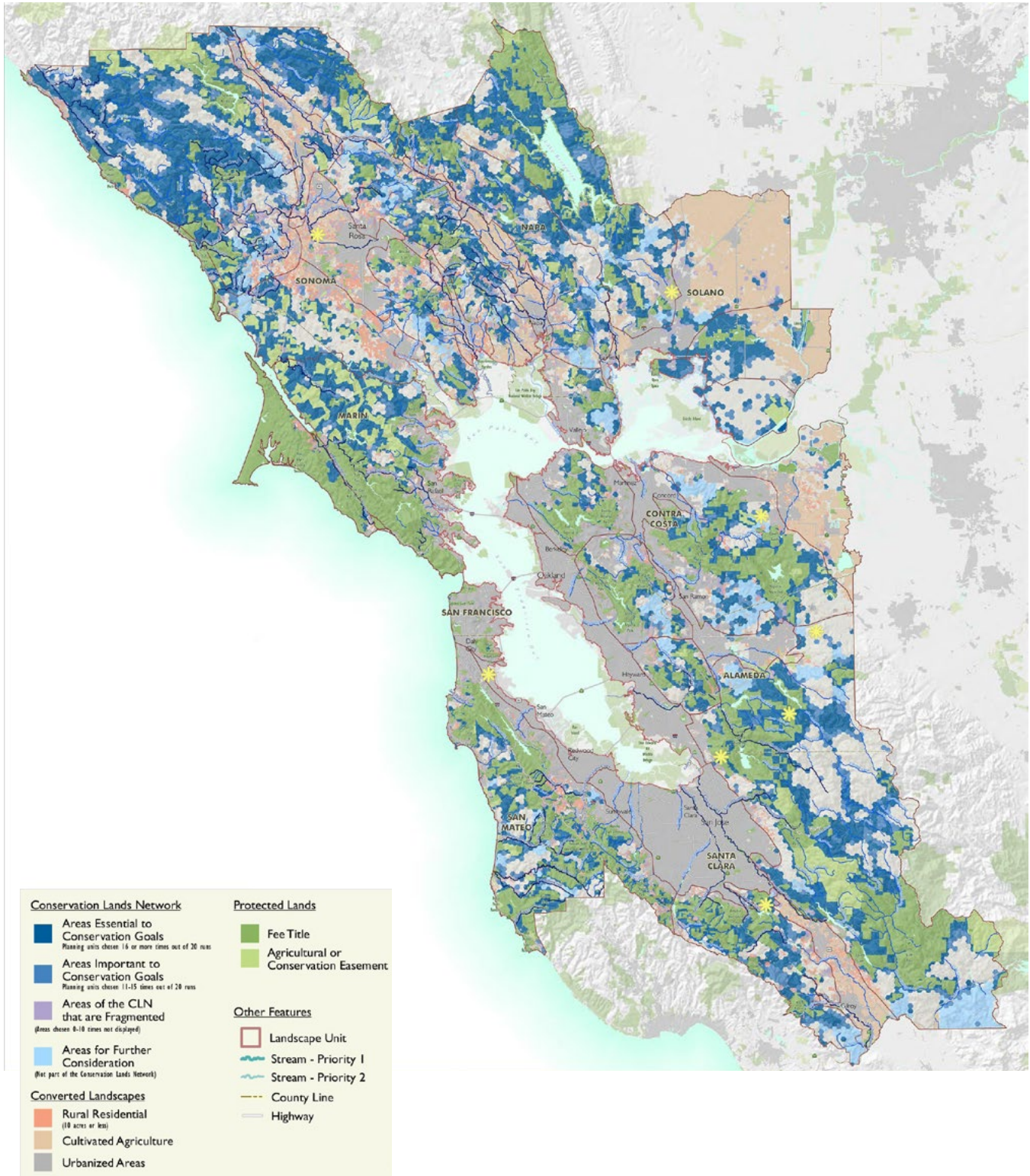
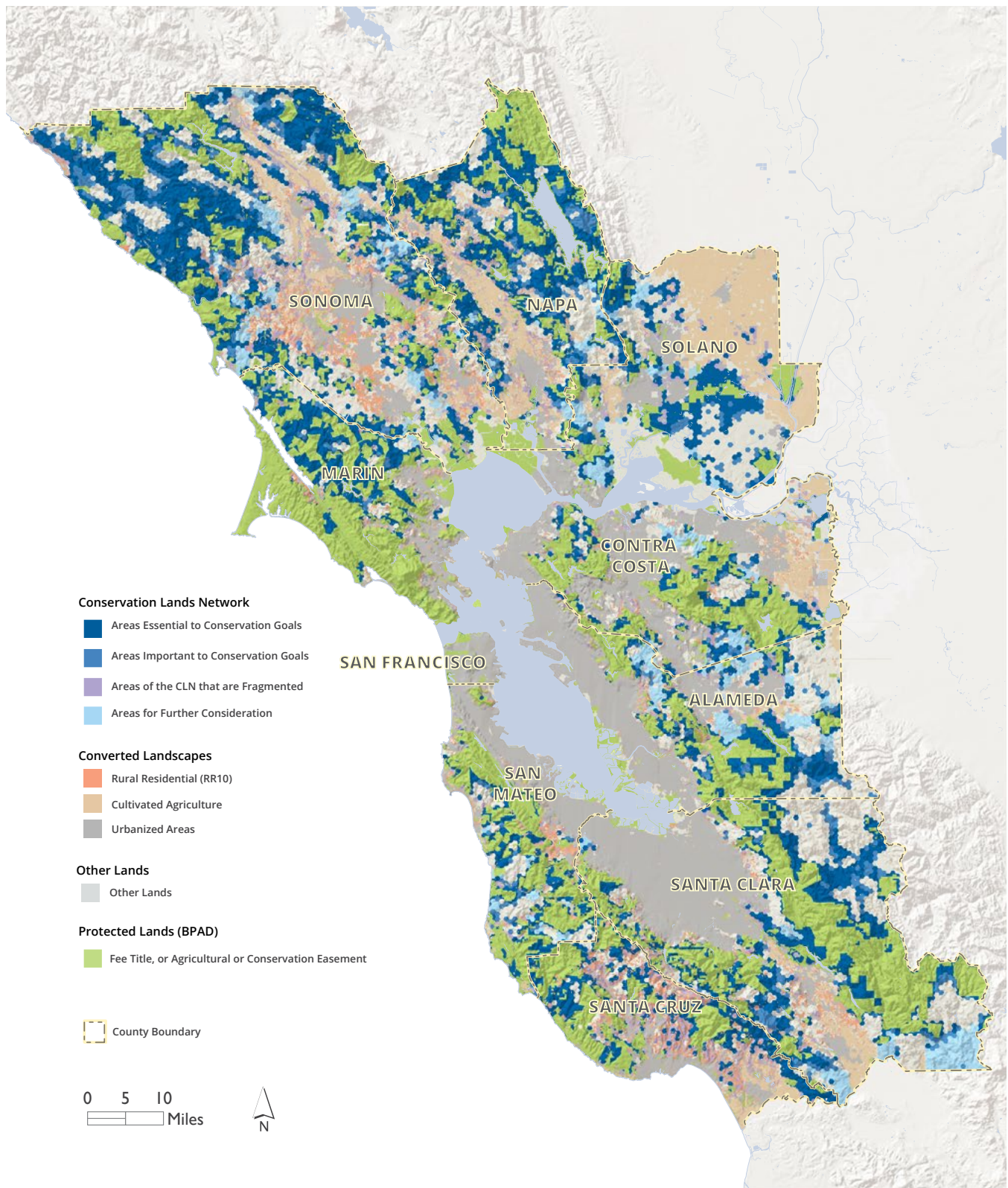


Figure 1.3: The Conservation Lands Network 1.0 Progress Basemap. While the network of the CLN was not updated, a revised CLN basemap was built from protected lands as of 2013, in order to compare to the CLN 1.0 and measure progress toward conservation goals and targets since its release in 2011. The new basemap, named “CLN 1.0 progress basemap” represents the most up-to-date landscape data, includes Santa Cruz County, and accounts for relative increases in regional and landscape unit acreage protection goals.



CLN 1.0 Conservation Goals

The Conservation Lands Network 1.0 represents much of what is currently known about the distribution of biodiversity (key habitats for target species, rare landscapes, and unique lands) in the San Francisco Bay Area. The study area for the CLN 1.0 was the nine-county Bay Area (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma).

The conservation goals, targets and recommendations set forth in the Conservation Lands Network 1.0 are the goals, targets and measures to which the CLN 1.0 Progress Report tracks achievements.

Regional Acreage Protection Goal

Strategically protect 2 million acres of Bay Area upland habitat and rare landscapes.

The Conservation Lands Network encompasses roughly 2.2 million acres of the region's total land. In other words, approximately half of the land in the Bay Area is essential to conserve if we are to protect the region's unique lands and ecosystems—not to mention the ability of these lands to continue to provide a high quality of life. This includes habitats and rare landscapes on both private and public lands, protected through fee and conservation easements.

Habitat and Rare Landscape Protection Goals

Protect key habitats and rare landscapes.

The Conservation Lands Network identifies acreage protection goals for each of the 52 vegetation types found throughout the Bay Area. Vegetation types are an indicator for habitat; rare vegetation types are synonymous to rare landscapes.

Conservation of habitats and rare landscapes provide multiple benefits for realization of other conservation and quality of life goals including recreation, local food production, healthy watershed function and more.

Fish and Riparian Habitat Goals

Save our streams and the ecological processes they rely upon.

Streams are integral to ecosystem health and provide habitat for fish, mammals, birds and vital ecosystem services to humans. Riparian areas offering cool, shady areas are especially important in a changing climate. Watershed-scale planning is proving to be a key tool for restoring riparian ecosystems across both upland and bayland landscapes.

Conservation goals for Fish and Riparian Habitat were set in CLN 1.0. Logically, hydrologic watershed boundaries were used for conservation goal development, rather than the CLN landscape units used for other fine filter targets. Due to the linearity of streams, stream health and the quality of riparian and fish habitat is impacted by the land uses in the entire

watershed. For this reason, stream corridors in urban areas are included in the Conservation Lands Network.

CLN Implementation Goals

Supporting efforts, partnerships, incentives and targets for protecting and managing 2 million acres of Bay Area lands.

While counting acres is the quantitative measure from which we track land conservation progress, many other collaborations, partnerships, incentives, targets, policies and efforts are necessary for the successful and collective strategic protection of 2 million acres. Accordingly, the following qualitative implementation goals were identified in CLN 1.0:

Private Lands

The Conservation Lands Network includes both public and private lands, as habitats and rare landscapes span property boundaries and fence lines. Working lands, in particular, are important for implementation of the CLN, and incentives to keep working lands in production are needed².

Stewardship

In addition to conserving land, adaptive management, monitoring and stewardship of protected and open lands are essential to maintain and restore the ecological processes upon which biodiversity and quality of life in the Bay Area depends.

Public Policy

The adoption and enforcement of strong federal, state and local policies, regulations, incentives and collaborative programs to conserve and maintain biodiversity is necessary.

Outreach and Education

Spread the word to policy makers and funders, and collaborate with regional partners to communicate the values and goals of the Conservation Lands Network, and form new partnerships to reach the goals.

Funding for Conservation

To make the Conservation Lands Network a reality, it is imperative to use existing resources effectively, and to increase the amount of funding available for land and watershed protection and long-term stewardship.

² The Bay Area Open Space Council recognizes the conservation value of working and agricultural landscapes in the implementation of any regional conservation vision. Yet, the CLN is focused on habitats and rare landscapes with *biodiversity* value. Therefore, in the CLN 1.0, the land cover type “cultivated croplands” was categorized as a converted landscape, along with urban.

Therefore, in the CLN 1.0 Progress Report, some progress metrics do not fully represent the value agricultural lands contribute to regional quality of life, greenbelt protection, or even land conservation values. In future updates of the CLN, the role agricultural lands play toward achieving the 2 million acres protected goal will be considered carefully.

Tracking regional conservation progress

Good decision-making requires good information. The Conservation Lands Network provides conservation practitioners, public officials, scientists, decision makers, and others with important insight into the diversity, integrity and connectivity of habitats, landscapes and ecosystems throughout the Bay Area. The goals set forth for protecting these important lands are sourced from the physical and geographic condition of the landscapes themselves. By tracking progress, we ensure that as a region we are indeed strategic, collaborative and coordinated in our efforts to strategically protect the next 600,000 acres in order to reach the 2 million acre goal.

More reasons to track conservation progress regionally include:

- **The Bay Area is a biodiversity hotspot**—a region with high biological diversity coupled with extensive habitat loss. Bay Area biodiversity is threatened by the region's economic prosperity and rate of growth. Tracking our progress is an important step in successful protection and stewardship of the diverse habitats and rare landscapes that make the Bay Area unique.
- **The health of the Bay Area is linked to the health of the land, tidelands, and baylands.** The Conservation Lands Network is one piece of a larger effort to conserve valuable habitats, rare landscapes and ecosystem functions in the Bay Area. It complements two other ecosystems—the estuarine tidelands of the Baylands Ecosystem Habitat Goals Project and the submerged habitats of the San Francisco Bay Subtidal Habitat Goals Project. Progress on each individual effort supports the success of the other two. Additionally, the Critical Linkages: Bay Area and Beyond (2013) report identifies important connections to landscapes and regions outside of the Bay Area.
- **Our efforts to track progress result in more progress.** As a region, it is important to know how we are doing toward achieving our stated goals. It allows us to better collaborate and coordinate toward the collective goal of strategically protecting 2 million acres—and enables us to celebrate the victories along the way.
- **The whole is greater than the sum of its parts.** The strength of the CLN grows each year as more protected landscapes link together to create large, connected open spaces that are critical to species viability and ecological processes that support the wildlife, ecology, iconic landscapes and quality of life so unique to our region.

2 CLN 1.0 Progress Report



Photo by CBC

The Conservation Lands Network 1.0 report emphasized the importance of keeping the CLN dynamic, relevant and current. The CLN 1.0 Progress Report is the first effort to quantitatively and qualitatively assess the land conservation achievements made throughout the Bay Area since the CLN 1.0 was released. A regional assessment of progress allows the land conservation community at large to recognize the collective impact of local conservation efforts.

In addition to reporting on metrics, the CLN 1.0 Progress Report serves as an opportunity for the Bay Area Open Space Council—through collaboration with its members and partners—to take a closer look at conservation issues not inherent in the CLN, but nevertheless related and often influential to our collective ability to strategically protect 2 million acres. We must think big, and connect more.

The opportunities and objectives of the CLN 1.0 Progress Report include:

- **Analyze progress made and look ahead to what is next.**
Although the CLN 1.0 was released in 2011, the original data for the CLN 1.0 is from 2010, and sets the baseline from which we begin tracking progress. Progress is tracked through 2013, and an assessment of where the Conservation Lands Network remains in each county and for the region as a whole is considered. Steps to take in order to continue implementing and tracking the Conservation Lands Network are recommended.
- **Connect regional to local; local to regional.**
The CLN is a regional conservation vision and plan, derived from data assessed at the landscape unit scale (see Figure 4.2: Landscape Unit Map). While critical to the conservation planning approach and the scientific integrity of the CLN, the landscape unit geography is unfamiliar to a general audience, despite the fact that conceptually most people understand the physical differences between the hills and the valley. On the other hand, the political county boundary is a commonly understood geography. The CLN 1.0 Progress Report therefore leverages county level reporting as an unconventional entry to the CLN, granting new audiences exposure to the CLN and its related data from a familiar starting point.
- **Broaden the audience for the Conservation Lands Network.**
The CLN 1.0 Progress Report is not a report that will sit on a shelf. Progress and achievements are shared widely online, through an updated user experience at www.bayarealands.org. Visually compelling presentation, interactive mapping, county level reporting, and human-scale story telling engages a new generation of CLN users and conservation supporters. Beyond the traditional land conservation community of practitioners, landowners, land managers and volunteers, the audience for the CLN 1.0 Progress Report include elected officials and legislators, county and city planners, universities and researchers, and individuals and groups interested in and advocating for the Bay Area's network of parks, open spaces and natural landscapes.
- **Celebrate achievements and inspire next steps.**
Not all progress can be quantified. The CLN 1.0 Progress Report highlights the people and projects that have contributed to the on-the-ground success of the Conservation Lands Network. We aim to remind the conservation community to "Think Big and Connect More" by promoting the continued investment in Bay Area land conservation, and by keeping the Conservation Lands Network dynamic and relevant.

CLN 1.0 Progress Report Approach

The Conservation Lands Network 1.0 Progress Report tracks the achievements toward the regional goal to strategically protect 2 million acres of lands and rare landscapes throughout the ten counties that comprise the Bay Area (listed clockwise, geographically): Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, Santa Cruz, San Mateo and San Francisco.

The first version of the CLN, version 1.0, was released in 2011 but reports on geographic and spatial data from 2010. Therefore unless otherwise noted, all progress measurements reported in the CLN 1.0 Progress Report are a measure of change from 2010 to 2013.

Creating a 10-County Vision and Guide: Incorporation of Santa Cruz County

The Conservation Lands Network 1.0 did not include Santa Cruz County. However, the Land Trust of Santa Cruz County replicated the CLN methodology in their Conservation Blueprint of Santa Cruz County (2011), which highlights the biological and quality of life values Santa Cruz County provides to all of the Bay Area. Their analysis enabled the incorporation of Santa Cruz into the CLN 1.0 Progress Report. The addition of a tenth county in the Conservation Lands Network meant that the project team had to account for relative increases in acreage accounting from the CLN 1.0 datasets and conclusions. As such, acreage changes due to the incorporation of Santa Cruz are noted wherever they were necessary throughout the CLN 1.0 Progress Report. More information on methods for incorporation can be found in the Appendix, available at www.bayarealands.org.

Figure 2.1: The 10-County San Francisco Bay Area.



Conservation Indicators and Progress Metrics

Progress is reported on fifteen metrics, organized into four conservation indicator categories: three inherent in the CLN 1.0 (Protected Lands, Biodiversity and Habitat, and People and Conservation) and one included due to its cultural and geographic relevance especially at this point in time: Water Resources.

Each of the four conservation indicators speaks to an important aspect of land conservation in the Bay Area and allows for progress reporting across an array of metrics in a multi-dimensional, multi-functional way.



Protected Lands

Protected lands are defined as landscapes and open spaces owned in fee title or protected through an agricultural or conservation easement (see “Defining Protected Land” Sidebar). In contrast, converted lands are landscapes that are no longer considered open spaces or suitable for biodiversity conservation values because they have been developed or cultivated for other uses.

Protected Lands Progress Metrics span three categories of understanding a landscape’s status:

1. Protected lands (areas protected and whether or not those areas are accessible to the public);
2. Connected lands (areas where protected lands are adjacent to one another and therefore create a large landscape mosaic, and areas identified through the Critical Linkages: Bay Area and Beyond project); and
3. Lands at risk (areas at risk of being developed due to regional population and growth trends).



Biodiversity and Habitat

Biodiversity is defined as “the complex of living organisms, their physical environment, the interactions among these organisms, and how they array themselves in the physical environment” (Noss 1990, Redford and Richter 1999). The Conservation Lands Network uses habitat and rare landscapes—specifically the location and rarity of vegetation types—as indicators for biodiversity viability in the Bay Area.

Biodiversity and Habitat Progress Metrics include additional acres protected of habitats and rare landscapes, as counted toward the 52 individual vegetation type acreage targets set forth in the CLN 1.0.

Defining “Protected Land”

Protected Lands, as defined in the Conservation Lands Network and the Bay Area Protected Areas Database (BPAD), are designated in one of two ways: either by purchasing or acquiring a “conservation easement” to a privately owned property, or by purchasing a property outright for conservation purposes. Protected lands can be parks, preserves, ranches, farms, forests, small, large, publicly accessible, and not publicly accessible. An array of public and private Bay Area agencies and organizations own conservation lands and open spaces, and hold conservation easements. See the full list in Figure 6.3.

Fee Title

The purchase of all the rights associated with a property is a “fee title” acquisition, and allows the landowner to manage the property to preserve and protect its conservation values. Typically fee title conservation lands are purchased by or donated to land trusts, government agencies or other conservation organizations who may retain ownership of the property as a permanent preserve or transfer the property to a suitable owner (often a government agency). In some cases, the land is sold to a private owner, subject to a conservation easement held by the land trust. (Definition from California Council of Land Trusts.)

Easements

The most traditional tool for conserving private land is a “conservation easement.” A conservation easement is a legal agreement between a landowner and a land trust or government agency, and permanently protects a property’s conservation values by limiting uses of the land. It allows landowners to continue to own and use their land, and sell it or pass it on to heirs. (Definition from Land Trust Alliance.)



Water Resources

The water systems above and below ground—streams, rivers, ponds, vernal pools, lakes and reservoirs, ground water basins and watersheds—are the veins of life support for the upland habitats and rare landscapes that comprise the Conservation Lands Network. The CLN 1.0 recognized that a whole watershed (in-channel, basin, riparian corridor and floodplain) approach is necessary for the successful conservation of riparian and fish habitat. Therefore, Water Resources are defined in the CLN 1.0 Progress Report as the important streams, riparian habitat, and associated upland areas that support healthy native fish populations and ensure watershed functionality.

Water Resource Progress Metrics include additional stream miles of protected aquatic and riparian habitat, and watershed functions measured by rates of recharge and runoff flows.



People and Conservation

Land conservation is not possible without on-going effort, collaboration, coordination and investment by people in both the public and private sectors. Successful implementation of the Conservation Lands Network and progress toward the Regional Acreage Protection Goal and Habitat and Rare Landscape Protection Goals cannot be made without the, committed efforts made by the Bay Area’s land owners and land managers, conservation

volunteers, policy makers, recreation and trail advocates, scientists and researchers, and the voting public.

People and Conservation Progress Metrics explore the progress and values for conservation of private lands and working landscapes; stewardship of protected lands, and the vital partnerships, programs and volunteers that make conservation happen; accessible lands and trails; and regional conservation policies, plans and funding programs.

Figure 2.2: Progress Metrics, by Conservation Indicator.

Conservation Indicator	Progress Metric
Protected Lands	<ul style="list-style-type: none"> • Protected Lands • Connected Lands: Contiguous landscapes • Connected Lands: Bay Area Critical Linkages • Acreage At Risk
Biodiversity & Habitat	<ul style="list-style-type: none"> • Protected Habitats • Protected Rare Landscapes
Water Resources	<ul style="list-style-type: none"> • Protected Stream Miles • Water Runoff Areas • Water Recharge Areas
People & Conservation	<ul style="list-style-type: none"> • Conservation of Private and Working Lands • Stewardship: Ownership of Protected Lands • Stewardship: Land management, partnerships, outreach and education, and the value of volunteers • Access to Protected Lands, and Trails • Regional Conservation Policies and Funding

3

Protected Lands



Photo by Miguel Viera



Protected Lands are defined as landscapes and open spaces owned in fee title or protected through an agricultural or conservation easement. In contrast, converted lands are landscapes that are less suitable for meeting the conservation goals because they have been developed or cultivated for other uses.

Protected Lands **Progress Metrics** span three categories of understanding a landscape's status: Protected lands (areas protected and whether or not those areas are accessible to the public); Connected lands (areas where protected lands are adjacent to one another and therefore create a large landscape mosaic, and areas identified through the Critical Linkages: Bay Area and Beyond project); and lands at risk (areas at risk of being developed due to regional population and growth trends).

Overall progress toward the Conservation Lands Network Regional Acreage Protection Goal is measured by the increase of protected lands as tracked through the Bay Area Protected Areas Database, or BPAD. A joint project of the Bay Area Open Space Council and GreenInfo Network since 2000, BPAD is a subset of the statewide California Protected Areas Database (CPAD, at www.calands.org) and has included protected lands data for Santa Cruz County since 2010. BPAD is updated annually based on the voluntary submission of fee title and conservation easement data by land protection agencies and organizations, including land trusts and park districts. (For BPAD Summary Tables from 2010-2013, visit www.bayarealands.org.)

BPAD is the backbone of the Conservation Lands Network. Indeed, a major part of understanding the regional conservation landscape comes from knowing where the existing protected lands are and who owns and manages those lands. This information allows us to assess regional goals, assist in planning for new areas to conserve, identify where people are in relation to parks and, simply but perhaps most powerfully, visualize the system of regional protected lands.

Watch the historical progression of the Bay Area’s public parks and open spaces in [GreenInfo Network’s animation](#) of land protection from 1850 to 2012. The video is also available at www.openspacecouncil.org.

Protected Lands in the 10-County Bay Area

In 2010, the total amount of protected land in the 10-County Bay Area was just over 1.25 million acres. Today, 1.37 million acres of undeveloped lands are permanently protected in the 10-County Bay Area. This total reflects a remarkable 100,000 acres protected between 2010 and 2013, regionally.

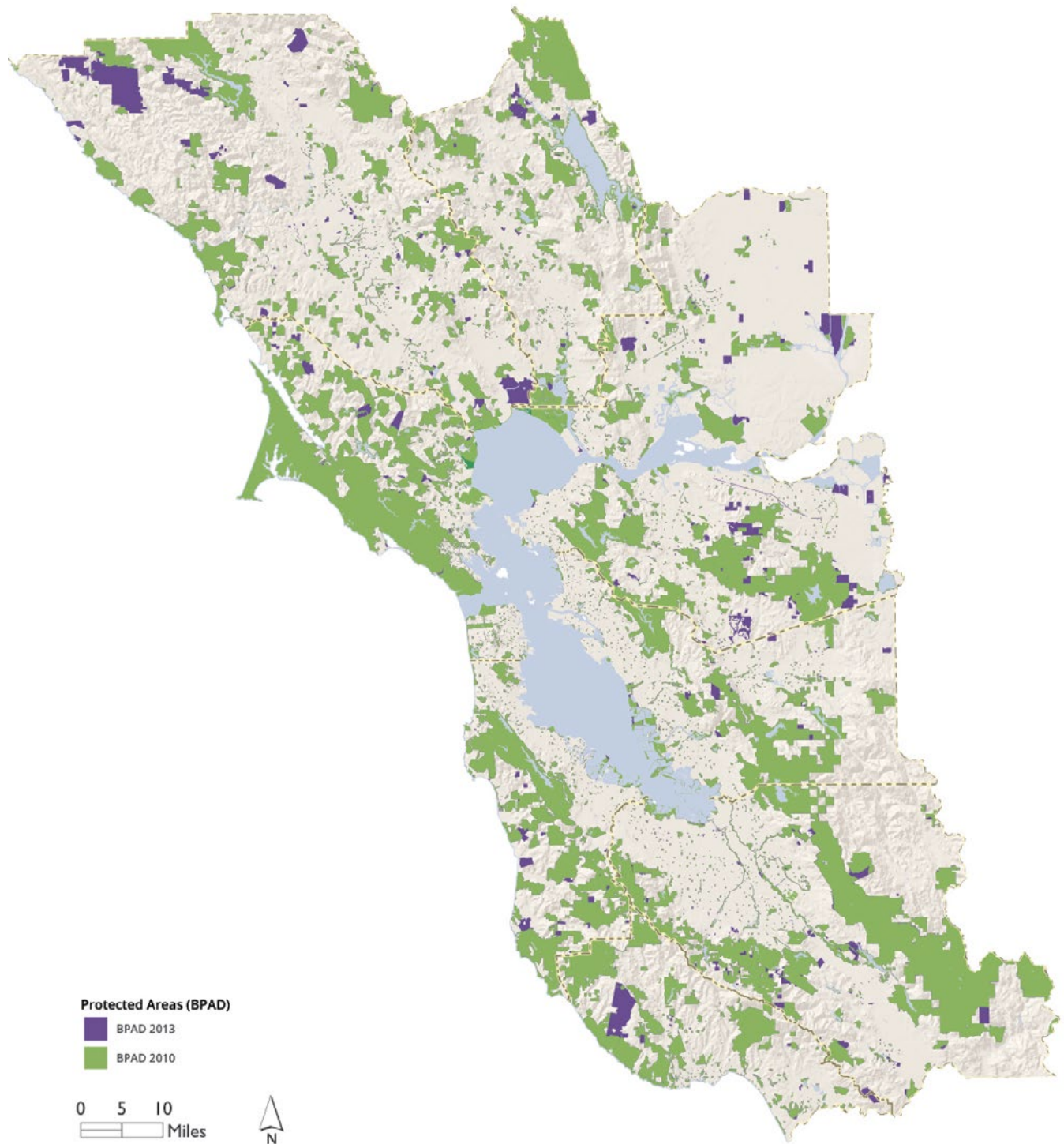
Figure 3.1: Additional protected acreage, 2010-2013, by county. See original BPAD Summary Tables by year in the Appendix at www.bayarealands.org. Data: BPAD 2010, BPAD 2013.

County	Total protected acres, 2010	Total protected acres, 2013	Progress	% Progress
Alameda	113,214	116,146	2,932	3%
Contra Costa	126,029	139,693	13,664	10%
Marin	189,004	194,906	5,902	3%
Napa	140,907	145,315	4,408	3%
San Francisco	5,446	5,458	11	0%
San Mateo	111,369	116,284	4,915	4%
Santa Clara	239,115	247,494	8,379	3%
Santa Cruz	77,219	86,714	9,495	11%
Solano	60,508	72,474	11,966	17%
Sonoma	171,988	210,871	38,883	18%
TOTAL	1,234,800	1,335,355	100,556	8%

Note: the landscape unit “SF Bay and Baylands” is not fully covered by the 10 counties. Approximately 33,000 of BPAD 2013 acres are counted in LSU but not the county summary. Thus, the total Protected Areas in the 10-County Bay Area does total 1.37 million acres, despite not depicted here as such.

The Bay Area Protected Areas Database (BPAD) not only includes protected *lands* – it also includes protected acres that are submerged or tidal. Tracking all protected areas is critical to the greater regional understanding of and the ecological connectivity of upland, baylands, and subtidal habitats. For details about protected land acres or protected water acres by county, please explore by county at www.bayarealands.org.

Figure 3.2: Additional protected lands, 2010-2013. Between 2010 and 2013, over 100,000 more acres of land and water were protected across the 10-County Bay Area. Lands protected since 2010 are highlighted in purple. (Note: The nuance of spatial data results in incomplete records. Please contribute to BPAD to ensure the CLN reporting is as accurate and current as possible.) Data: BPAD 2010, BPAD 2013.



All protected areas in BPAD are acres of land and water that are designated protected through fee title or an agricultural or conservation easement (see Sidebar in Chapter 2). Protected landscapes in BPAD include ranches, forests, rivers, wetlands, parks and even urban playgrounds and golf courses—if they are protected. However, BPAD does not reflect the number and acreage of regulatory easements created by land use or regulatory actions. Future refinement and availability of this, and all, BPAD data would help efforts to track progress toward strategically protecting 2 million acres.



Photo by Terry Chappell for Sonoma Land Trust

Next steps in tracking progress toward the goal of strategically protecting 2 million acres includes the continued collection and refinement of fee title and conservation easement data from land protection agencies and organizations.

Historically the Bay Area land conservation community has been extremely successful in protecting iconic landscapes and important habitats from the coastal redwoods to the serpentine grasslands admired by John Muir.

But our collective land conservation job is not finished. As the late Peter Douglas (the long term executive officer of the Coastal Commission) reminded us, “The coast is never saved. It’s always being saved.” Indeed, the next era will require more collaboration, stronger partnerships and creative solutions to resource needs for land conservation.

To reach the goal of strategically protecting 2 million acres of habitat and brare landscapes that fall on privately owned lands will become ever more important toward our collective efforts to implement the Conservation Lands Network. Not all protected lands can, or should be, owned and managed by public agencies and other land conservation organizations.

Private landowners often are the best land stewards, and working lands—rangelands, sustainable forests, well managed farms and more—are a vital asset to the quality of life in the Bay Area and their health is critical for meeting the goals of the Conservation Lands Network.

As discussed, the Conservation Lands Network offers a vision and guide for considering where to look next for land conservation. However, the mosaic of lands “available” for protection are not all within the Conservation Lands Network because the CLN focuses on habitats and rare landscapes essential and important for the protection of regional biodiversity. Indeed, acquisition of a small property that does not have development value may prove easier than that of a large, productive landscape with a productive timber operation. Both landscapes are “available” for conservation from a mapping perspective.

Understanding Land Cover Types

When looking at the CLN in context of all the land cover types present in the Bay Area (see Figure 1.7), categories of land range from open lands—effectively those “accessible” for conservation, including much of the CLN—to converted lands.

Converted lands are landscapes that are no longer considered open spaces or suitable for biodiversity conservation values because they have been developed or cultivated for other uses. In the CLN, converted land cover types include urban, rural residential and cultivated areas. (Note: cultivated areas and “other lands” often have conservation value, but within the scope of the CLN, are not considered to have high biodiversity conservation value.)

Figure 3.3: Land cover types in the Conservation Lands Network. The CLN land cover categories are: (1) areas essential to conservation goals (darkest blue); (2) areas important to conservation goals (medium blue); (3) areas of the CLN that are fragmented (light purple); and (4) areas for further consideration (light blue). The landscapes not identified as converted, and also not identified within the CLN, are considered “other lands.”



Other Lands

“Other lands” are undeveloped landscapes, or open spaces that are not urban, rural residential (parcels of 10 acres or less), cultivated agriculture or croplands, and were not selected by the model that delineated the Conservation Lands Network. While other lands may not be home to a

rare habitat or may not neighbor an already protected landscape, they nonetheless have value as open spaces. Whereas protection of lands comprising the Conservation Lands Network counts toward meeting a regional goal to protect the Bay Area’s biodiversity, protection of other lands can meet other goals at many scales, for example recreation, watershed conservation, vista protection and more.

Figure 3.4: Land cover types, by county. Since 2010, more than 100,000 acres within the 10-County Bay Area have been protected, bringing the regional tally of protected lands to 1.37 million acres. This chart shows acres protected alongside acres in other land cover types, including lands in and outside of the Conservation Lands Network. (Data: CLN 1.0 Updated Basemap).

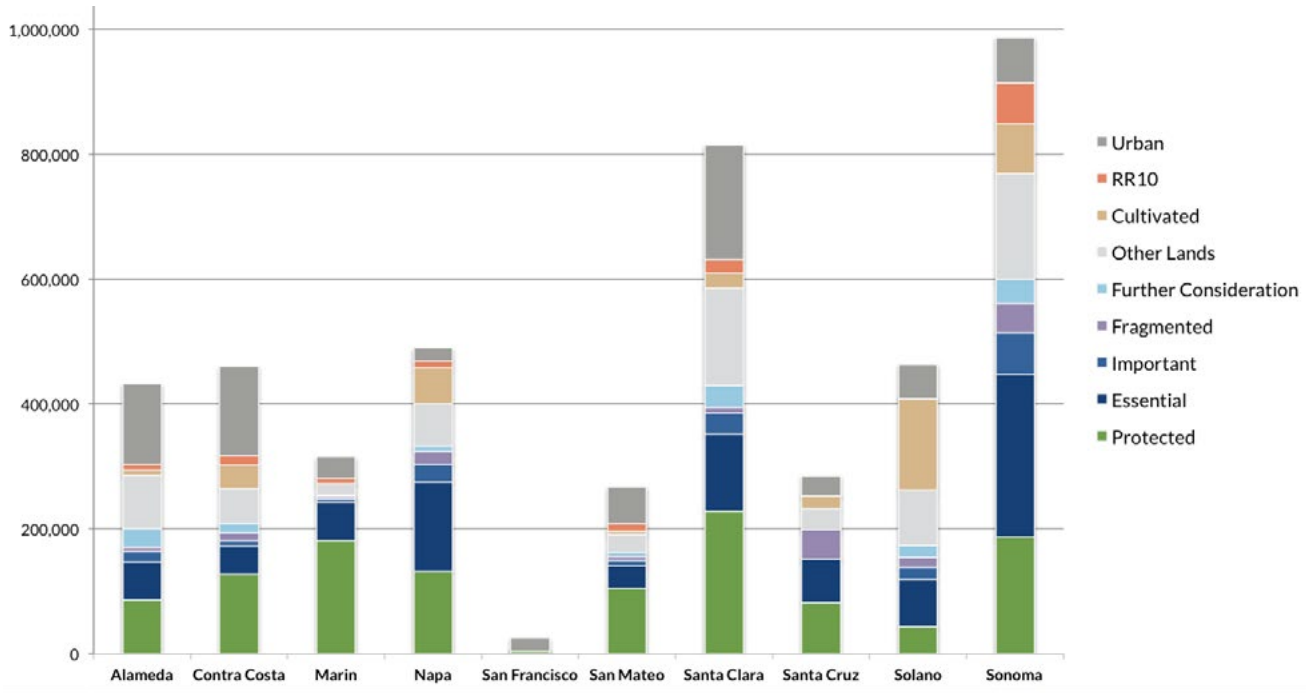
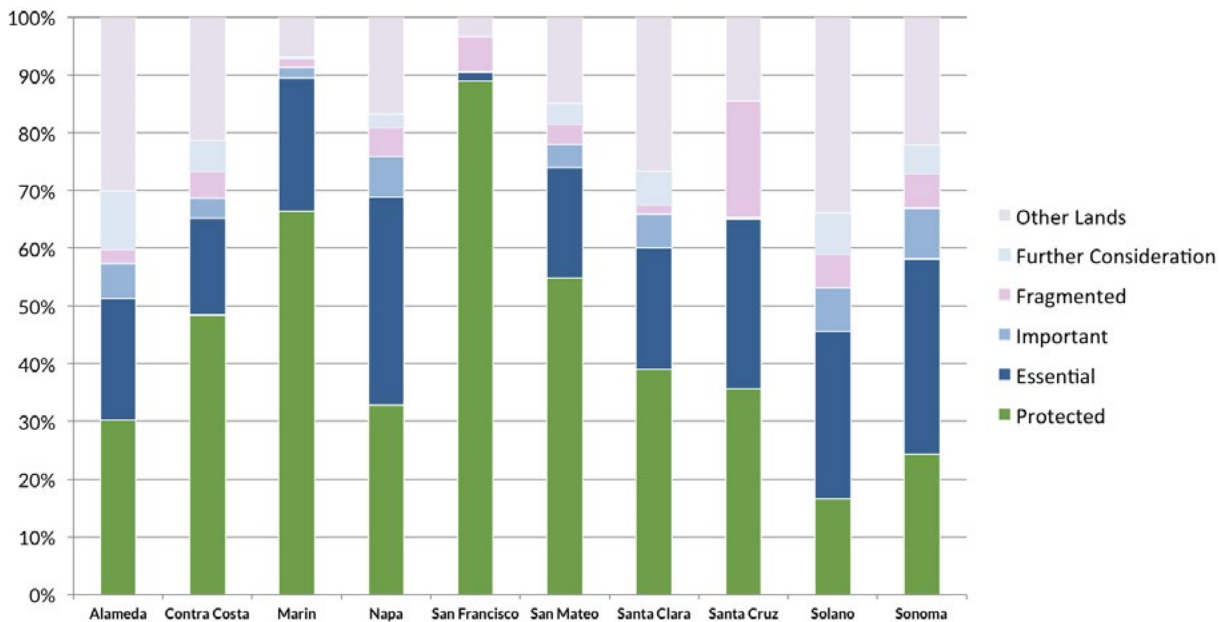


Figure 3.5: Proportion of lands “available” for conservation, by county. This bar graph depicts the proportionate land cover types of non-converted lands (or “available” lands) in each Bay Area county as of 2013. Converted lands are urban, rural residential or cultivated agricultural lands. (Data from CLN 1.0 Updated Basemap.)



To interpret Figures 3.4 and 3.5, it is helpful to refer to look at San Francisco City/County. Figure 3.5 shows that, of all the undeveloped lands in San Francisco, nearly 90% are protected. Figure 3.4 reminds us that San Francisco is nevertheless a small percentage of the total acreage in the Bay Area. In contrast, Figure 3.4 shows that Sonoma County has the most acreage of the 10 Counties, while Figure 3.5 reminds us that less than 30% of County land is protected.

* American Community Survey 2012 5yr summary file (B01003)

**Conservation Lands Network Study Area is all land within the Landscape Units. (See Figure 4.2: Landscape Unit Map.)

Population and acreage by county

County	Population*	Official Acres (within Political Boundaries)	Acres within CLN Study Area**
Alameda	1,515,136	476,565	432,791
Contra Costa	1,052,047	481,394	461,160
Marin	252,759	336,285	315,747
Napa	136,644	505,857	490,539
San Francisco	807,755	30,238	25,939
San Mateo	721,183	290,479	267,678
Santa Clara	1,788,393	831,659	815,534
Santa Cruz	262,340	285,713	285,668
Solano	414,209	544,112	463,954
Sonoma	483,456	1,016,737	987,526
TOTAL	7,433,922	4,799,040	4,546,538

Connected Lands: Contiguous Landscapes and Critical Linkages

Landscape “connectivity” is key to maintaining viable populations of native plant and wildlife species found in the Bay Area. Large, connected landscapes comprised of protected lands buffer wide-ranging species from the impacts of genetic, demographic and environmental variability. Connected landscapes also support ecological processes that provide Bay Area residents with a high quality of life. As such, the increased connectivity of protected lands is exponentially powerful in the implementation of a strong Conservation Lands Network: a newly protected parcel that connects existing protected lands increases the size of the contiguous block well beyond the incremental acreage of the additional parcel.

Linkages between protected lands—whether they are large stretches of native vegetation, mid-sized agricultural landscapes, or narrow riparian corridors—are essential for the diversity of wildlife populations in the Bay Area. The CLN 1.0 Progress Report measures to what degree protected landscapes are more connected than they were when the CLN 1.0 was released.

In CLN 1.0, connectivity was assessed in three ways: within landscape units, between landscape units, and to landscapes beyond the CLN. Connectivity within landscape units were delineated in the network design of the CLN itself, by the prioritization of adjacency to existing protecting lands and compactness of the network.

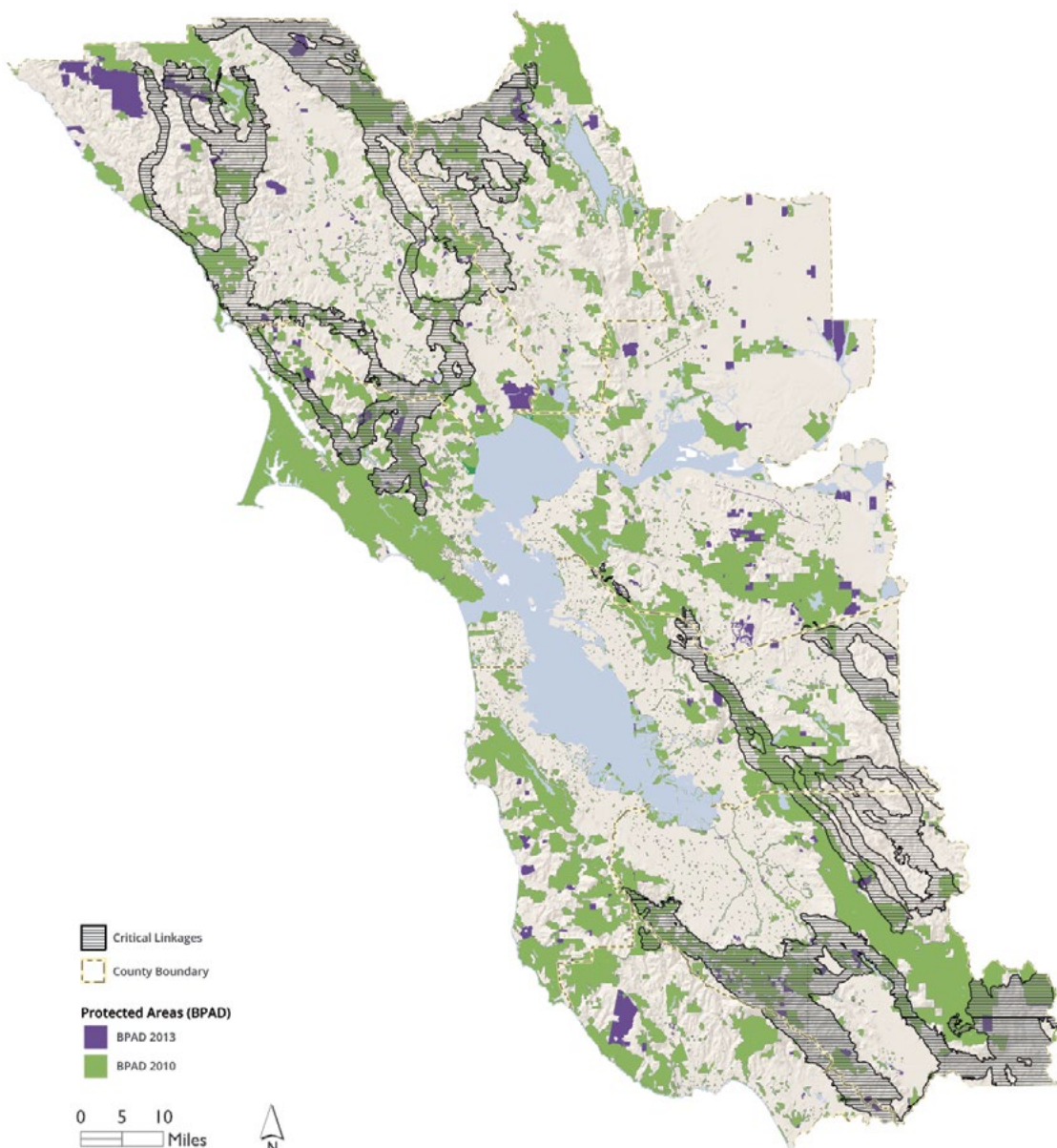
Connectivity between landscape units and beyond the Conservation Lands Network are essential for conservation of wide-ranging species with low

population densities, like mountain lions and the American badger. Linkage opportunities for these species are found in connected native vegetation, agricultural landscapes, in narrow riparian corridors running through urban areas, and in some highway underpasses.

Critical Linkages: Bay Area and Beyond

The Critical Linkages: Bay Area and Beyond (2013) project considered linkages for 66 focal species in all 10 Bay Area Counties, as well as Monterey and San Benito Counties to the south and Mendocino and Lake Counties to the north. The Conservation Lands Network served as a core dataset from which the wildlife corridors and linkages were identified. For more information, download the entire Critical Linkages report at www.bayarealands.org.

Figure 3.6: Protected lands within Critical Linkages, in the 10-County Bay Area. Critical habitat linkages connect large blocks of open lands, habitats and rare landscapes, many of which are comprised of already protected areas. Areas protected since 2010 within a Critical Linkage are highlighted. Data: BPAD 2013; Bay Area Critical Linkages 2013.



Critical Linkages encompass approximately 900,000 acres within the 10-County Bay area, 250,000 of which are already protected. Between 2010 and 2013, it is estimated that at least 20,000 acres of land falling within a critical linkage were protected.

Due to the methodology from which Critical Linkages were delineated, it is not surprising that many linkages are within already protected areas (approximately 250,000 acres). Critical Linkages corresponding with the Conservation Lands Network (including lands for Further Consideration) span over 430,000 acres and are an opportunity to prioritize land conservation for protection of multiple benefits. The next largest land cover type that linkages encompass are Other Lands (approximately 170,000 acres), where biological surveys and habitat assessments should be done before conservation action is taken. While progress toward protection of linkages appears small, the achievement of ensuring wildlife movement across many types of land covers—including converted lands—is great. Looking ahead, the broader land and resource conservation communities must focus on linkage protection while the linkages still exist.

Contiguous landscapes

Contiguous landscapes are defined as large areas of linked protected lands that create exponentially greater conservation landscape “blocks.” In the CLN 1.0 Progress Report, connected and protected landscapes are aggregated into three scales: contiguous landscapes of less than 5,000 acres, of 5,000-50,000 acres, and contiguous landscapes greater than 50,000 acres.

As of 2013, there are 33 blocks of protected lands within the CLN greater than 5,000 acres, 12 of which are greater than 20,000 acres. The largest contiguous blocks are in the Mt. Hamilton Range (202,635 acres) in Santa Clara County and along the Marin Coast (140,028 acres). Other large blocks greater than 50,000 acres include the Central Santa Cruz Mountains, the North and Middle East Bay Hills (though tenuously connected across the Caldecott Tunnel Corridor), and Mt. Diablo in Contra Costa County. In fact, the protected lands around Mt. Diablo now form a 75,000 acre contiguous area from the addition to Black Diamond Mines. Refer to the Appendix (available at www.bayarealands.org) for more details about the various contiguous landscapes greater than 5,000 acres.

The large contiguous protected areas, when viewed as a whole, illustrate the Bay Area’s “greenbelt”—the ring of open spaces surrounding the region’s urban areas that promote intrinsic values to residents and visitors alike: hillside vistas, tree lined roads and trails, and parks and natural landscapes that provide much of the quality of life experience the Bay Area is known for.

In an increasingly growing Bay Area, connecting protected lands to one another through strategic acquisition and partnerships with private landowners and conservation partners will result in big biodiversity payoffs. Indeed, the tagline of the Conservation Lands Network—“Think big. Connect More.”— is a simple reminder to protect large landscapes and to work collaboratively.

Figure 3.7: Contiguous protected areas. The CLN study area includes 33 blocks of protected lands greater than 5,000 acres. Data from BPAD 2013.

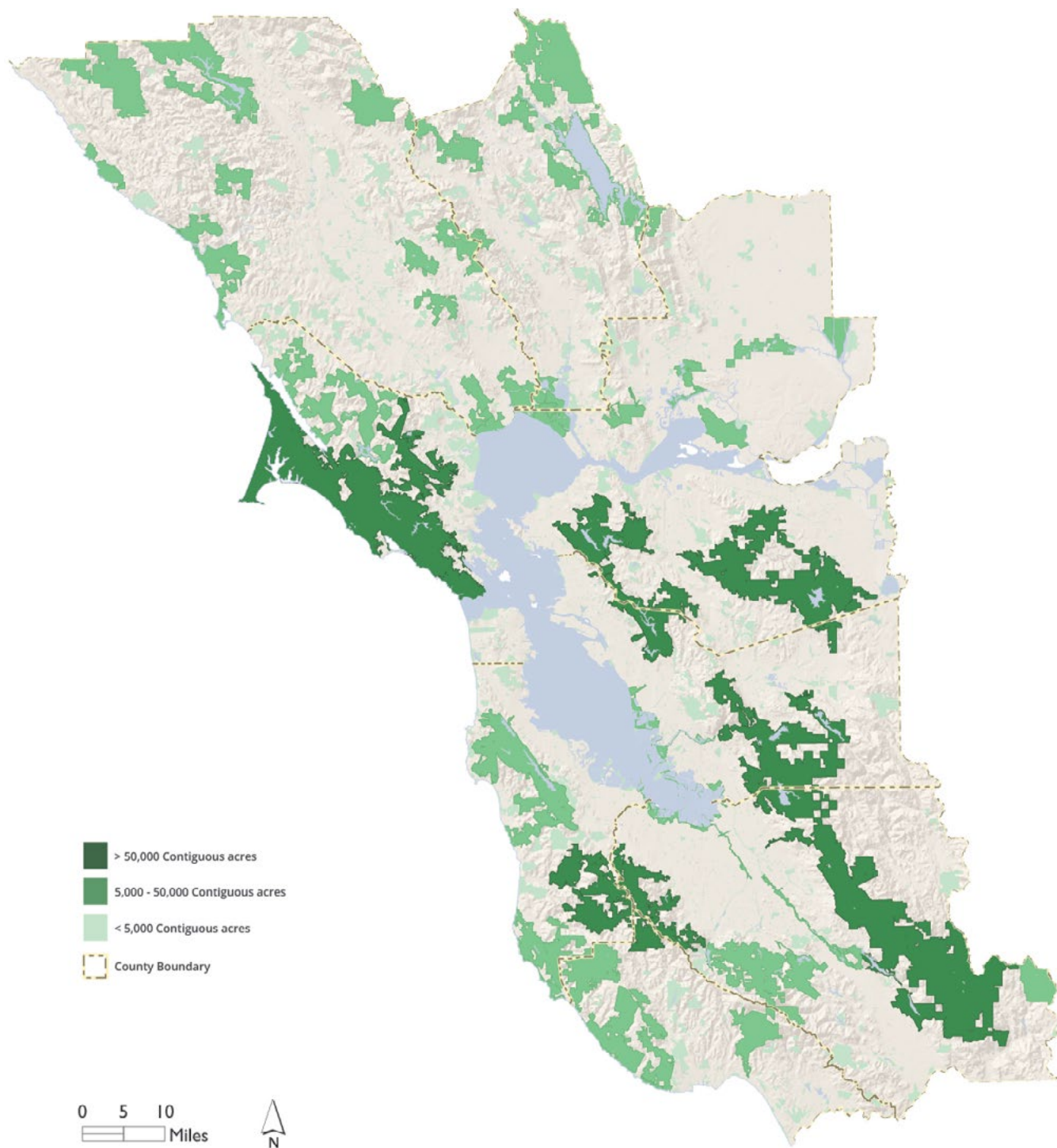




Photo by Annie Burke

Acreage At Risk

The population in the Bay Area is projected to grow by an additional 1 million people over the next 40 years (California Department of Finance, 2014), requiring new housing, new commercial space, new industrial facilities, and more. Development—in all forms—is a significant cause of habitat fragmentation. Roads are paved, buildings are constructed with parking lots, fences are put up, pesticides are applied, and water is diverted from streams.

The Greenbelt Alliance, a non-profit organization advocating for the Bay Area to “grow smart,” is an important conservation partner to the Bay Area Open Space Council and its members. Greenbelt Alliance’s Greenbelt Mapper is an interactive resource that shows, among other layers, lands at risk of development in the next thirty years. Greenbelt’s “At Risk” map serves as a reminder that development pressure can, in some landscapes, be a significant threat to regional conservation goals.

The 2006 At Risk map identified just over 400,000 acres in the 9-County Bay Area that were at high or medium threat of development—or “at risk”—through the year 2036. The most recent version of Greenbelt Alliance’s At Risk map was released in 2012 and identified over 320,000 acres at high or medium threat of development through the year 2042. See Figure 3.8.

The CLN 1.0 Progress Report further analyzed the At Risk data in order to project how many at risk acres were taken “out of risk” through land protection efforts during 2013. In total, we estimate that more than 19,000 acres that were considered at high and medium risk in 2012 have since been taken out of risk, many through protection.

Figure 3.8: Lands taken “out of risk” in 2013. Lands taken out of risk were estimated by overlaying At Risk 2012 data with the CLN 1.0 Updated Basemap, and effectively “erasing” all lands that were protected in 2013. It is estimated that 19,670 acres were taken out of risk in 2013. Data: At Risk 2006, 2012; CLN 1.0 Updated Basemap.

	High Risk	Medium Risk	High + Medium Risk
At Risk 2006	125,200	276,200	401,400
At Risk 2012	77,300	245,500	322,800
CLN 1.0 Updated Basemap overlay with At Risk 2013	72,108	231,022	303,130
Progress 2012-2013	-5,192	-14,478	-19,670

In order to more deeply understand the threat that development has on our collective ability to strategically protect 2 million acres, the CLN 1.0 Progress Report identifies those areas that are both At Risk and in the Conservation Lands Network in 2013. An estimated 72,000 acres remain at high risk and another 230,000 acres remain at medium risk of development.

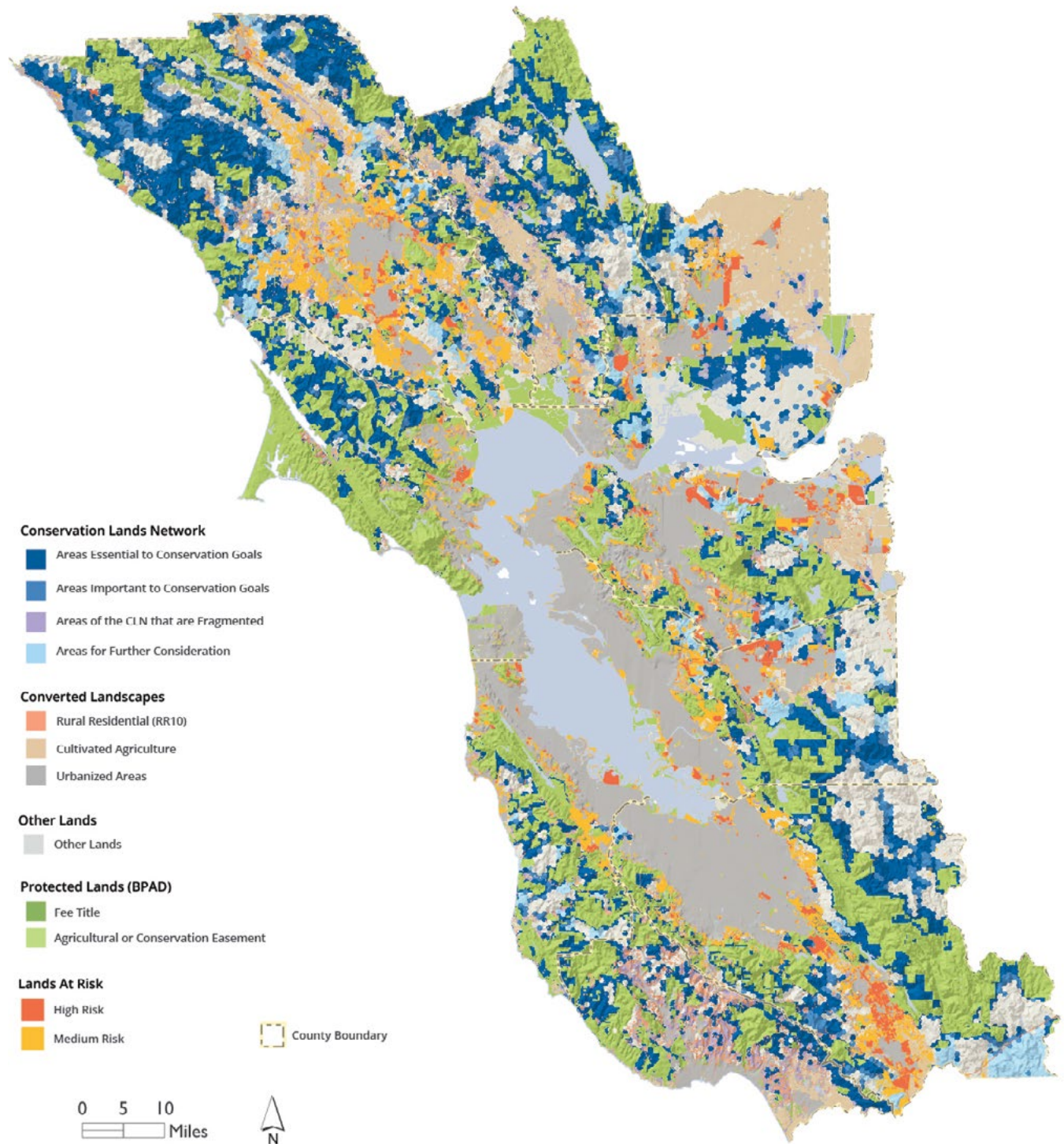
Figure 3.9: Acres At Risk in 2013. Based on our analysis in the CLN 1.0 Progress Report, roughly 72,000 acres remain at high risk, and another 230,000 acres remain at medium risk of development as of 2013. Protected lands are, by definition, not At Risk. (Note: This analysis does not include Santa Cruz County.) Data: CLN 1.0 Updated Basemap.

Land cover type (CLN 1.0 Updated Basemap)	High Risk	Medium Risk	Total At Risk
CLN Essential	8,389	30,753	39,141
CLN Important	1,119	5,799	6,918
CLN Fragmented	6,961	26,303	33,264
CLN Further Consideration	4,840	10,357	15,198
Other Lands	25,934	67,197	93,131
Cultivated	13,364	29,261	42,625
RR10	11,502	61,352	72,854
Total acreage At Risk in 2013	72,108	231,022	303,130
Total CLN land cover types At Risk	21,308	73,212	94,521

The CLN land categories of Essential, Important, and Fragmented encompass an estimated 20,000 acres of High Risk areas yet to be protected, and roughly 73,000 acres of Medium Risk areas yet to be protected. (Fragmented CLN Lands are well represented in the risk categories, as they are already adjacent to developed areas.) Interestingly, Low Risk lands identified by the At Risk map generally coincide with the CLN, and therefore are excellent opportunity lands for conservation.

These findings represent the early analysis of what could be a larger study to target prioritized lands for conservation throughout the Bay Area. In such a study, the biological value of overlapping CLN and At Risk lands should be assessed prior to taking conservation action.

Figure 3.10: At Risk overlay with CLN. This map shows lands that are both at high (red) or medium (orange) risk and in the CLN (where they are considered essential for habitat and rare landscape conservation). Because the At Risk map was last updated in 2012, the CLN 1.0 project team created a modified At Risk layer that updated any previously At Risk lands that had, in 2012 and 2013, become protected. Then, At Risk was compared with the Conservation Lands Network 1.0 Updated Basemap. (Note: This analysis does not include Santa Cruz County.) It is estimated that 19,670 acres were taken out of risk by land protection efforts in 2013.



4 Biodiversity and Habitat



Photo by Annie Burke



Biodiversity is defined as “the complex of living organisms, their physical environment, the interactions among these organisms, and how they array themselves in the physical environment” (Noss 1990, Redford and Richter 1999). The Conservation Lands Network uses habitat and rare landscapes—specifically the location and rarity of vegetation types—as indicators for biodiversity viability in the Bay Area.

Biodiversity and Habitat **Progress Metrics** include additional acres protected of habitats and rare landscapes, as counted toward the 52 individual vegetation type acreage targets set forth in the CLN 1.0.

From towering redwood and Douglas-fir forests, to evergreen hardwood forests, rolling oak woodlands, impenetrable hillsides of chaparral, semi-desert grasslands on the fringe of the Central Valley, and unique specialized habitats such as vernal pools, serpentine grasslands, and closed-cone conifer forests, the exceptional variety of the Bay Area’s vegetation is a regional treasure. Indeed, more than 3,000 plant species occupy the varied landscapes of the Bay Area (Jepson Manual Hickman 1993), and are loosely organized into communities comprised of countless local combinations of species (Sawyer et al. 2009; Thorne et al. 2009).

In addition to this richness, the Bay Area is home to numerous endemic species with limited geographic ranges—sometimes only a few square miles or less. The spatially complex and dynamic vegetation mosaic is the foundation of Bay Area biodiversity, and is central to the conception and design of the Conservation Lands Network. Thus, protection of habitat and rare landscapes is central to meeting the CLN Regional Acreage Protection Goal.

Protection of habitat and rare landscapes

Habitat and Rare Landscape Protection Goals were established through the coarse filter vegetation analysis in the CLN 1.0 that (1) inventoried all natural vegetation types in each of the 29 landscape units across the Bay Area; (2) identified rare landscapes within each landscape unit, including ponds, unique soil types, streams and riparian areas, and rare vegetation types; and (3) fine-tuned acreage protection targets for each vegetation type based on the habitat needs of nearly 500 target plant, mammal, fish, amphibian, reptile and invertebrate species. (Details on the coarse filter methodology can be found in Chapter 4 of the CLN 1.0 report, at www.bayarealands.org.)



Photo by Lech Naumovich

Figure 4.1: Coarse Filter Vegetation Map. The most rare habitats and landscapes in each of the 29 landscape units have greater protection goals than common habitats and landscapes in each landscape unit, respectively. For an interactive version of this map, visit www.bayarealands.org. Data: CLN 1.0 report.

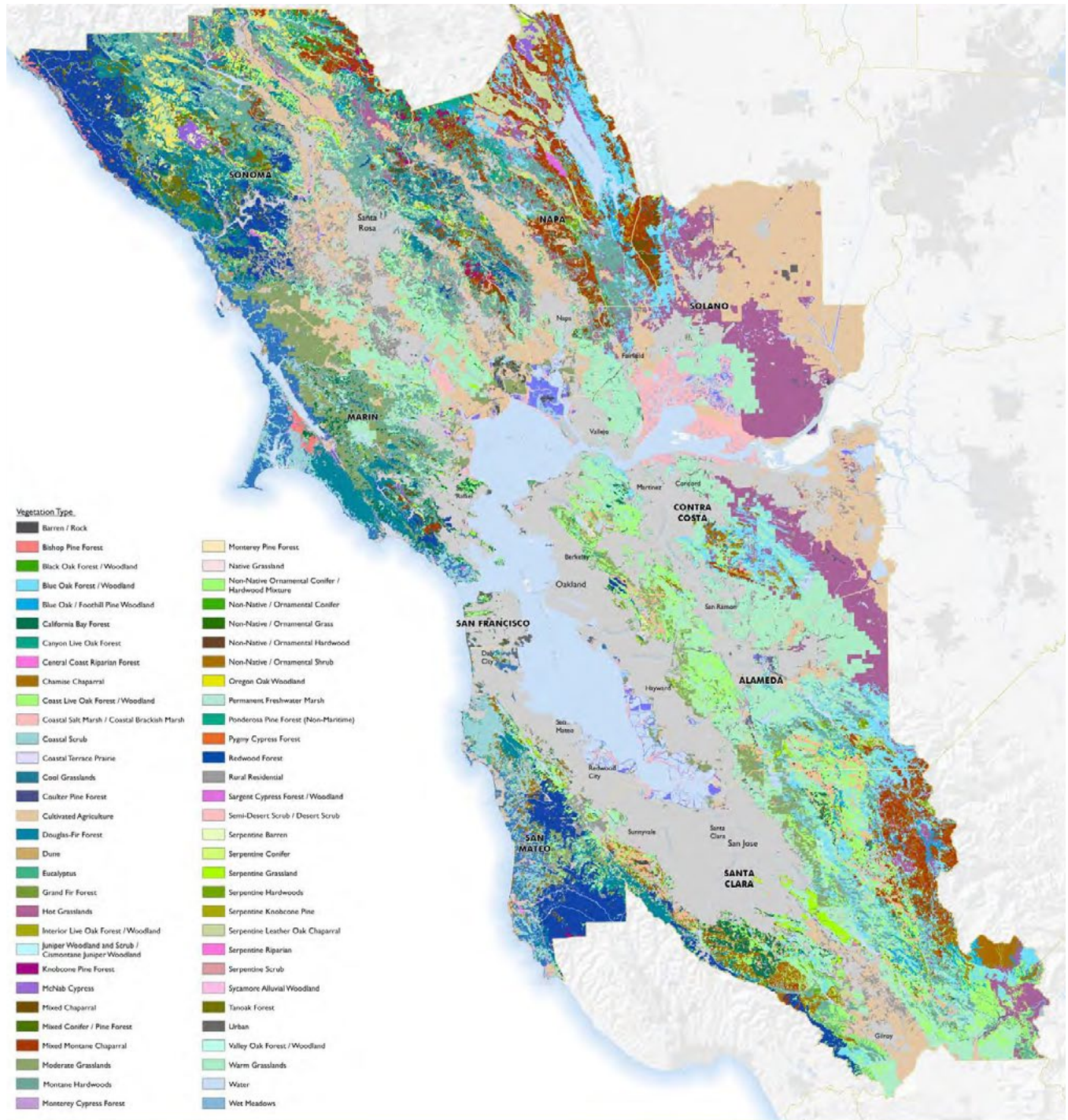


Figure 4.2: Landscape Unit Map. The 29 CLN landscape units capture geographic division of the Bay Area and were developed by the CLN 1.0 project team to create spatially coherent units based on physiographic features—such as mountain ranges and valley bottoms. To download detailed landscape unit maps for your area of interest visit www.bayarealands.org.



For a comprehensive list of vegetation types by county and in each of the twenty-nine landscape units, see the Appendix at www.bayarealands.org.

The Vegetation Type Acreage Goals established in CLN 1.0 are included in Figure 4.3. The original table (Figure 4.8 in the CLN 1.0 report) outlines each vegetation type, the total acres in which they occur throughout the region, their rarity ranking, their acreage protection goal, the number of acres protected (as of 2010), and the number of remaining acres necessary to meet their protection goal.

At the time the CLN 1.0 was released, the Bay Area was 56% successful toward meeting the habitat and rare landscape protection goals as defined through the Conservation Lands Network. It is important to note that the CLN 1.0 did not include Santa Cruz County. Therefore, the acreage goals set in 2010 for each vegetation type do not account for any acreage of those vegetation types occurring in Santa Cruz. Vegetation target revisions to include Santa Cruz will be considered in the anticipated CLN 2.0 update. More information on the incorporation of Santa Cruz into the CLN 1.0 Updated Basemap, and the methods to adjust progress accounting can be found in the Appendix at www.bayarealands.org.

Progress toward the vegetation type goals is measured by calculating the change in acreage from 2010 to 2013 for each vegetation type. Since 2010, landscapes representing nearly all of the 52 vegetation types across the region have been protected. Because of these efforts, the Bay Area is now 61% successful toward meeting the habitat and rare landscape protection goals. These protection rates reflect habitats and rare landscapes that are now accounted for in the Bay Area Protected Areas Database (BPAD 2013).



Photo by Lech Naumovich

Figure 4.3: Additional protected acreage, by vegetation type. Between 2010 and 2013 by acreage, the greatest protection of habitat and rare landscapes was in Redwood Forest (over 15,000 newly protected acres) and Warm grasslands (over 10,000 newly protected acres). Redwood forests are comprised of landscapes with an overstory dominated by redwood with a secondary canopy cover of Douglas-fir and tanoak. Warm grasslands are dominated by annual grasses, with varying amounts of native perennials where July maximum temperatures are between 26 and 30 degrees Celsius. For descriptions of all 52 vegetation types, see Figure 4.5 from the CLN 1.0 report at www.bayarealands.org. (Note: This table is also available by the vegetation type listed alphabetically in the Appendix, at www.bayarealands.org.)

VEG TYPE GOAL			THEN		NOW		PROGRESS
Vegetation Type	Total Acres	Acres Goal	2010 Acres	% of Goal 2010	2013 Acres	% of Goal 2013	Progress 2010-2013
Redwood Forest	307,851	186,915	94,882	51%	110,011	59%	15,129
Warm Grasslands	520,832	262,044	129,056	49%	139,813	53%	10,757
Douglas Fir Forest	170,487	124,141	66,342	53%	75,327	61%	8,984
Montane Hardwoods	327,449	176,120	84,696	48%	92,012	52%	7,317
Hot Grasslands	269,198	134,708	53,966	40%	60,410	45%	6,444
Coast Live Oak Forest / Woodland	238,875	126,712	94,010	74%	99,932	79%	5,922
Tanoak Forest	28,063	25,257	2,040	8%	6,207	25%	4,167
Blue Oak Forest / Woodland	191,279	98,915	70,068	71%	72,958	74%	2,890
Moderate Grasslands	149,789	76,002	62,914	83%	65,670	86%	2,757
Coastal Scrub	103,271	70,464	64,174	91%	66,084	94%	1,910
Mixed Montane Chaparral	153,329	89,033	45,609	51%	47,294	53%	1,686
Cool Grasslands	76,659	63,040	44,196	70%	45,818	73%	1,621
California Bay Forest	48,906	29,252	26,460	90%	27,871	95%	1,411
Serpentine Leather-Oak Chaparral	39,369	31,494	18,002	57%	19,404	62%	1,401
Chamise Chaparral	93,738	58,313	43,803	75%	44,998	77%	1,195
Semi-Desert Scrub / Desert Scrub	45,900	34,440	25,360	74%	25,983	75%	623
Oregon Oak Woodland	37,853	28,632	4,308	15%	4,895	17%	587
Serpentine Grassland	16,642	14,977	5,898	39%	6,414	43%	516
Canyon Live Oak Forest	7,147	5,388	1,448	27%	1,926	36%	478
Black Oak Forest / Woodland	4,189	3,538	334	9%	709	20%	375
Mcnab Cypress	9,677	8,710	5,093	58%	5,464	63%	372
Central Coast Riparian Forests	15,318	13,786	5,920	43%	6,290	46%	369
Blue Oak- Foothill Pine Woodland	32,496	24,434	12,099	50%	12,392	51%	294
Barren/Rock	7,195	5,444	1,419	26%	1,639	30%	220
Serpentine Conifer	8,092	7,283	3,142	43%	3,351	46%	209
Sandhills	5,892	5,302	1,731	33%	1,910	36%	179
Serpentine Hardwoods	16,852	15,167	5,339	35%	5,510	36%	170
Serpentine Barren	1,149	1,034	707	68%	857	83%	151
Knobcone Pine Forest	12,892	10,127	5,451	54%	5,566	55%	115
Interior Live Oak Forest / Woodland	8,923	6,694	4,500	67%	4,590	69%	90
Bishop Pine Forest	7,218	5,158	3,951	77%	4,015	78%	63
Coastal Terrace Prairie	868	766	15	2%	75	10%	60
Serpentine Scrub	1,026	924	547	59%	586	63%	39
Valley Oak Forest / Woodland	6,791	6,112	2,726	45%	2,750	45%	24
Monterey Pine Forest	2,664	1,325	1,849	140%	1,873	141%	23
Coastal Salt Marsh / Coastal Brackish Marsh	1,933	1,729	1,786	103%	1,805	104%	19
Dune	1,121	1,009	582	58%	598	59%	16

VEG TYPE GOAL			THEN		NOW		PROGRESS
Vegetation Type	Total Acres	Acres Goal	2010 Acres	% of Goal 2010	2013 Acres	% of Goal 2013	Progress 2010-2013
Permanent Freshwater Marsh	2,577	2,319	1,077	46%	1,092	47%	15
Sargent Cypress Forest / Woodland	2,955	2,660	2,318	87%	2,326	87%	8
Serpentine Knobcone	455	409	187	46%	192	47%	5
Native Grassland	1,163	1,046	873	83%	874	84%	1
Mixed Conifer-Pine	426	319	135	42%	135	42%	0
Santa Cruz Cypress	209	189	94	50%	94	50%	0
Sycamore Alluvial Woodland	97	87	67	77%	68	78%	0
Serpentine Riparian	135	121	57	47%	57	47%	0
Coulter Pine Forest	266	239	68	28%	68	28%	0
Grand Fir	215	194	53	28%	53	28%	0
Juniper Woodland and Scrub	197	178	197	111%	197	111%	0
Mixed Chaparral	15,130	11,348	3,946	35%	3,946	35%	0
Ponderosa Pine Forest (Non-Maritime)	11,503	8,632	2,580	30%	2,580	30%	0
Pygmy Cypress	106	96	106	111%	106	111%	0
Wet Meadows	205	185	47	25%	47	25%	0
Monterey Cypress Forest	91	42	53	126%	53	126%	0
Grand Total	3,006,663	1,782,451	1,006,280	56%	1,084,893	61%	78,614

Iconic landscapes often resonate with a person’s sense of place or their relationship to nature, and are the landscapes that contribute to the identity of the Bay Area. Redwoods are one of the most iconic landscapes of the Bay Area. Of the 308,000 total acres of redwoods that exist in the 10-County Bay Area, an incredible 110,000 acres are protected yet we have only met 59% of our Redwood Forest protection goal.³

One of the greatest success stories in habitat protection from 2010 to 2013 has taken place in the Tanoak Forest vegetation type, with a 16% jump toward its regional protection goal of just over 25,000 acres. As of 2013 there are now over 6,000 acres of Tanoak Forest protected. Like the big acreage gains in Redwood Forest, the Tanoak success story is a result of the Buckeye Forest acquisition in northern Sonoma County.

Other big gains toward individual vegetation type protection goals were:

- Black Oak Forest / Woodland (now 20% toward its goal of approximately 3,500 acres protected); and
- Canyon Life Oak Forest (now 36% toward its goal of approximately 5,400 acres protected).

³Total Redwood Forest acreage is calculated from base data sourced from the coarse filter vegetation map from the CLN 1.0. While in some areas of the Bay Area fine resolution vegetation data exists, the CLN 1.0 Progress Report calculates all progress toward habitat and rare landscape conservation targets from the original CLN vegetation dataset for reporting consistency. See Figure 4.1.

Protection of Rare Landscapes

Rarity, as defined in the Conservation Lands Network, is a classification of commonness of a vegetation type within each of the twenty-nine landscape units. For example, if a single Redwood Forest stand existed in eastern Contra Costa County (or more specifically the Contra Costa Delta Landscape Unit), it would be rare, because there are no other Redwood Stands in that landscape unit. Rarity ranking of each of the 52 vegetation types within each of the 29 landscape units is the function used to set higher or lower conservation goals for each of the vegetation types.

Rarity rankings are defined in the Conservation Lands Network:

Rarity 1 (CLN conservation goal of 95%)

Globally unique or highest priority locally rare vegetation types.

Examples: Old-growth Redwood, Serpentine Grasslands, Valley Oak Forest/Woodland, Redwood Forest east of Napa Valley.

Rarity 2 (CLN 1.0 conservation goal of 75%)

Locally rare vegetation types comprising 5% or less of a landscape unit.

Examples: Blue Oak/Foothill Pine Woodland in the Mt. Hamilton Landscape Unit (in Alameda and Contra Costa Counties), Douglas-Fir Forest in the Russian River Valley Landscape Unit (in Sonoma County), Montane Hardwoods in the Blue Ridge Berryessa Landscape Unit (in Napa and Solano Counties).

Rarity 3 (CLN 1.0 conservation goal of 50%)

Locally and globally common vegetation types comprising more than 5% of a landscape unit.

Examples: Blue Oak Forest/Woodland in the Mt. Hamilton Landscape Unit (in Alameda and Contra Costa Counties), and Hot Grasslands in the Blue Ridge Berryessa Landscape Unit (in Napa and Solano Counties).

By tracking progress of additional protected acres of vegetation by rarity in each of the 29 landscape units, we ascertain how many total acres of rare landscapes throughout the Bay Area have been protected between 2010 and 2013. The landscape units (or regions) with the greatest progress with regard to protecting rare landscapes are the Sonoma Coast Range (in Sonoma County), the Mt. Diablo Range (in Contra Costa and Alameda Counties), and the Santa Cruz landscape unit (in Santa Cruz County).

Figure 4.4: Additional protected acreage of rare landscapes, by landscape unit. Since 2010, approximately 19,000 acres of rare landscapes (having Rarity rank 1 or 2 status) have been protected throughout the 10-County Bay Area. Thus, over 19% of newly protected lands are “rare” and therefore contribute toward the strategic protection of 2 million acres. These landscapes were protected in all 29 landscape units across the region except for one—San Francisco.

Landscape Unit	Rarity 1	Rarity 2	Rarity 3	Total 1-3
American Canyon	0	0	43	43
Blue Ridge Berryessa	176	1,767	2,298	4,241
Coastal Grasslands	4	587	1,416	2,006
Contra Costa Delta	5	0	4	9
Marin Coast Range	232	147	2,547	2,925
Middle East Bay Hills	0	20	607	618
Montezuma Hills	6	0	133	139
Mount Hamilton	368	0	4,227	4,595
Mt. Diablo Range	8	774	9131	9914
Napa Valley	0	0	26	26
North Contra Costa Valley	0	0	18	18
North East Bay Hills	58	0	171	229
Northern Mayacamas Mountains	1,241	1,116	386	2,743
Point Reyes	0	28	0	28
Russian River Valley	0	0	0	0
San Francisco	0	0	0	0
Santa Clara Valley	9	0	15	24
Santa Cruz	195	532	8,082	8,809
Santa Cruz Mountains North	1,218	2,869	662	4,749
Santa Rosa Plain	12	28		40
Sierra Azul	327	1,142	3,498	4,967
Solano Delta	19	0	737	756
Solano Plains	0	51	502	552
Sonoma Coast Range	5,090	1,214	20,613	26,917
Sonoma Mountain	49	70	689	808
Sonoma Valley	0	55	0	55
South East Bay Hills	17	37	1,540	1,593
Southern Mayacamas Mountains	32	117	469	619
Tri-Valley	0	0	53	53
Vaca Mountains West	1	0	1341	1305
Grand Total	8,982	10,428	59,164	78,574

Conservation of habitats and rare landscapes provide multiple benefits for realization of other conservation and quality of life goals including recreation, local food production and more. If all vegetation type acreage protection goals were met, approximately 1.6 million acres of strategic habitats and rare landscapes in the Bay Area would be conserved.

In order to continue tracking our collective progress toward protecting iconic, rare, essential and important landscapes, it is critical that land conservation agencies and organizations get out into the field and “ground-truth” between what the data in the Geographic Information Systems (GIS) are representing and what vegetation is actually persisting on the ground. The nature of data is that it is imperfect and can continuously be refined. By ground-truthing, applying science, and through funding and support, the gap will begin to close on the creation and availability of dependable landscape data and vegetation mapping. The public can participate by learning and loving plants, and by using crowd source data tools to identify and catalogue vegetation and plants across the region.



Photo by Lech Naumovich

5 Water Resources

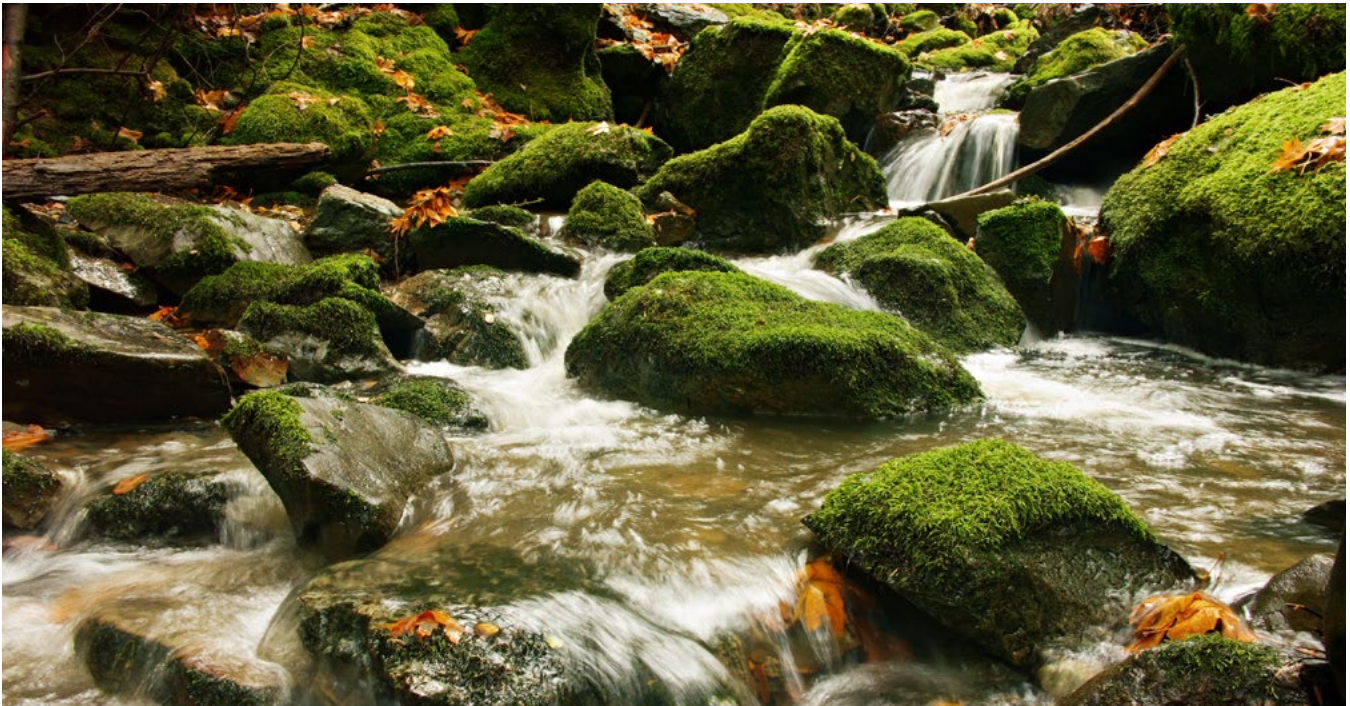


Photo by Cait Hutnik



The water resources above and below ground—streams, rivers, ponds, vernal pools, lakes and reservoirs, groundwater basins and watersheds—are the veins of life support for the upland habitats and rare landscapes that comprise the Conservation Lands Network. The CLN 1.0 recognized that a whole-watershed is necessary for the successful conservation of riparian and fish habitat. Therefore, Water Resources are defined in the CLN 1.0 Progress Report as the important streams, riparian habitat, and associated upland areas that support healthy native fish populations and ensure watershed functionality.

Water Resource Progress Metrics include additional stream miles of protected aquatic and riparian habitat, and watershed functions measured by rates of recharge and runoff flows.

Water is life—literally. Neither the people or the plants, animals and birds that live in or migrate to and from the Bay Area can thrive without fresh, clean water—and plenty of it. Clean water comes to the Bay Area in a number of ways, but the sources are always the same: from precipitation, groundwater and snowmelt. Conservation of upland habitats helps to protect the Bay Area’s reliable water quantity and storage sources, from healthy soils that soak up the rain to ground water basins and above ground lakes and reservoirs that store it for the long term.

Water quality is as important as water quantity. Consistent and reliable stream flows are vital to native fish populations and other animals, birds and insects that depend on healthy riparian habitats. Sound stewardship of upland habitats, landscapes and watersheds protects reservoirs and streams from pollutants.

There is an increased need for watershed-wide land protection in a changing climate. Indeed, the Conservation Lands Network is “climate smart” (Heller 2013). The Terrestrial Biodiversity Climate Change Collaborative (TBC3) conducted a test of the likely resilience of the CLN to climate change based on ecological theory that greater climatic diversity provides greater options for populations to respond and adapt. Findings show that the CLN captures the diversity of climate space in the region similarly to a model network designed on climatic diversity as the conservation target. As such, comprehensive watershed protection and management are fundamental for climate change adaptation and resiliency. (See the Appendix at www.bayarealands.org for an examination of how weather—in the context of longer-term variability—highlights the multiple values of functioning watersheds and the stewardship challenges to keep those watersheds functioning.)

The California Drought

Beginning in 2013, California has experienced a “severe” to “exceptional” drought (National Drought Mitigation Center 2014). Across the state, rangeland conditions remain 70% very poor to poor due to lack of water resources. Similarly, topsoil moisture is 80% short and subsoil moisture is 85% short, leaving plants and residual matter excessively dry and susceptible to wildfires. While droughts are a natural part of climate, the Bay Area’s “exceptional” drought situation is stressing our resources and making the protection of land and water resources all the more important, to ensure local supply and storage of water as well as healthy habitats.

The Conservation Lands Network (CLN) reinforces the value of comprehensive watershed planning. Thoughtful landscape scale conservation and land protection are necessary to ensure the Bay Area’s watersheds are healthy so that the working components which provide water quality and water quantity—the watershed’s streams, riparian areas, and water storage basins and reservoirs—are healthy as well.

Protected stream miles and riparian habitat

The CLN 1.0 reported that, astonishingly, 95% of riparian habitat has been lost due to disruption of natural stream flows, urban development, and water diversion (CCMP 2007). Therefore, protection and stewardship of riparian zones is a fundamental conservation goal in the Conservation Lands Network. Because all streams and riparian zones have high ecological value, all perennial streams from the 1:24,000 National Hydrography Data set stream coverage are considered part of the CLN. Nonetheless, some streams are more immediately important than others.

Priority 1 streams in the Conservation Lands Network are defined as having existing steelhead populations, available rearing habitat, and current or historic Coho populations that must be conserved or restored for fish conservation to be effective. Restoring flow is essential to the conservation of these species.

Priority 2 streams are defined as having small steelhead and land-locked rainbow trout populations and/or other healthy assemblages of native fish. They may also be isolated stream segments with high conservation value.

Figure 5.1: Coho (*Oncorhynchus kisutch*). Also known as silver fish, the Coho is a fall spawner and averages 6-12 lbs, but can be up to 31 lbs. Coho use coastal streams and tributaries, and are often present in small neighborhood streams. Coho can even be found in urban settings if their needs of cold, clean, year-round water are met.



Figure 5.2: Steelhead (*Oncorhynchus mykiss*). Also known as steelhead trout, or sea-run rainbow trout, the Steelhead is a spring spawner with summer and winter runs. Average size is 8-11lbs, but Steelhead can get up to 40lbs. Steelhead and Rainbow Trout are the same species, but Rainbows are freshwater only, and Steelhead are anadromous, or go to sea. Unlike most salmon, Steelhead can survive spawning, and can spawn in multiple years.



Figure 5.3: Rainbow Trout (*Oncorhynchus mykiss*). Also known as bows or freshwater salmon. Rainbow Trout average 2-4 lbs, up to 8 lbs, and spawn in the spring. Rainbow Trout return to the stream where they were born, navigating by smell. They are the land-locked form of the anadromous Steelhead.

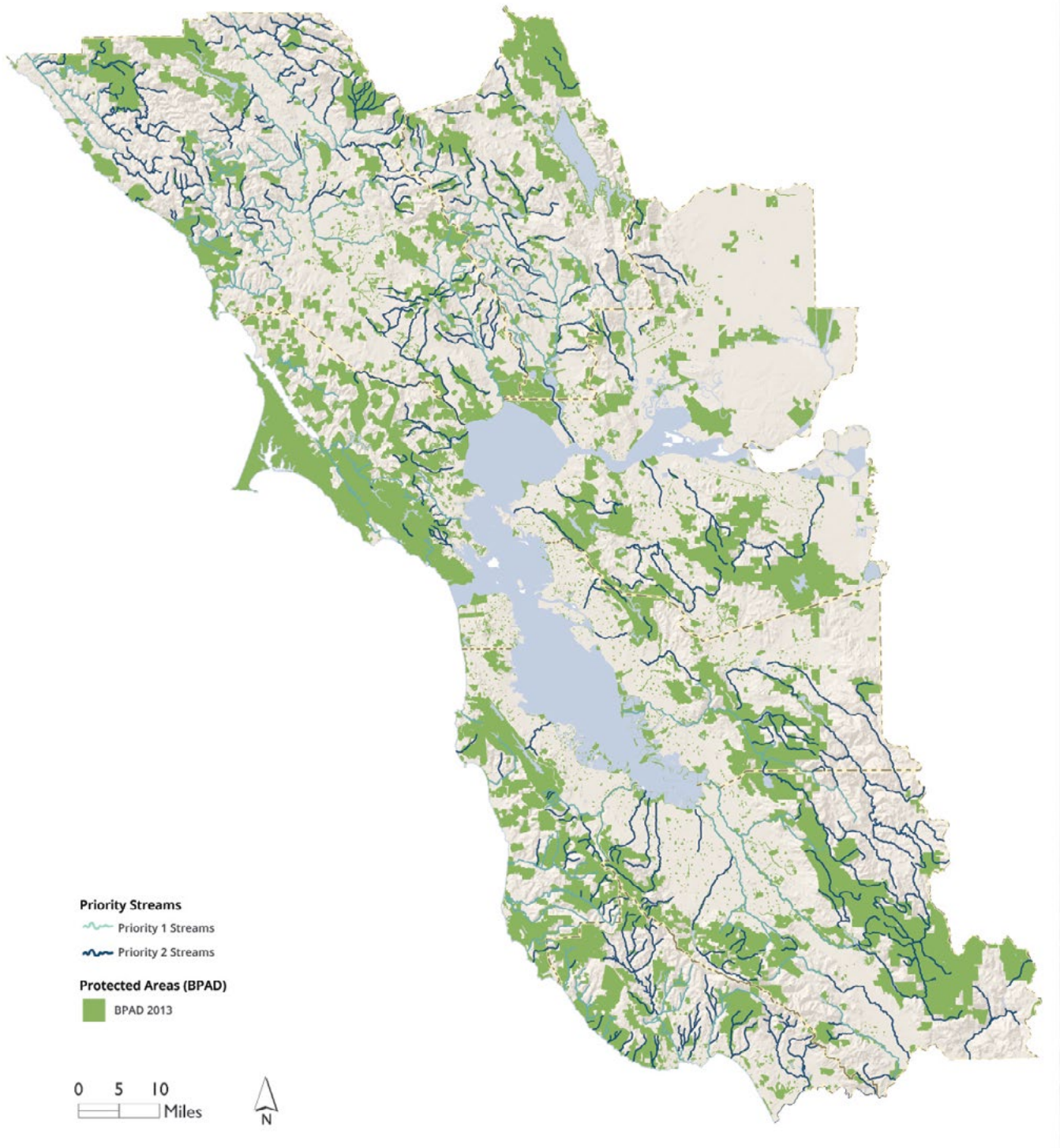


Since 2010, 49 additional miles of Priority 1 and 2 streams have been protected in the 10-County Bay Area. In total, 2,726 stream miles are designated Priority 1 (985 miles) and Priority 2 (1,740 miles) regionally for fish and riparian habitat protection.

Figure 5.4: Protected stream miles in the 10-County Bay Area. As of 2013, a total of 793 miles of Priority 1 and 2 streams are protected, up from 744 in 2010 (an increase of 49 miles, or 6.6%). Many, many more miles of Priority 3 streams (not listed) have been protected since 2010. Data: CLN 1.0 Updated Basemap.

Stream Type	Total Miles	Protected 2010	Protected 2013	Increase
Priority 1	985	271	290	19
Priority 2	1,740	472	504	32
Sum	2,726	744	793	49

Figure 5.5: Priority 1 and Priority 2 Streams in the 10-County Bay Area. Of the 2,726 miles of Priority 1 and Priority 2 streams throughout the Bay Area, nearly 800 miles are protected.



A county-by-county assessment of protected stream miles shows that the greatest progress toward protecting priority stream miles occurred in Sonoma County where 22.5 new stream miles have been protected in the Gualala River Hydrologic Area most likely as a result of the Buckeye Forest acquisition by The Conservation Fund, the California State Coastal Conservancy, the Sonoma County Agricultural Preservation and Open Space District, and the Sonoma Land Trust.

Figure 5.6: Stream miles protected, 2010-2013, by county.

County	BPAD 2010			BPAD 2013			2010-2013 PROGRESS		
	Total	Priority 1	Priority 2	Total	Priority 1	Priority 2	Total	Priority 1	Priority 2
Alameda	68.2	21.4	46.8	69.0	22.3	46.8	0.8	0.9	0.0
Contra Costa	35.6	0.0	35.6	35.6	0.0	35.6	0.0	0.0	0.0
Marin	62.2	40.5	21.7	63.3	41.1	22.2	1.1	0.6	0.4
Napa	55.4	12.1	43.2	58.2	12.1	46.1	2.8	0.0	3.0
San Mateo	74.0	49.0	25.0	78.0	52.5	25.5	4.0	3.5	0.5
Santa Clara	231.7	62.3	169.4	240.3	65.5	174.8	8.6	3.3	5.3
Santa Cruz	77.6	28.7	48.9	79.1	29.7	49.4	1.5	1.0	0.5
Solano	7.4	0.0	7.4	7.9	0.4	7.4	0.4	0.4	0.0
Sonoma	131.5	56.9	74.5	162.6	65.9	96.8	31.2	8.9	22.2
TOTAL	744	271	473	793	290	504	49	18	31

While the regional total and county-by-county snapshot of protected stream miles is illuminating, the geography at which to assess water resources is, logically, the watershed. An assessment of protected stream miles by Hydrologic Area from California’s watershed map (Calwater 2.2.1) shows that one quarter of the Bay Area’s Hydrologic Areas had additions of more than one mile of protected stream between 2010 and 2013. These data are significant in symbolizing the additional reaches available for restoration of vital riparian and aquatic habitats throughout the Bay Area.

Figure 5.7: Protected stream miles, by Hydrologic Area. At a sub-regional level, 11 Hydrologic Areas (of 40 total) had additions of greater than one mile of protected Priority 1 and 2 streams (highlighted).

Hydrologic Area	Total	Protected 2010	Protected 2013	Change
Alameda Creek	249.8	74.3	77.1	2.8
Año Nuevo	16.9	8.7	8.7	0.0
Bay Waters	0.0	0.0	0.0	0.0
Berryessa	17.2	9.8	11.3	1.6
Bolinas	11.0	7.8	7.8	0.0
Concord	76.3	14.8	14.9	0.0
Coyote Creek	178.9	128.2	129.1	1.0
East Bay Cities	48.3	17.6	17.7	0.1
East Rocky Ridge	7.5	3.9	3.9	0.0
Elmira	2.9	0.2	0.2	0.0
Fairfield	48.9	5.5	5.7	0.1
Fremont Bayside	0.9	0.2	0.3	0.1
Guadalupe River	78.5	38.2	39.7	1.5
Gualala River	169.0	9.4	32.5	22.5
Lower Russian River	184.8	35.2	38.2	3.0
Middle Russian River	325.2	48.9	53.4	4.5
Napa River	255.6	43.1	43.1	0.0
Novato	29.5	7.8	8.1	0.4
Pacheco-Santa Ana Creek	22.5	4.1	4.2	0.1
Palo Alto	118.3	43.7	44.3	0.6
Pescadero Creek	58.2	23.0	26.0	3.1
Petaluma River	60.0	7.6	7.6	0.0
Pinole	20.9	12.2	12.2	0.0
Russian Gulch	6.8	2.7	2.7	0.0
Salmon Creek	28.2	3.9	3.9	0.0
San Gregorio Creek	40.8	15.9	17.0	1.1
San Mateo Bayside	7.4	1.9	1.9	0.0
San Mateo Coastal	21.5	8.6	8.7	0.1
San Pablo Bay	9.8	0.0	0.0	0.0
San Rafael	37.4	10.5	10.5	0.1
Santa Cruz	230.1	73.6	74.5	0.8
Santa Cruz Mountains	32.0	5.0	6.7	1.7
Sonoma Creek	120.2	25.6	26.5	0.9
South Santa Clara Valley	37.9	3.7	5.8	2.1
Suisun Bay	0.0	0.0	0.0	0.0
Tomales Bay	57.2	34.3	34.9	0.6
Undefined	40.8	9.7	9.7	0.0
Upper Putah Creek	11.0	0.4	1.8	1.4
Upper Ulatis	13.7	0.0	0.0	0.0
Watsonville	49.8	3.6	3.6	0.0
TOTALS	2,726	744	793	49

Riparian zones in protected lands tend to be more intact with larger buffers and floodplains and there may be greater restoration potential where they are degraded. Riparian zones in converted lands are highly altered and degraded, but the streams themselves may still support important native fishes and riparian habitat, and provide fish passage to intact upper watersheds.

Just as it applies to large, connected landscapes, “Think big, connect more” applies to stream mile protection, too. Think big by imagining natural flows are restored and habitat is accessible. Connect more fish habitat by removing barriers, planting trees for shade and in-stream temperature control, and more.

Stream flow and groundwater: Runoff and Recharge areas

One way of assessing the health of a watershed is through the hydrologic response of the landscape, which is a function of precipitation, temperature, topography, soil depth/texture, and bedrock permeability. Naturally, not all open lands have equal ability to soak up the precipitation that falls on its surface, but for those that can, the retention of water helps store vital resources for the drier days and thirsty cities and agricultural fields where we grow our food. Only after sufficient precipitation over the course of the water year (October-September) can saturated soils produce groundwater recharge and surface runoff. And total stream discharge (or “flow”) is a combination of immediate runoff and the slower release of shallow groundwater. (See the Appendix for a description of the Annual Hydrologic Cycle. See also the CLN Explorer tool at www.bayarealands.org.)

“Recharge” is water that permeates the surface, drains below the rooting zone and becomes shallow and deep groundwater. Recharge is precious in our climate, and is an obvious benefit of conservation lands and other open space. Maximum rates of recharge are determined by bedrock permeability. Shallow recharge is the sole natural source of stream flow during the dry season, and many Bay Area communities depend on deep well water. When land is developed, recharge decreases and runoff increases as impervious surfaces and hydrologic modifications divert potential recharge.

“Runoff” is short-term surface stream flow, and occurs during storms when the soils are at water capacity. (Imagine a sponge, when it is full of water.) Runoff occurs on shallower soils more rapidly than on deeper soils. Large runoff events fill reservoirs and flood creeks. Impervious surfaces and stormwater infrastructure create flashier runoff with downstream consequences.

Regional Analysis of Recharge and Runoff

On local scales, recharge and runoff are nearly mirror images across bands of permeable and impermeable bedrock, and from deep valley to shallow mountain soils. The Terrestrial Biodiversity Climate Change Collaborative (TBC3) project produced fine-scale maps of 30-year average recharge and runoff for the recent (1981-2010) time period, shown in Figure 5.8 and 5.9.

Figure 5.8: Water recharge areas in the 10-County Bay Area. The 10-County Bay Area produces an average of 2,540,000 acre-feet of potential recharge per year. High rates of recharge are where the darkest and most concentrated green is located.

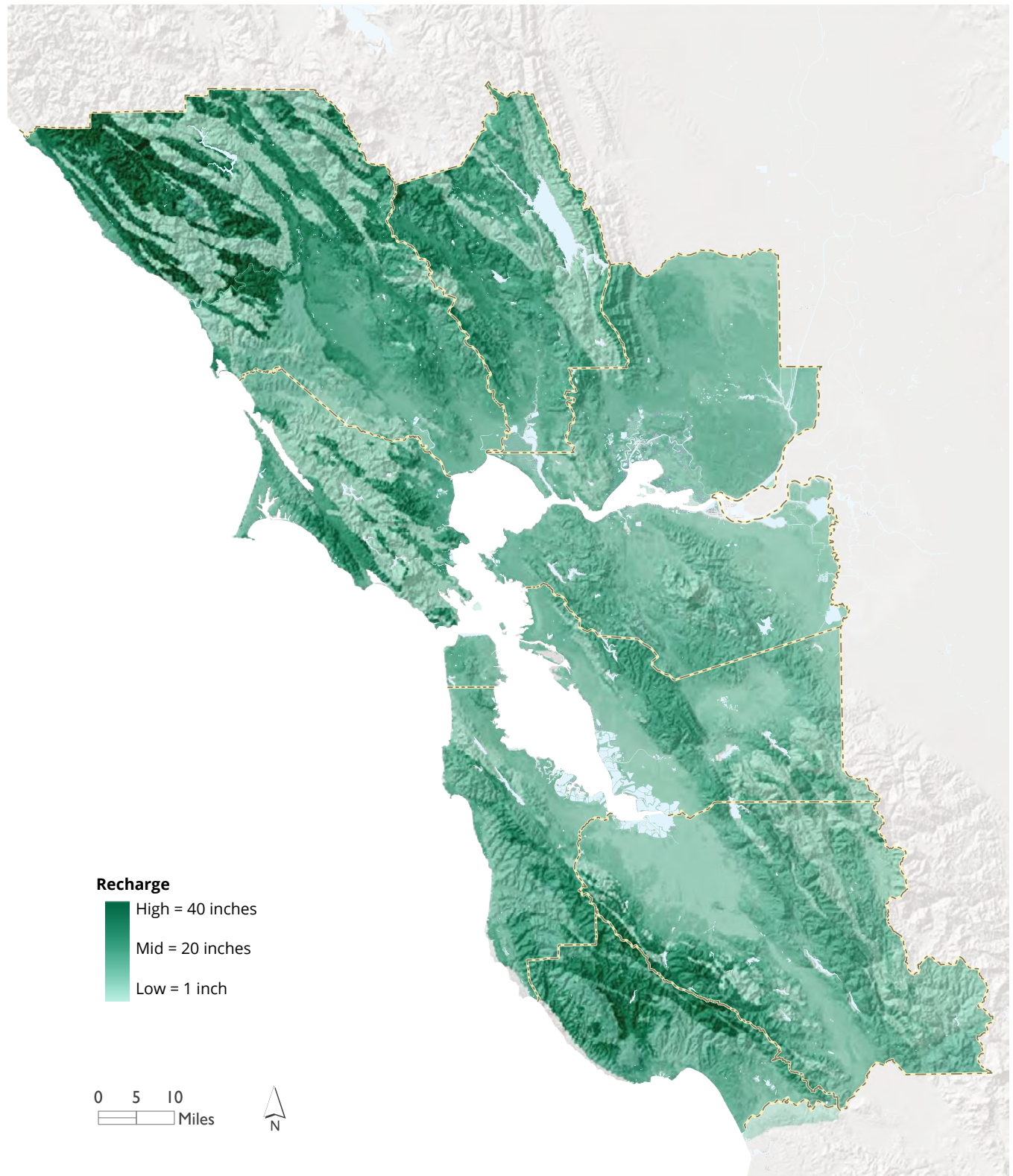
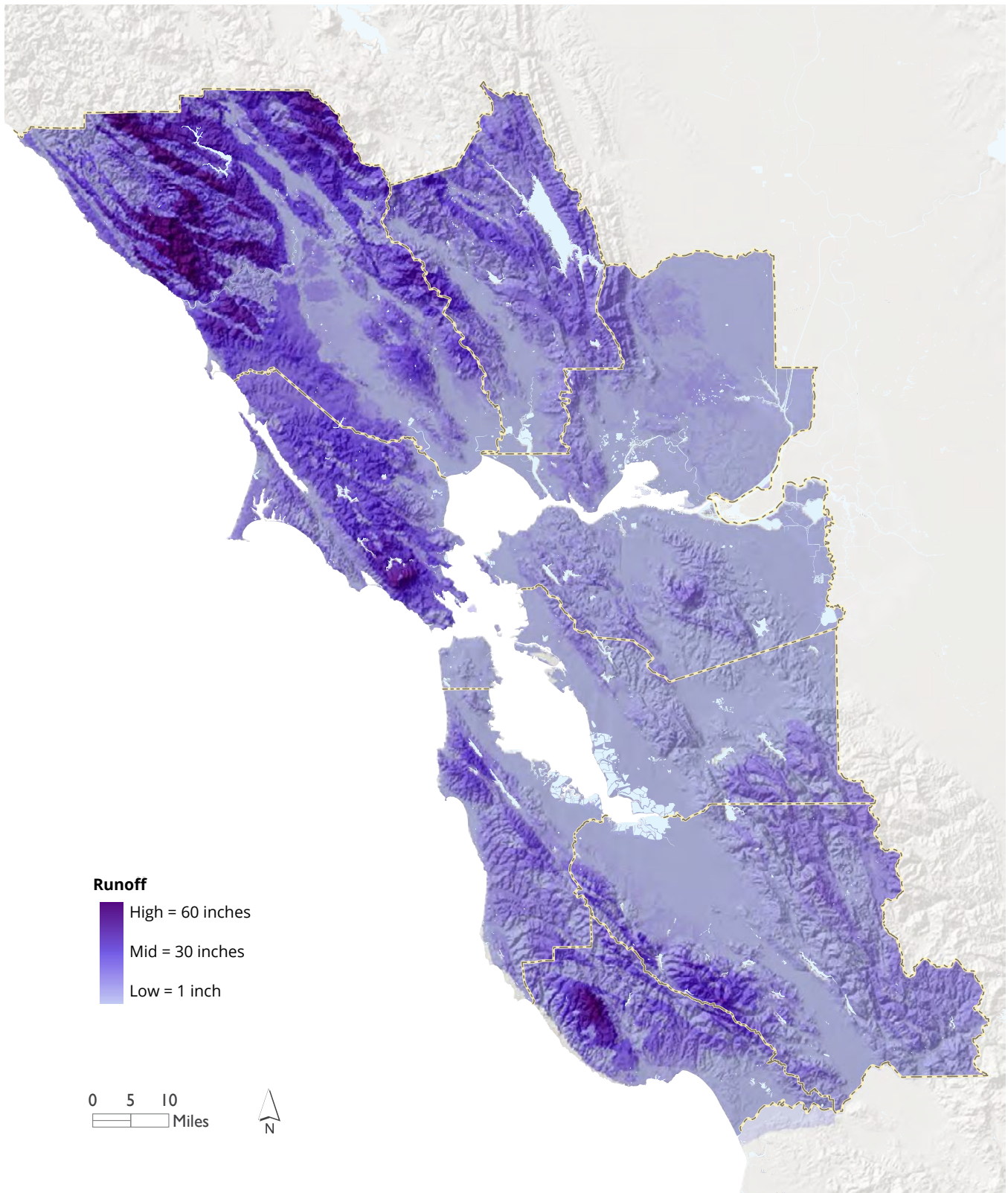


Figure 5.9: Water runoff areas in the 10-County Bay Area. The 10-County Bay Area produces an average of 3,200,000 acre-feet of runoff, annually. High rates of runoff are where the darkest purple is located.



The water recharge area and water runoff area maps were compared to the CLN 1.0 updated basemap to assess how many acre-feet of annual recharge and runoff are generated by protected lands, lands within the CLN network, other lands, and converted lands as of 2013.

The Bay Area produces an average of 2,540,000 acre-feet (ac-ft) of potential recharge per year and an average annual 3,200,000 ac-ft of runoff. An acre foot is defined as the volume of one acre of surface area to a depth of one foot. The majority of recharge and runoff fall within the CLN land cover types of essential, important and fragmented.

Figure 5.10: Acre-feet of Bay Area recharge and runoff by land cover type. More than half of the 10-County Bay Area’s recharge and runoff capacity is provided by lands that are protected or fall within the Conservation Lands Network (Essential, Important, Fragmented and for Further Consideration).

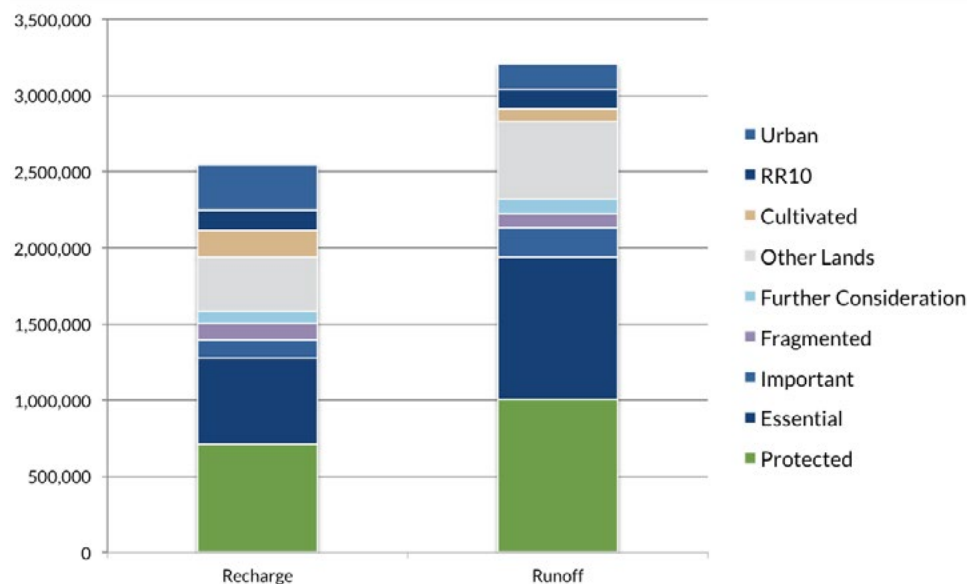


Figure 5.11: Total 10-County Bay Area water recharge and runoff by land cover type. Recharge and runoff data help us understand which lands in the Conservation Lands Network and throughout the Bay Area are valuable for the water provisioning and filtering functions they provide. This ties the CLN to ecosystem services and the best management practice of comprehensive watershed planning.

Landcover Type (CLN 1.0 Updated Basemap)	Recharge (ac-ft)	Runoff (ac-ft)	% Recharge	% Runoff
Protected	707,806	1,004,654	28%	31%
CLN Essential	573,723	935,507	23%	29%
CLN Important	111,448	192,007	4%	6%
CLN Fragmented	109,460	90,391	4%	3%
CLN Further Consideration	79,011	96,178	3%	3%
Other Lands	356,292	512,444	14%	16%
Cultivated	179,017	79,942	7%	2%
RR10	131,059	128,226	5%	4%
Urban	295,716	163,432	12%	5%
Total	2,543,531	3,202,780	100%	100%

The greatest percentage of both recharge and runoff occur on lands that are protected (28% and 31%, respectively) and lands that fall within the Conservation Lands Network (23% and 29%, respectively). This is a correlation between upland habitats and healthy watersheds that illuminates the multiple benefits of strategically protecting 2 million acres of habitat and rare landscapes.

With regard to progress, since 2010, the additional 100,000 acres of protected lands provide about 80,000 acre-feet of recharge and about 86,000 ac-ft of runoff. These are significant increases in the Bay Area's overall capacity to efficiently and effectively retain precious water resources necessary for fish species and stream flows, as well as for groundwater recharge levels.

Protecting landscapes that have both habitat and rare landscape value as well as high functions of recharge and runoff provides multiple land conservation benefits. The effective conservation of riparian ecosystems requires the entire hydrologic continuum be considered for conservation and restoration, and thus a comprehensive watershed approach is favorable to restoration focused solely on in-channel fixes. In short isolated restoration projects or acquisitions made without context are not as successful as those efforts that address the entire watershed—including the basin, riparian corridor, and floodplain—and by thinking big and connecting more.

6 People and Conservation



Photo by Ryan Branciforte



Land conservation is not possible without on-going effort, collaboration, coordination and investment by people in both the public and private sectors. Successful implementation of the Conservation Lands Network and progress toward the Regional Acreage Protection Goal and Habitat and Rare Landscape Protection Goals cannot be made without the hard, committed work by the Bay Area's land owners and land managers, conservation volunteers, policy makers, recreation and trail advocates, scientists and researchers, and the voting public.

People and Conservation Progress Metrics focus on the values for conservation of private lands, working landscapes, stewardship of protected lands, the stewards, partners and volunteers who outreach and monitor, accessible lands and trails, and conservation policies and funding mechanisms that work as incentives for land conservation.

The Conservation Lands Network 1.0 Progress Report is an effort to quantitatively measure successes in land conservation throughout the Bay Area between 2010 and 2013. However, the business of land conservation is, at its core, about the people who make conservation happen—whether through on-the-ground monitoring or management, through education and outreach, or through policies and funding mechanisms that keep the machine well oiled.

The valuable people and partnerships that make land conservation in the Bay Area so successful were highlighted in the CLN 1.0 report as important implementers of the CLN goals. All the data, mapping and planning for land conservation is superfluous without the people who care for the land and work to protect the benefits it gives back to us all. The Open Space Council is “thinking big and connecting more” in our efforts to expand the audience for land conservation and connect our shared values of quality of life to taking action toward helping protect more land.

Conservation of private and working lands

The Conservation Lands Network is composed of both public and private lands. Working lands support habitat and biodiversity and are an important component of the CLN. It is essential to work to keep these lands in production.

The sale of conservation easements by range and forestland owners can ensure operational viability while the lands continue to support invaluable habitat and provide landscape functions and services. Other voluntary programs offer technical and financial resource assistance to improve the health of private lands. Supporting and expanding programs offered by the Natural Resources Conservation Service, US Fish and Wildlife Service, CAL FIRE, and the California Department of Fish and Game—as well as property tax relief programs like the Williamson Act—are vital tools for regional land conservation success.

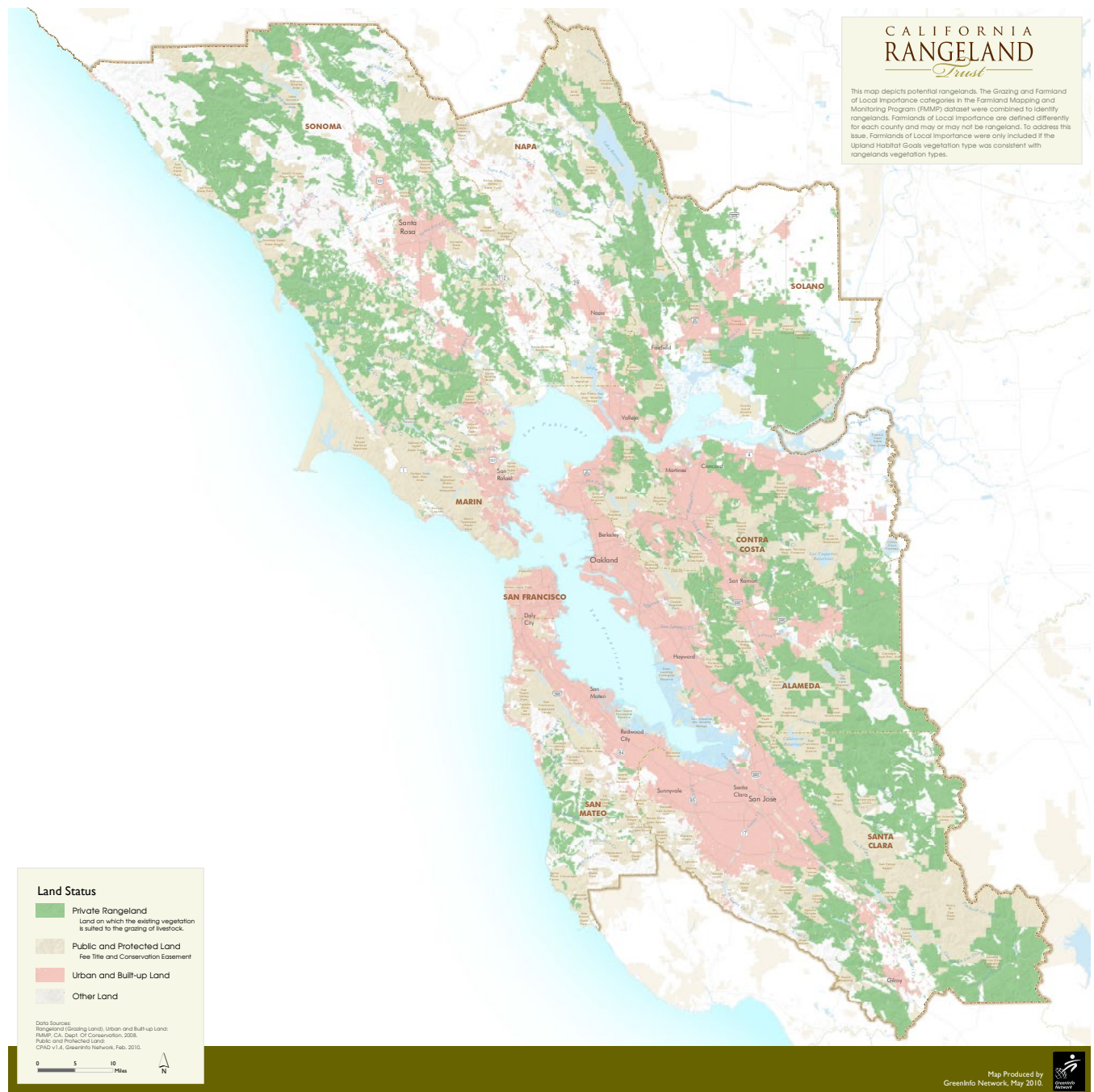
Currently 1.37 million acres are protected in the Bay Area, of which nearly a quarter of a million acres are protected through conservation or agricultural easement. Indeed, private lands are central and private landowners are critical partners to protecting the remaining 600,000 acres necessary to reach the Conservation Lands Network goal of strategically protecting 2 million acres throughout the Bay Area.

Rangelands

As of 2012, the California Rangeland Trust (CRT) has estimated that the Bay Area has 1.9 million acres of rangelands, of which approximately 500,000 acres are protected in fee or through conservation easement. Progress of protected rangeland can be measured upon the anticipated release of the Bay Area Rangeland Map update.

In addition to the 500,000 acres of rangeland protected, another 850,000 acres of rangeland are within the Conservation Lands Network. As such, ranchers and the lands, watersheds, habitats and soils they manage are a critical component of implementing the Conservation Lands Network—and for maintaining the visual identity of the Bay Area. As one drives on Interstate 80 from San Francisco toward Sacramento, most of what is seen on the rolling hillsides is rangeland. Similarly to the north and south: the landscapes that so many find beautiful in the Bay Area are grass, oak woodlands, and shrublands that are grazed.

Figure 6.1: Bay Area Rangeland Map (2010). The California Rangeland Trust produced the Bay Area Rangelands Map in 2010 to better understand where potential rangelands are located across the 9-County Bay Area. The 2008 Grazing and Farmland of Local Importance (FMMP) dataset were combined to identify rangelands. Farmlands of Local Importance are defined differently for each county and may or may not be rangeland. To address this issue, Farmlands of Local Importance were only included if the Conservation Lands Network vegetation type was consistent with the CRT rangelands vegetation types.

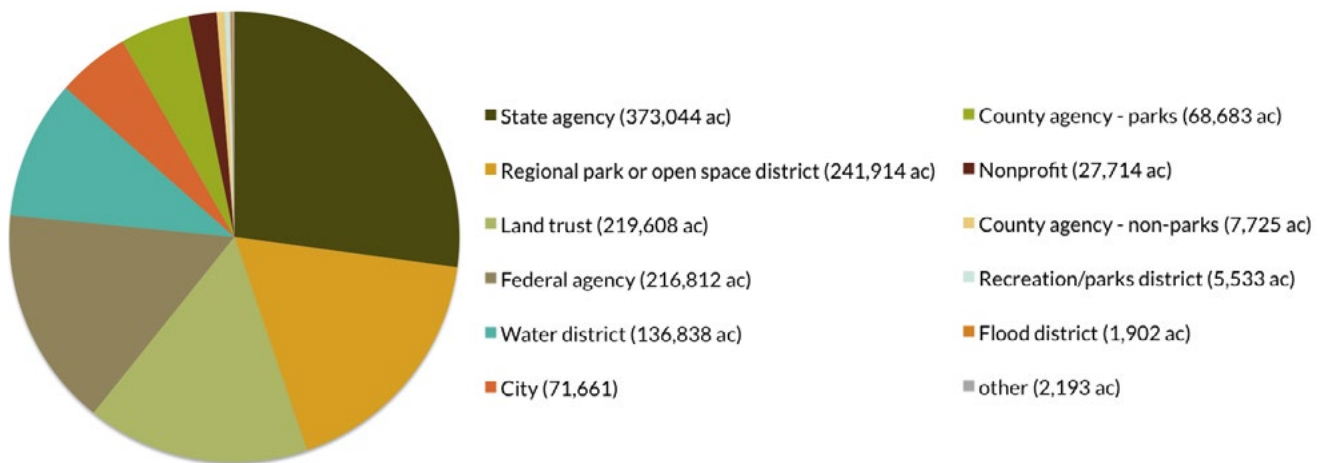


As of August 2014, the California Rangeland Trust has convened a group of rangeland experts to review the 2010 rangeland mapping methodology, determine if a new approach is warranted, and to use the most current data layers to update the Bay Area Rangeland map. The update will incorporate Santa Cruz County, and will be completed in fall 2014. Visit www.bayarealands.org to download the 2010 and 2014 Bay Area Rangeland Maps (upon availability).

Stewardship: Ownership of Protected Lands

The portion of the land conservation community working directly to protect land consists of a wide range of public agencies, districts, NGOs and private organizations. Of the 1.37 million acres of protected lands in the Bay Area, the types of agencies and organizations responsible for over 100,000 acres of protected lands are State Agencies (373,044 acres), Regional park or open space districts (241,914 acres), Land Trusts (219,608 acres), Federal Agencies (216,812 acres), and Water districts (136,838 acres). Other types of agencies and organizations responsible for protected lands include cities, counties, recreation and park districts, NGOs, and flood districts.

Figure 6.2: Ownership of Protected Lands. The Conservation Lands Network includes efforts across the region at a variety of scales. State agencies, regional park and open space districts, land trusts, and federal agencies are responsible for more than 75% of the protected lands in the Bay Area, with holdings by many other public and private organizations comprising the rest. (Data from BPAD 2013.)



More than 82 individual organizations representing twelve different types of agencies are formally protecting land through fee title acquisitions and conservation easements in the 10-County Bay Area. Continued collaboration, coordination and partnerships among the conservation community is necessary to implement the Conservation Lands Network and make additional progress toward the goal of strategically protecting 2 million acres of habitat and rare landscapes. Together we can think big and connect more!

Figure 6.3: Protected lands by agency / organization. Over 82 entities own and manage protected lands within the Bay Area. Protected lands are those either owned in fee-title or managed through agricultural or conservation easements (see the sidebar in Chapter 2 for definitions on fee-title and easements). Data: BPAD 2013, and California Rangeland Trust (via email).

Agency / Organization Name	Agency/Organization Type	Acres
California Department of Parks and Recreation	State agency	219,305
East Bay Regional Park District	Regional park district	89,743
United States National Park Service	Federal agency	89,525
California Department of Fish and Wildlife	State agency	83,006
San Francisco - Public Utilities Commission, City and County of	Water district	60,366
Sonoma County Agricultural Preservation and Open Space District	Regional park district	59,620
Midpeninsula Regional Open Space District	Regional park district	55,931
United States Bureau of Land Management	Federal agency	46,750
Marin Agricultural Land Trust	Land trust	45,785
Santa Clara County Parks and Recreation Dept., County of	County agency - parks	45,253
The Nature Conservancy	Land trust	41,980
California State Lands Commission	State agency	38,981
United States Fish and Wildlife Service	Federal agency	30,701
United States Bureau of Reclamation	Federal agency	27,379
East Bay Municipal Utility District	Water district	26,758
Land Trust of Napa County	Land trust	22,371
Marin Municipal Water District	Water district	21,586
Marin County Open Space District	Regional park district	19,748
The Conservation Fund - California	Land trust	19,664
Solano Land Trust	Land trust	19,402
Contra Costa Water District	Water district	19,006
Peninsula Open Space Trust	Land trust	17,833
Sonoma Land Trust	Land trust	17,369
United States Army Corps of Engineers	Federal agency	16,550
San Mateo County Parks and Recreation Dept., County of	County agency - parks	13,664
Santa Clara County Open Space Authority	Regional park district	13,209
Golden State Land Conservancy	Land trust	11,250
University of California	State agency	8,659
Living Landscape Initiative Partners	Nonprofit - conservation	8,532
California Department of Forestry and Fire Protection	State agency	7,404
Sonoma County Regional Parks Dept., County of	County agency - parks	7,358
Vallejo, City of	City	7,044
Coast Dairies and Land Company (TPL)	Nonprofit - conservation	6,548
California Department of Water Resources	State agency	6,371

Agency / Organization Name	Agency/Organization Type	Acres
Santa Cruz, City of	City	5,876
Napa, City of	City	5,450
San Jose, City of	City	5,339
United States Natural Resources Conservation Service	Federal agency	4,882
Land Trust of Santa Cruz County	Land trust	4,062
California State University	State agency	3,819
Vacaville, City of	City	3,729
Palo Alto, City of	City	3,627
Tri-Valley Conservancy	Land trust	3,603
Napa County Regional Park and Open Space District	Regional park district	3,535
Audubon Canyon Ranch	Nonprofit - conservation	3,513
Fremont, City of	City	3,372
Livermore Area Recreation and Park District	Recreation/parks district	3,112
Walnut Creek, City of	City	3,076
Pepperwood Foundation	Nonprofit - conservation	3,045
Santa Clara Valley Water District	Water district	3,015
Wildlife Heritage Foundation	Land trust	2,952
Save Mount Diablo	Land trust	2,883
Fairfield, City of	City	2,827
San Francisco, City and County of	City	2,625
County of Sonoma	County agency	2,385
Santa Rosa, City of	City	2,213
Oakland, City of	City	1,958
San Lorenzo Valley Water District	Water district	1,940
Solano Irrigation District	Water district	1,927
Solano, County of	County agency	1,870
California Rangeland Trust	Land trust	1,820
Muir Heritage Land Trust	Land trust	1,806
Hayward Area Recreation and Park District	Recreation/parks district	1,744
Marin, County of	County agency	1,739
California Department of Veterans Affairs	State agency	1,656
Trust for Hidden Villa	Nonprofit - conservation	1,563
California State Coastal Conservancy	State agency	1,446
Center for Natural Lands Management	Land trust	1,383
Save the Redwoods League	Land trust	1,346
Petaluma, City of	City	1,294
American Canyon, City of	City	1,291
Audubon Canyon Ranch	Land trust	1,279
Marin Public Works Dept./Flood Control	Flood district	1,271
San Rafael, City of	City	1,266
Santa Cruz, County of	County agency - parks	1,257
Silicon Valley Land Conservancy	Land trust	1,240
Sempervirens Fund	Land trust	1,201
Benicia, City of	City	1,168
Sequoia Audubon Society	Nonprofit - conservation	1,124
Stanford University	Nonprofit - other	1,096
Marin County Parks Department, County of	County agency - parks	1,058
United States Department of the Interior	Federal agency	1,024
California Bureau of Real Estate	State agency	1,021

Stewardship: Land management, partnerships, outreach and education, and the value of volunteers

We, the humans that live in the Bay Area, are not separate from the environment in which we live. Just as we influence the health of the environment, the natural world is central to our health as individuals and as a society. When we talk about protecting land from development and ensuring that the region's biodiversity thrives, we are just as much talking about the role people have in doing this important work.

There are thousands of people who work for land conservation organizations and agencies. They identify as biologists, ecologists, environmental scientists, finance experts, and communications experts. And there are thousands of ranchers and forest landowners who care for and maintain valuable habitat at little cost to the public. Land owners and land managers are collaborating, partnering and tackling difficult situations together. And within the land conservation community there is a commitment to connect more Bay Area residents to the landscapes that provide our food, serve as habitat, provide recreation or simply resonate as iconic and unique to the region.

Many land conservation organizations and agencies are conducting outreach and delivering programs that invite Bay Area residents into the parks, trails, and other natural areas that offer recreation, reprieve and health. In other equally important ways, generations of ranchers and landowners carry on the tradition of caring for the land to maintain its health and ecosystem functions. The Bay Area has a long-standing environmental ethic that benefits all of us in a range of ways. But we have a lot more work to do together, to support the natural world so it can keep supporting us.



Photo by Lech Naumovich

The Broom Lady in the East Bay Hills East Bay Regional Park District, Alameda County

Wendy Tokuda spent her career behind the news desk at Bay Area television stations. Now you can find her in the East Bay hills, wielding a weed wrench and removing stands of a toxic invader. French Broom has taken over parts of Redwood Regional Park and Wendy has joined the fight to reclaim the park for native plants.

Learn more about Wendy's story in this [Bay Nature](#) article.

Land Management—for the long run

Caring for the land after it is protected is the long-term commitment implicit in any land conservation success story. But it is often the forgotten part of the story because maintenance does not make headlines. Land conservation is not solely about protecting 2 million acres of habitat and rare landscapes, but about ensuring those protected lands remain healthy and can keep providing the Bay Area with the high quality of life it is known for.

Aldo Leopold reminds us that “when we see land as a community to which we belong, we may begin to use it with love and respect” (Leopold 1949). Land lovers, managers and stewards are diverse because stewardship is a multi-faceted, ever changing commitment. Stewardship is the combination of direct management in response to ecosystem changes and the indirect work necessary to fund and staff the stewardship activities. Both efforts are critical to the Bay Area’s ability to successfully maintain the protected and healthy lands identified by the Conservation Lands Network.

A growing land conservation community

Collaborations and partnerships between multiple organizations exist at multiple levels and throughout the region. There is a culture of collaboration in the Bay Area that includes the sharing of information, resources, tasks, and successes. Examples of this growing community include:

- **Collaborations:** A book could be written on the number and achievements of collaborations throughout the Bay Area. Examples include the Living Landscape Initiative, Tamalpais Lands Collaborative, Bay Area Ridge Trail, San Francisco Bay Trail, and dozens of local partnerships between nonprofits and public agencies.
- **Information sharing:** The Conservation Lands Network datasets have been downloaded almost 700 times since 2011. The Bay Area Protected Areas Database has been downloaded almost 800 times. The data being created at the regional level by the Bay Area Open Space Council and GreenInfo Network are being used at the local level.
- **Working groups:** The Open Space Council has facilitated working groups over the years that bring together nonprofit and public agency leaders on a particular topic. These working groups have focused on land stewardship, transportation, and communications.
- **Open Space Council Gatherings and Conference:** every year over 800 people gather to share best practices, network with colleagues, get ideas, and find inspiration. These events provide a venue to build relationships and launch projects.

People Powered Parks: LandPaths, Sonoma County

“We give people the dignity of responsibility,” said a LandPaths staff person about the work they do at Bayer Farm in Santa Rosa. That responsibility is to take care of the farms, parks and trails in Sonoma County. LandPaths takes a different – and deeply rooted – approach to volunteers. Through their People Powered Parks efforts, hundreds of residents from all walks of life in Sonoma County are rolling up their sleeves to take care of the land. Bayer Farm provided an entry point for low-income families to get outside, build community, and connect with LandPaths’ staff and programs. LandPaths’ properties outside of the urban core have limited public access, unless you have a permit-for-use. The way to get that permit is to attend an orientation, which are held on a regular basis in English and Spanish and they regularly fill up in advance. LandPaths hosts Trail Days and Stewardship Days to both do work that needs to be done, and build community at the same time. The work days are well attended and multiple languages are spoken.

The crown jewel of the People Powered Parks program is Willow Creek State Park. Willow Creek is a spectacular 3,373-acre “community-powered”



park near Duncans Mills covers much of the Willow Creek and Freezeout Creek watersheds. It was purchased by Sonoma County Agriculture Preservation and Open Space District in 2005 and turned over to State Parks contingent on LandPaths ability to manage public access.

Its rolling grasslands, forested ravines, and fish-bearing streams are home to an abundance of plants and wildlife. Hikers, bikers and equestrians will enjoy the 15 mile network of old logging and ranch roads, accessible through a free permit-for-use program. These roads & trails connect with adjacent State Park lands, allowing users to hike or ride the 7+ miles from Duncans Mills to Shell Beach - all on State Park land.

Land conservation and the local community

The Bay Area is home to organizations and agencies that are connecting people to the land in meaningful and innovative ways. Not only are these organizations getting people outside, they are involving the general public in stewarding the land. Volunteers are contributing to the science, generating valuable data, and getting their hands dirty with local conservation work. The results are at least two-fold: the land is better stewarded and the people care more about that land. These results have immediate benefits (i.e., the French Broom is removed) and long-term benefits (i.e., volunteers turn into conservation donors, voters and friends).

For more stories about people and projects, visit www.bayarealands.org and browse the Conservation Features.

Access to Protected Lands, and Trails

Human health and happiness has long been linked to exercise and play, and parks promote healthy people. Studies show that people exercise more when outdoor recreation areas are located nearby. These open spaces also contribute to the Bay Area's high quality of life and attract talented workers that encourage businesses to stay and locate here.

In recent years, the connection between access to nature and human well-being has become main-stream knowledge. Indeed, the high quality of life in the Bay Area is partially due to the incredible access residents and visitors have to local and regional parks, trails, preserves and open lands. Whether one drives to a trailhead, or takes the bus to a park (visit www.transitandtrails.org to find, share, and plan an adventure), the Bay Area is at our doorstep. The protected areas throughout the 10-County Bay Area not only provide important habitats for plants and animals, but offer extensive trail systems, playing fields, nature trails and recreational opportunities.

In 2010, 967,000 acres of protected lands were publicly accessible. Today, more than one million of the 1.37 million acres protected in the 10-County Bay Area are accessible by the public, reflecting over 36,000 accessible acres added between 2010 and 2013, regionally. Currently, a resounding 73% of the 1.37 million acres of protected areas in the Bay Area is either partially accessible or fully open to the public.



Photo by Annie Burke

Figure 6.4: Acres of publicly accessible protected areas, 2010-2013. Not all protected lands are accessible. Some lands are open access, others have restricted access (for example, requiring visitors to have a permit to be on the property) and some protected lands are private. Acreages with open access and restricted access are shown here, by county. In total, approximately 36,000 more acres have become publicly accessible since 2010. (Note: Circumstances where there appears to be a loss in accessible areas in a county (see Alameda) are most likely due to refinements in BPAD data, not actual reductions of accessible acreage. BPAD data is voluntarily reported and each year data refinements are made.)

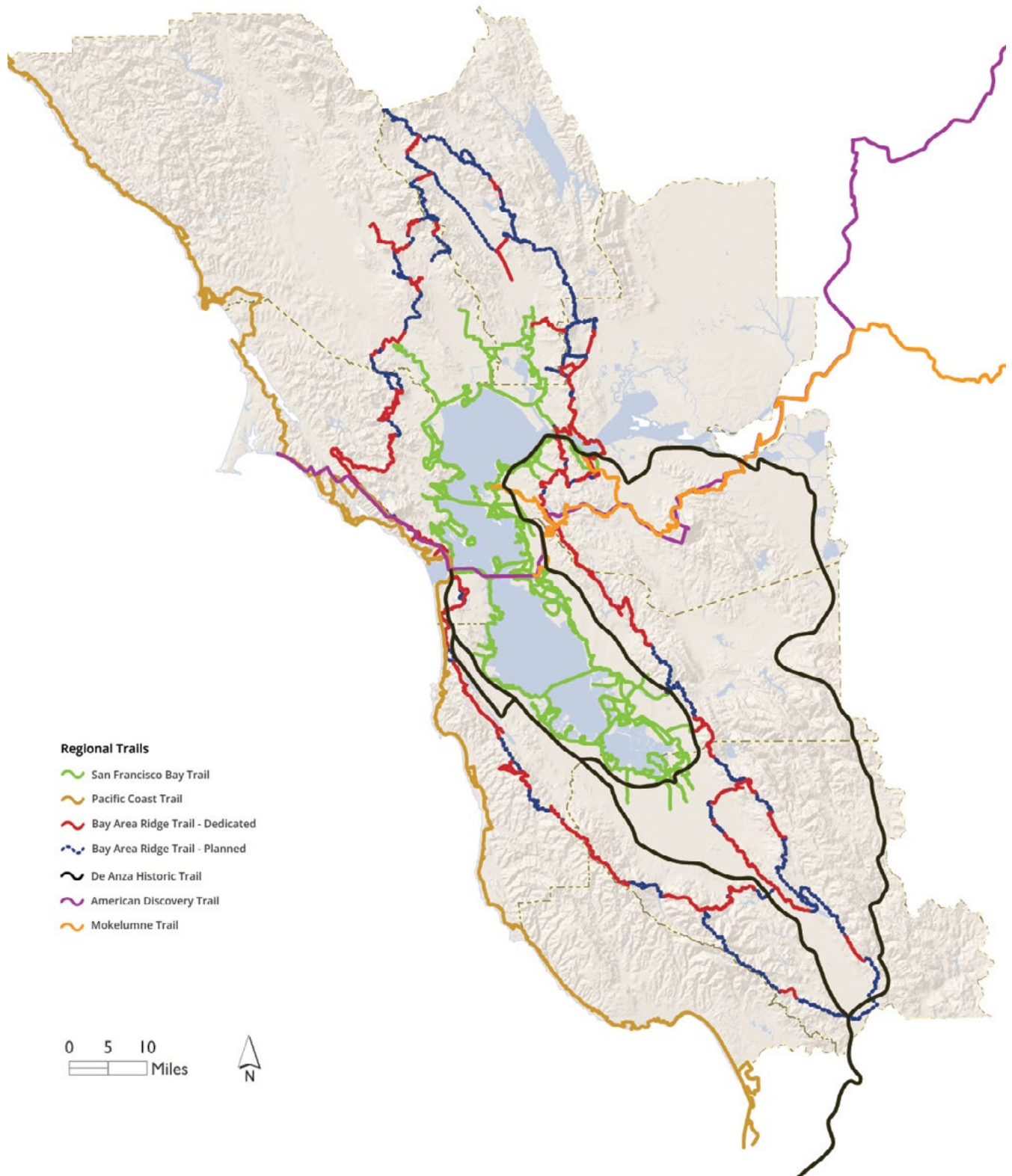
County	2010			2013		
	Open Access	Restricted Access	Total Accessible	Open Access	Restricted Access	Total Accessible
Alameda	76,405	35,127	111,532	68,606	41,714	110,319
Contra Costa	88,264	27,387	115,651	90,285	30,733	121,018
Marin	145,562	832	146,394	141,189	16,020	157,210
Napa	108,176	11,223	119,399	73,469	43,697	117,166
San Francisco	5,598	9	5,607	5,626	9	5,635
San Mateo	50,061	39,488	89,549	52,630	34,438	87,067
Santa Clara	151,452	25,910	177,362	138,200	40,271	178,471
Santa Cruz	65,024	2,588	67,613	61,719	6,246	67,964
Solano	35,995	4,894	40,889	11,644	39,638	51,282
Sonoma	72,168	20,648	92,816	62,210	44,770	106,980
Total Acres by Access type	798,706	168,106	966,812	705,578	297,536	1,003,114

The Bay Area is rich in trails too numerous to count provided by cities, public agencies and land trusts. Figure 6.5 shows the Bay Area’s major regional trails. Since 2010, more than 65 miles of trails were added to the three major multi-use regional trails: the San Francisco Bay Trail, the Bay Area Ridge Trail, and the California Coastal Trail. In addition to the very human benefits, trails have implicit greenhouse gas benefits as “highways” for alternative modes of transportation, and improve connectivity.

Equally important is improving access and pedestrian/bicycle connections between the trails and nearby communities by providing sufficient local, state, and federal funding to complete the trails. Requiring the completion of trail segments as condition of permits for development or infrastructure projects may further support this effort. Policies that encourage connection with open spaces will lead to support for conservation and direct stewardship.

The Bay Area continues to lead in its tradition of offering increasing access to parks, preserves and open lands. Nevertheless, investment, funding, and strong volunteer corps are essential for the continued stewardship of parks and open spaces for people to play and for plants, animals, birds and fish to thrive.

Figure 6.5: Major Planned Regional Trails of the San Francisco Bay Area. The Bay Area's regional trails are a significant resource for recreation, alternative transportation and migrational corridors. Here, planned routes are shown for regional multi-jurisdictional trails, including the San Francisco Bay Trail, Pacific Coast Trail, Bay Area Ridge Trail, De Anza Historic Trail, American Discovery Trail, and Mokelumne Coast to Crest Trail, as well as the Great California Delta Trail, the San Francisco Bay to San Joaquin Delta Trail and the San Francisco Bay Water Trail. Data: GreenInfo Network.



Regional conservation policies and funding

Recent pressure for more sustainable communities has resulted in new policies to ensure that the Bay Area's high quality of life will not only continue, but flourish. Indeed, the region's economy depends on the quality of life that comes from healthy, functioning ecosystems that provide clean water, beautiful views and vistas, locally grown food, resilience to a changing climate, and accessible open spaces for recreation.

While the Conservation Lands Network is a regional vision, local policy and funding decisions are fundamental components of the many conservation efforts that, together, constitute progress toward implementation of the CLN.

Integrating conservation in infrastructure decisions and policies

With the Bay Area's population expected to grow from about 7 million in 2011 to approximately 9 million in 2040, integrating infrastructure and land use decisions can yield a number of benefits and is critical for biodiversity conservation. Policies should consider the impacts/benefits to natural resources, working lands, and parks when making decisions in citing, designing and mitigating infrastructure plans and development.

Plan Bay Area is the most significant regional land use plan since the CLN 1.0 report was published. Plan Bay Area was approved by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) in 2013 and includes the region's Sustainable Community Strategy and Regional Transportation Plan. This long-range transportation plan, updated every four years, identifies the strategies and investments for the region's transportation network. As a driver for planning and land use, Plan Bay Area includes funding for a Priority Conservation Area (PCA) Program. The Commission allocated \$10 million to the PCA Program in February 2013. Refer to the Appendix at www.bayarealands.org for more detail on regional funding.

Additionally, there are increasing opportunities for green infrastructure instead of grey infrastructure solutions, as described in the Healthy Lands and Healthy Economies: Nature's Value in Santa Clara County report (Barker 2014). And, a Regional Advance Mitigation Program (RAMP) is under consideration as a process that would help the MTC capitalize on multiple benefits while simultaneously satisfying federal transportation guidance for the Regional Transportation Plan and Sustainable Community Strategy.

Ensuring agricultural lands remain in active production

Bay Area farms and ranches supply healthy, local food to residents and contribute more than \$1.8 billion directly to the regional economy and an additional \$5.5 billion in associated economic impacts. (Crop Reports, Alameda and Contra Costa Counties, 2010). Many of these working lands are at risk of development, particularly the region's best farmland. Conserving farms and ranches not only protects local food and supports local farmers and ranchers, it is an integral part of implementing the Conservation Lands Network.

Policies can limit conversion of farm and rangeland by extending the expiration dates of all existing urban growth boundaries and continuing the Williamson Act. In addition, the adoption of agricultural districts with minimum densities appropriate to agricultural production for that region and requirements that subdivided lands be used only for agricultural production and processing will help conserve agricultural lands. Funding incentives for technical assistance and conservation are a critical regional resource for the continued stewardship of private and working lands—many of which provide excellent habitat.



Photo by Lech Naumovich

Funding—from a variety of sources

Support for work across the region has come from a variety of funders and has benefitted resources at a range of levels, from management of individual species to implementation of a broad habitat conservation plan.

Funding is central to the success of land conservation efforts. Indeed, all of the progress reported in the CLN 1.0 Progress Report has been achieved in great part by a range of funding sources including:

- Philanthropic donors and private foundations
- Local tax measures
- State bonds
- Regional sustainable communities funding
- Federal funding
- Individual donors

Funding from these sources is often used to purchase property outright for conservation values (fee title acquisition) or to purchase conservation easements. An alternative source of funding is mitigation requirements for public works and private development.

Specifically, funding from the San Francisco Bay Area Program of the Coastal Conservancy has been critical in the protection of land and water resources. During the progress report period, the Coastal Conservancy Bay Area program authorized approximately \$25 million for habitat restoration, and public access around the nine Bay Area Counties. This investment has been more than doubled by matching funding for land acquisition, habitat restoration, climate change adaptation, and access trails and infrastructure.

Safeguarding and restoring natural habitats

Regional Habitat Conservation Plans (HCP) and Natural Community Conservation Plans establish a coordinated process for permitting and mitigating the incidental take of endangered species. The HCP process creates an alternative to the current project-by-project conservation approach. Regional HCPs in the Bay Area include the following:

- **East Contra Costa County Habitat Conservation Plan (2000)**
<http://www.co.contra-costa.ca.us/depart/cd/water/HCP>
- **Santa Clara Habitat Plan (2013)**
<http://scv-habitatagency.org>
- **Solano County Habitat Conservation Plan (under development, 2014)**
http://www.scwa2.com/Conservation_Habitat_Info.aspx
- **San Bruno Mountain Habitat Management Plan (2007; HCP in 1982)**
<http://parks.smcgov.org/documents/san-bruno-mountain-habitat-conservation-plan-hcp>



Photo by Ling He

East Contra Costa County HCP/NCCP

This 30-year HCP/NCCP started implementation in 2007 with the approval of the cities of Brentwood, Clayton, Oakley, and Pittsburg and Contra Costa County. The plan targets up to 30,300 acres, and has funded many recent acquisitions around Mt. Diablo including rare vernal pool habitat and the new connection between Mt. Diablo and Black Diamond Mines.

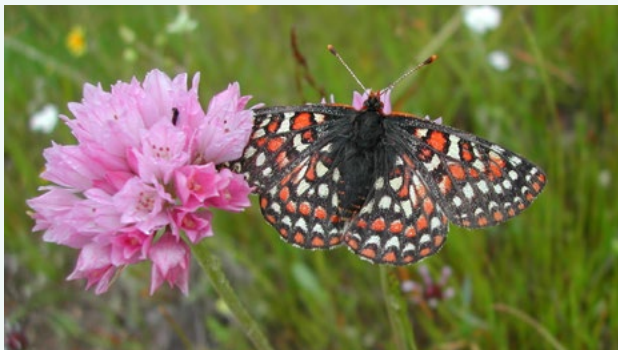


Photo by Stuart Weiss

Santa Clara Valley Habitat Plan

In 2013, this 50-year HCP/NCCP was adopted by Santa Clara County, San Jose, Gilroy, Morgan Hill, Santa Clara Valley Water District, and Valley Transportation Authority and will target 46,000 acres in Southern Santa Clara County, including the vast majority of the remaining serpentine grassland habitat of the iconic Bay checkerspot butterfly.



Photo by Cait Hutnik

San Bruno Mountain Habitat Conservation Plan

This is the first HCP in the nation, and reached its 30th anniversary in 2012. Endangered Mission blue, Callippe silverspot, and San Bruno elfin butterflies continue to fly in the coastal prairies and scrublands of this last large remnant of the Franciscan ecosystem.

Regional Conservation Plans and strategies also provide a shared vision for long-term protection but do not have the level of funding, infrastructure or engagement as an HCP. Regional Conservation Plans and Strategies in the Bay Area include:

- **East Alameda Conservation Strategy (2010)**
<http://www.eastalco-conservation.org>
- **Santa Rosa Plain Conservation Strategy (2005)**
http://www.fws.gov/sacramento/es/Recovery-Planning/Santa-Rosa/es_recovery_santa-rosa-conservation.htm
- **Suisun Marsh Habitat Management, Preservation, and Restoration Plan (2013)** <https://www.wildlife.ca.gov/Regions/3/Suisun-Marsh>

Local policies—zoning for open space protection, establishing or renewing urban growth boundaries, implementing hillside ordinances, creating habitat conservation plans, and designating greenbelt reserves—are most critical for protecting biodiversity and quality of life, but a detailed discussion of local policies is beyond the scope of this report.



Photo by Annie Burke

In summary, policy is critical to limit development of lands throughout the Conservation Lands Network, to encourage compatible forestry and agricultural uses, to require stream and watershed protection during forest and agricultural operations, to reduce sedimentation and nonpoint source pollution, and to mandate buffers along stream corridors. More work is needed to encourage local, state, and federal governments to enact and enforce land use policies that help protect the Conservation Lands Network for us all.

Furthermore, the proper stewardship, management, and monitoring of lands within the Conservation Lands Network is critical to maintain or enhance ecosystem processes and functions vital to healthy and diverse populations of plants and wildlife. Management and protection cannot occur without sufficient local, state, and federal funding for these actions.

7 Next Steps for the Conservation Lands Network



Photo by Stu Weiss

Collaborative Action: Implementation of the Conservation Lands Network

Protection of lands comprising the Conservation Lands Network (see Figure 1.2) is a priority for meeting the regional conservation goal to collectively and strategically protect 2 million acres of Bay Area lands and rare landscapes. However, the business of land conservation is not as fast paced as selling a stock, or launching a new start-up business. Often, protection of a single property can take years of negotiation, relationships built on trust, and just the right alignment of priorities and goals. The lag time on conservation projects means that the network is inherently dynamic, as lands are protected, developed or converted in real time. Implementation of the Conservation Lands Network and making progress toward achieving our regional goal therefore also require a dynamic approach and continued investment.

Investment in protecting the lands inside the Conservation Lands Network is a priority, however lands outside the CLN may also have high conservation values. Surveys of a property of interest may reveal extraordinary biological resources not captured in the current CLN dataset. Therefore, ground-truthing is essential. Even the best available data is often inconsistent and incomplete; conservation decisions must include site visits and surveys.

Charting the Course for CLN Implementation

Implementing the CLN means continuing and expanding the extraordinary collaboration and coordination of conservation actions that have made the Bay Area a leader in open space protection. The CLN 1.0 Report lists steps that chart the course toward meeting the challenge of implementing the CLN:

1. Use the Conservation Lands Network as a guide.
2. Create incentives for landowners.
3. Support sound stewardship and adaptive management.
4. Save our streams.
5. Integrate the land conservation ethic into public policy.
6. Fund what works and create new funding sources.
7. Update and adapt: CLN 2.0

Ongoing Research Needs

In addition to implementation, there are various research and data needs paramount to updating the CLN and measuring our collective progress toward reaching regional conservation goals. Outlined in more detail in Chapter 13 of the CLN 1.0 report, research needs include:

1. Up-to-date vegetation map
2. Species occurrence information
3. Historical baseline
4. Stewardship classification for the Bay Area Protected Areas Database (BPAD)
5. Site surveys and linkage analysis for the Areas for Further Consideration
6. Rangeland mapping
7. Rangeland sustainability indicators
8. Mapping of unpaved roads
9. Policy protection data layer
10. Development threat assessment
11. Regulatory and flood control easement assessment

CLN Updates and Progress Measurements

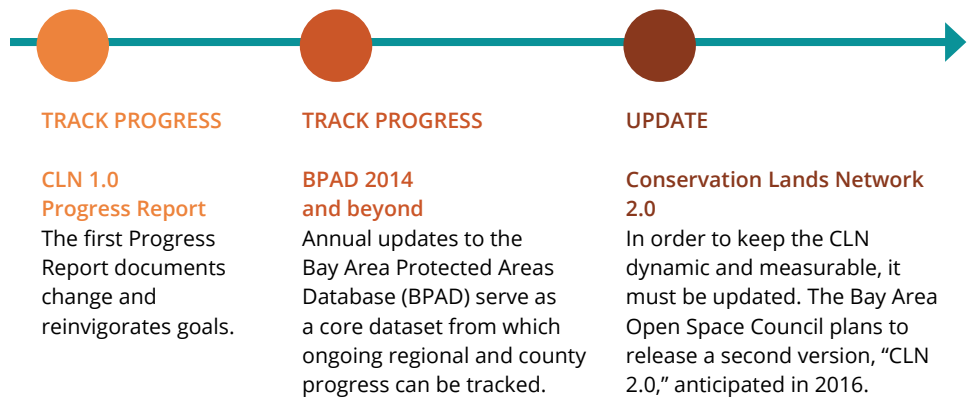
CLN 2.0

Updates to the Conservation Lands Network are vital to ensuring that the network of lands and rare landscapes reflects the tangible, on-the-ground reality of what is regionally being conserved. The next update to the Conservation Lands Network (CLN 2.0) is anticipated in 2016.

BPAD

Annual updates of the Bay Area Protected Areas Database (BPAD) serve as interim snapshots to our collective progress toward reaching regional conservation goals. BPAD is also the backbone from which the Conservation Lands Network is developed. Planned updates for the Bay Area Protected Areas Database include BPAD 2014 (to be released in early 2015, in conjunction with the California Protected Areas Database, or CPAD), BPAD 2015 and BPAD 2016.

Figure 7.1: Progress tracking and updates.



Individual Action

Spread the word

Visit www.bayarealands.org to view the interactive map of projects and people whose work has contributed to the Conservation Lands Network thus far. Learn about key projects and progress in your county. Share the Indicator badges with your social networks. Talk about the importance of protecting the Bay Area greenbelt and participate with your local land trust, park districts and vote environment.

Explore

Visit www.bayarealands.org and log-in to use the CLN Explorer Tool and discover conservation values for any property in the Bay Area.

Tell us what you think

Visit www.bayarealands.org or email [programs \[at\] openspacecouncil.org](mailto:programs@openspacecouncil.org).

Create a success story

Do your part to support open spaces, be it via your profession, your pocketbook, or your personal time.

Enjoy open spaces

Visit a park, and play! Get outside and enjoy the great open spaces that make the Bay Area one of the most unique places to live and play in the world.

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