BAY AREA | OPEN SPACE COUNCIL

The Bay Area Conservation Lands Network: A Unified Vision for Regional Biodiversity Conservation:

Think Big, Connect More

Stuart B. Weiss, Ph.D.

Cal-IPC Symposium October 2012

Bay Area Open Space Council

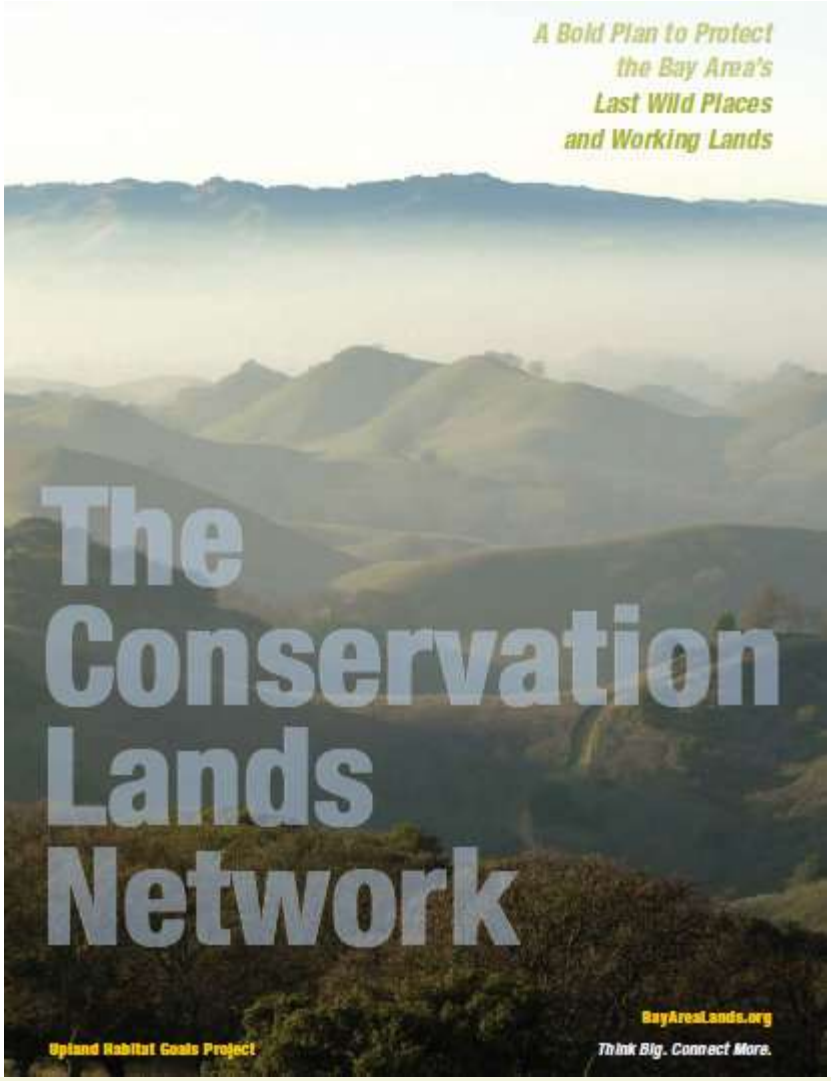
The Bay Area Open Space Council is a collaborative of sixty member organizations actively involved in permanently protecting and stewarding important parks, trails and agricultural lands in the ten-county San Francisco Bay Area.


Lech Naumovich
PHOTOGRAPHY

The Conservation Lands Network

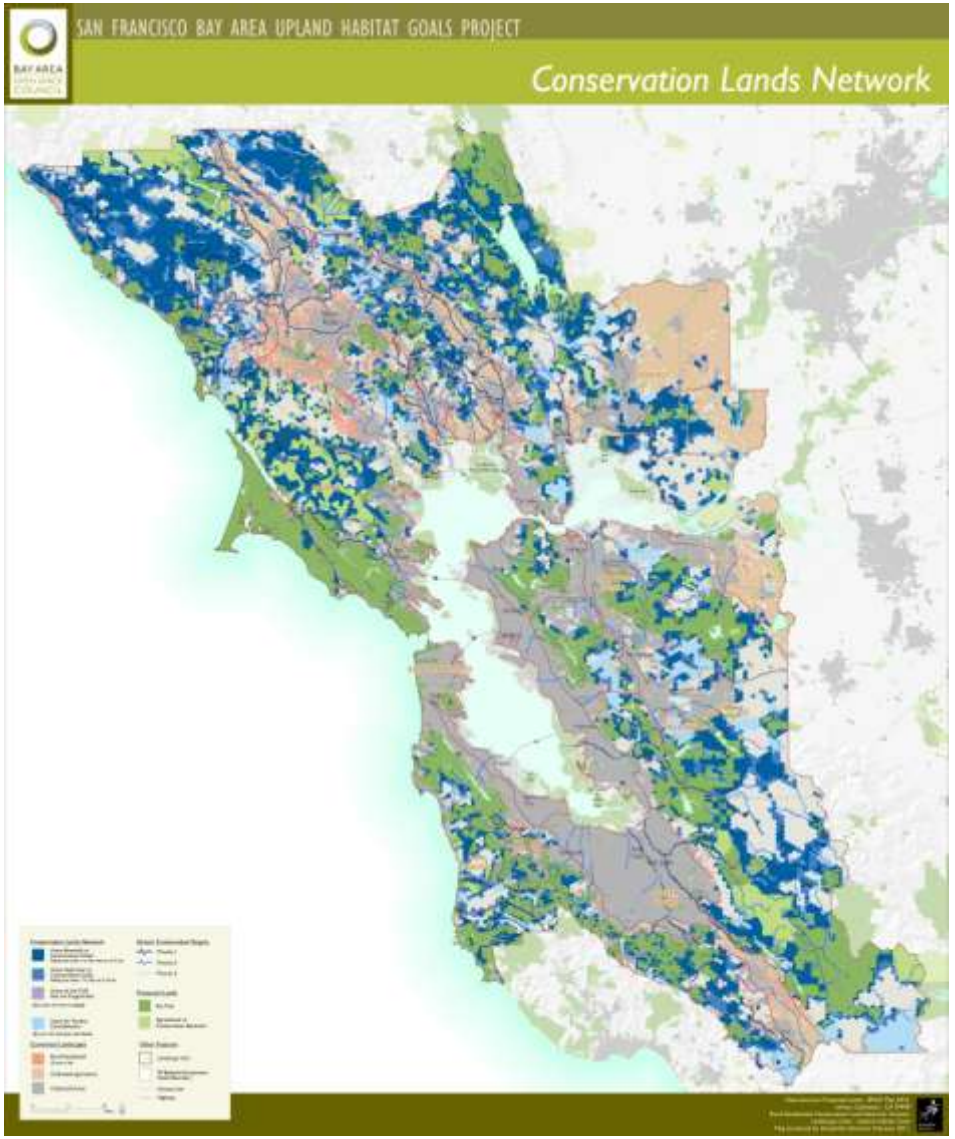
The San Francisco Bay Area Uplands Habitat Goals Project

www.bayarealands.org



The Conservation Lands Network

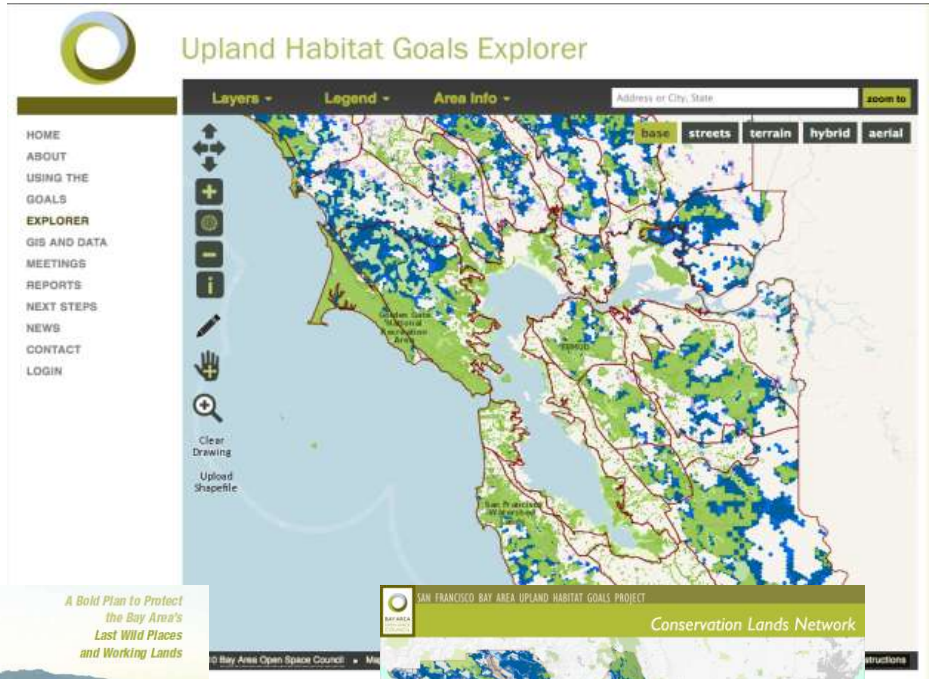
- How many acres of what types of habitats and in what configuration to conserve biodiversity in the nine county Bay Area?
- Voluntary implementation.

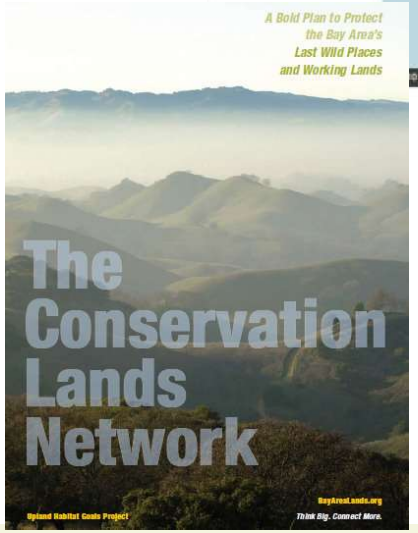


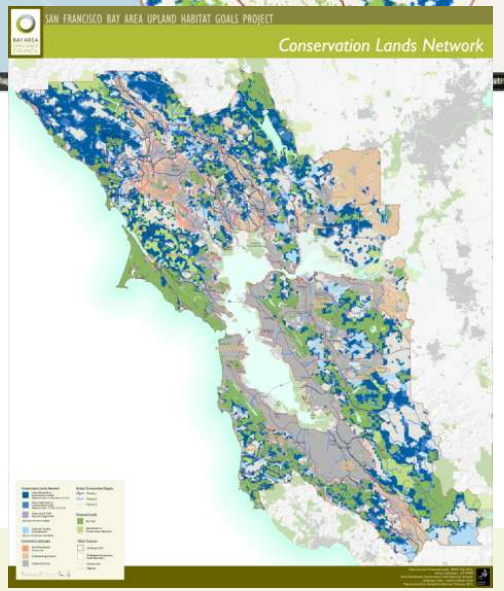
The Conservation Lands Network

Final Products

- Conservation Lands Network
- Explorer
- Full Report
- GIS Database
- Website
- Analytical Framework
- Biennial Updates

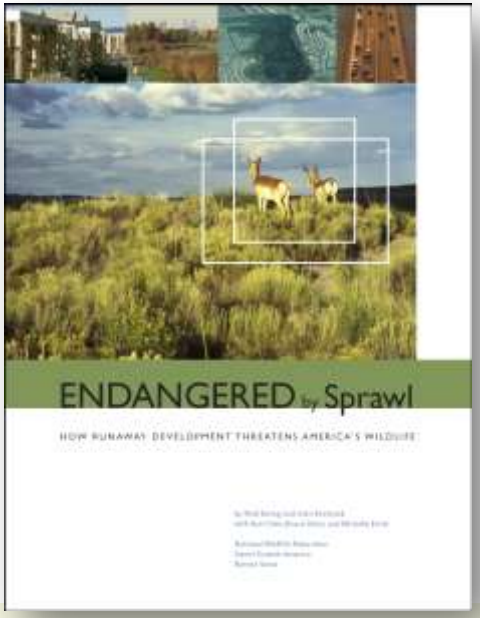


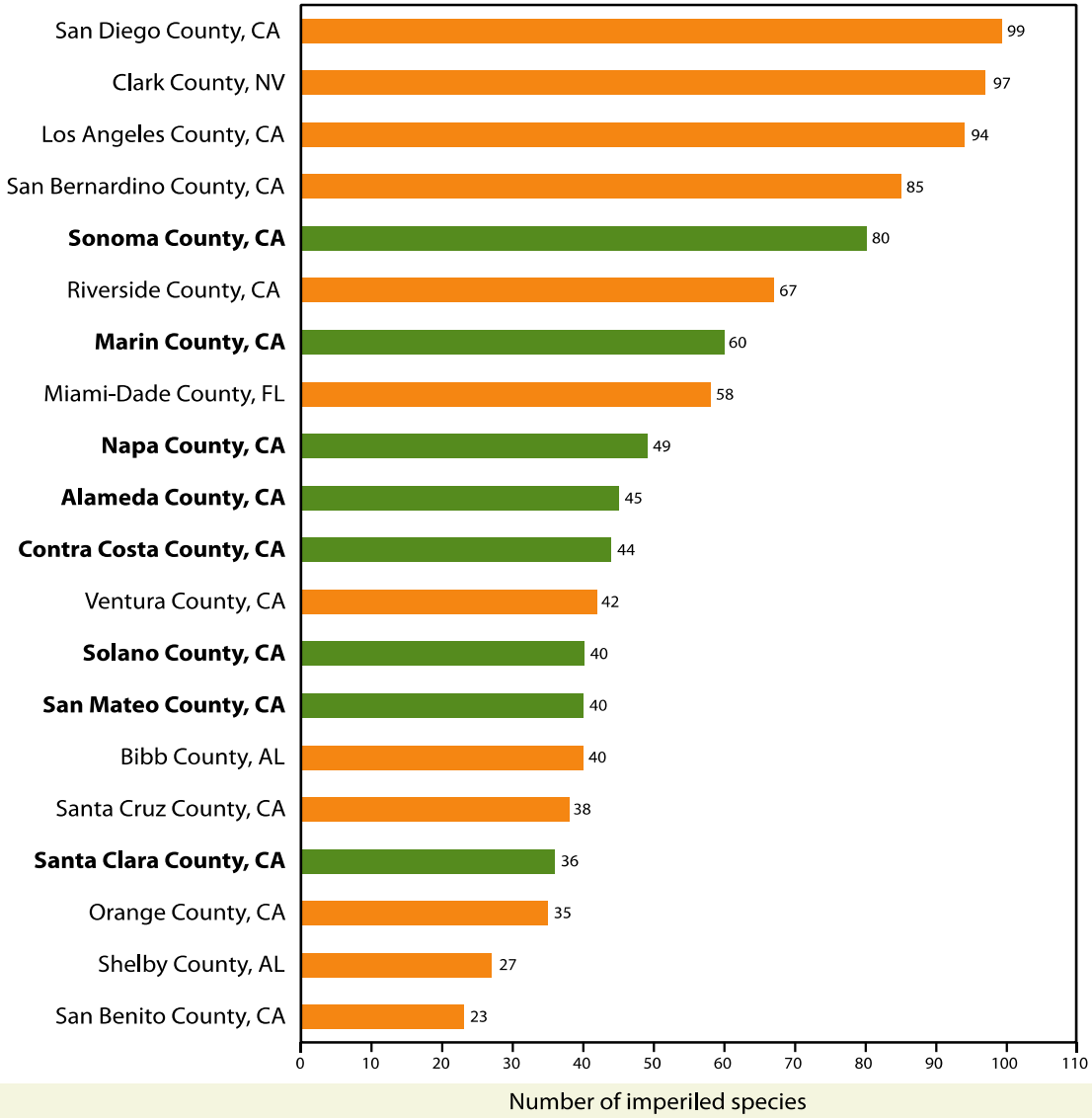




The Conservation Lands Network

- **20 of the fastest growing counties also have the largest number of imperiled species**
- ***8*** **are in the Bay Area**





The Conservation Lands Network



Funding provided by:

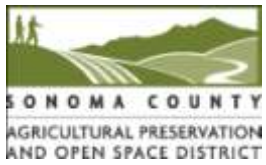
- **California State Coastal Conservancy**
- **Gordon and Betty Moore Foundation**

California Landscape Conservation Cooperative
California Natural Resources Agency
David and Lucile Packard Foundation
California Coastal and Marine Initiative of the Resources Legacy Fund Foundation
Richard and Rhoda Goldman Fund
US Fish and Wildlife Service Coastal Program at San Francisco Bay

Technical assistance provided by:

National Park Service Rivers, Trails & Conservation Assistance Program

The Conservation Lands Network Steering Committee



The Conservation Lands Network

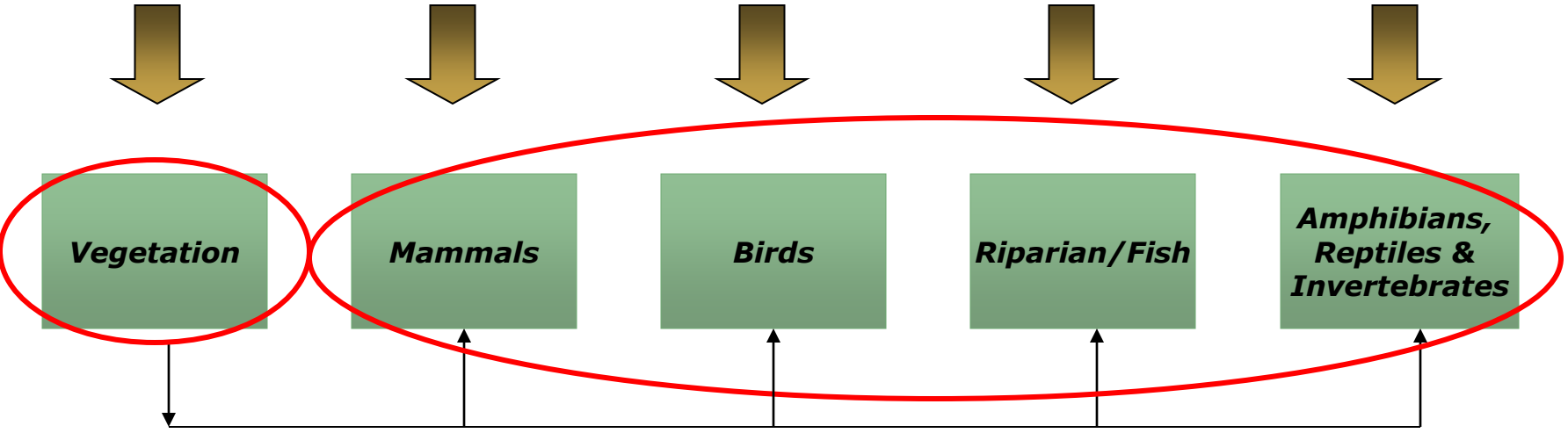
Steering Committee

Establishes guiding principles

Drafts target species selection criteria

Develops methodology for setting habitat goals

Establishes 5 Focus Teams to set goals for species group



Final Report with Conservation Lands Network, methodology, stewardship and management practices, implementation strategies

Partner Outreach Plan

- Engage key audiences for input during goal-setting process.
- Key audiences:
  - public resource and regulatory agencies
  - conservation nonprofits
  - landowners
  - environmental consultants
  - academics
  - funders

Public Outreach and Implementation Plan

- post-planning

The Conservation Lands Network

Study Area = 4.3 million acres

<u>Land Use Categories</u>

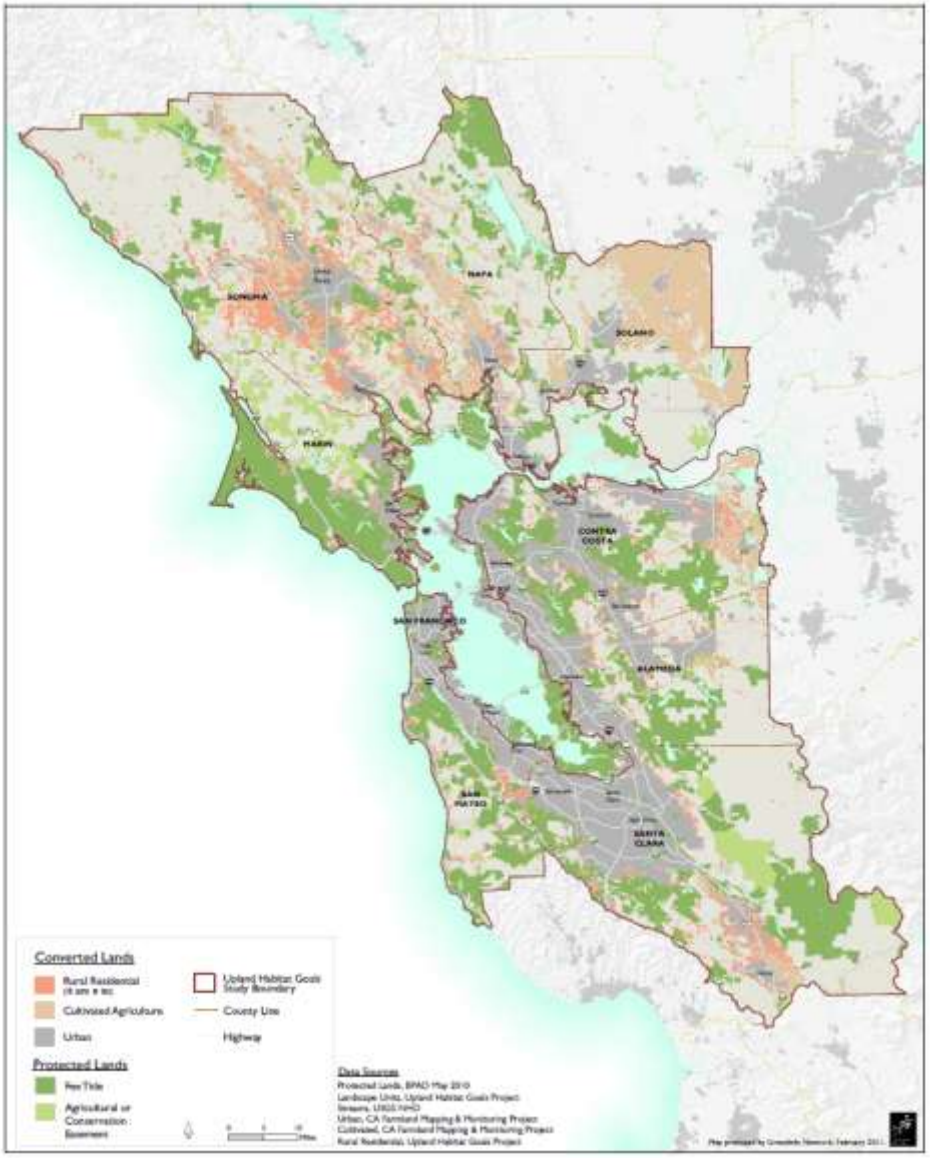
Protected ~ 1.2 million acres

Urban ~ 800k acres

Cultivated Agriculture ~ 370k acres

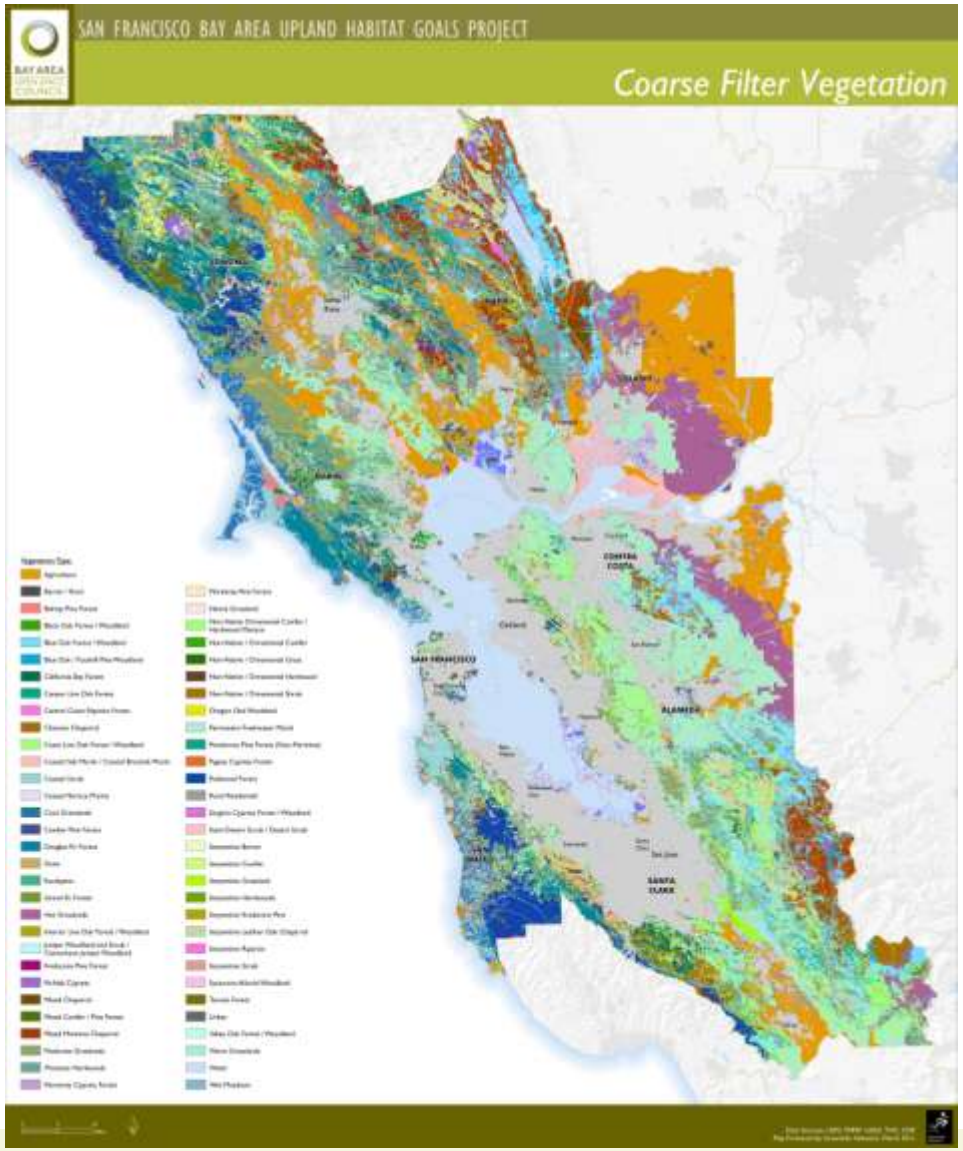
Rural Residential 10 ~ 150k acres

Remaining ~ 2 million acres



The Conservation Lands Network - Coarse Filter Vegetation

- Derived from several sources and Vegetation Focus Team expert opinion
- 61 cover types, 52 natural / semi-natural types
- 30 m grid
- Compromise between high resolution classification and even coverage across Bay Area



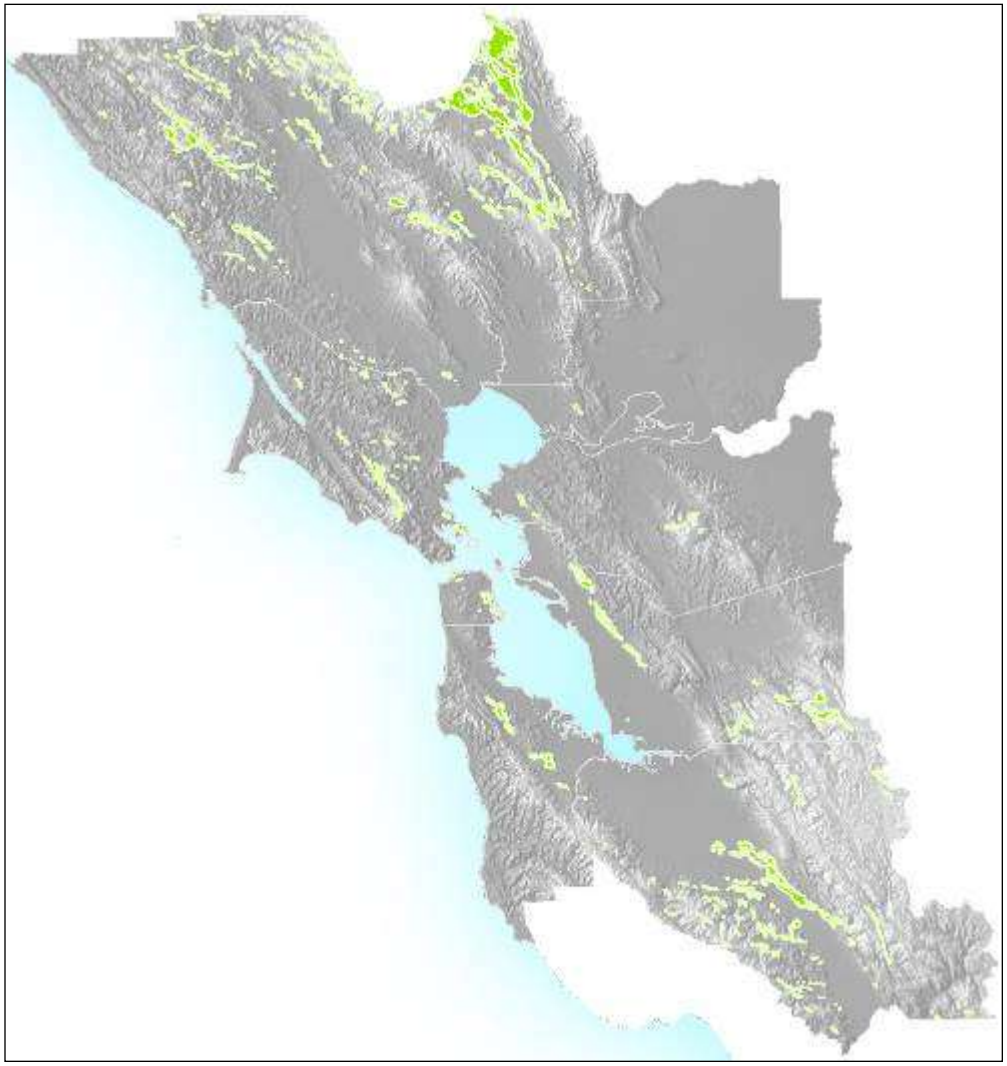
The Conservation Lands Network

- 29 Landscape Units (+5 Urban Areas & Bay and Baylands)
- Physiographic features: valleys and mountains
- Capture diversity and biogeography of vegetation
- Provide geographically coherent units

Vegetation Map Enhancements

Primary Vegetation Enhancements:

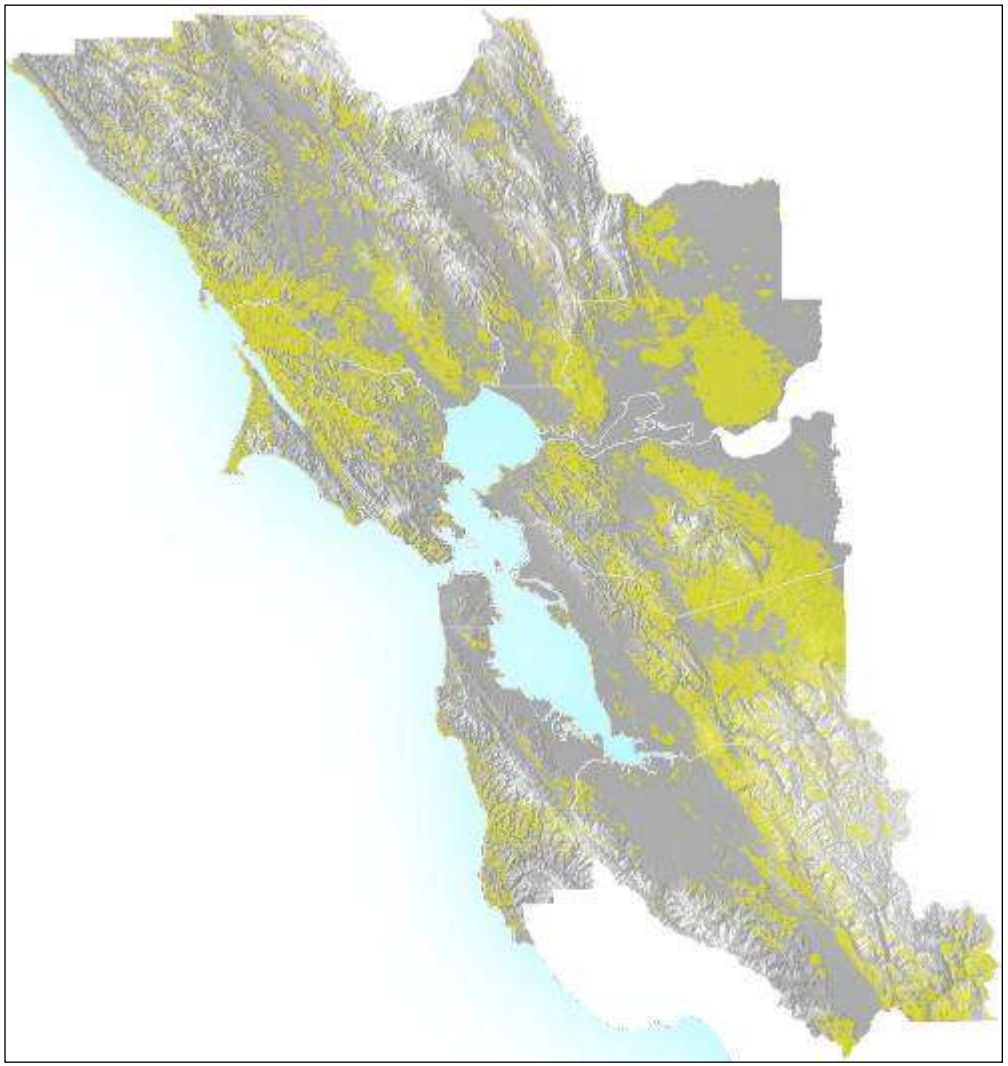
- Serpentine Geology Overlay



Vegetation Map Enhancements

Primary Vegetation Enhancements:

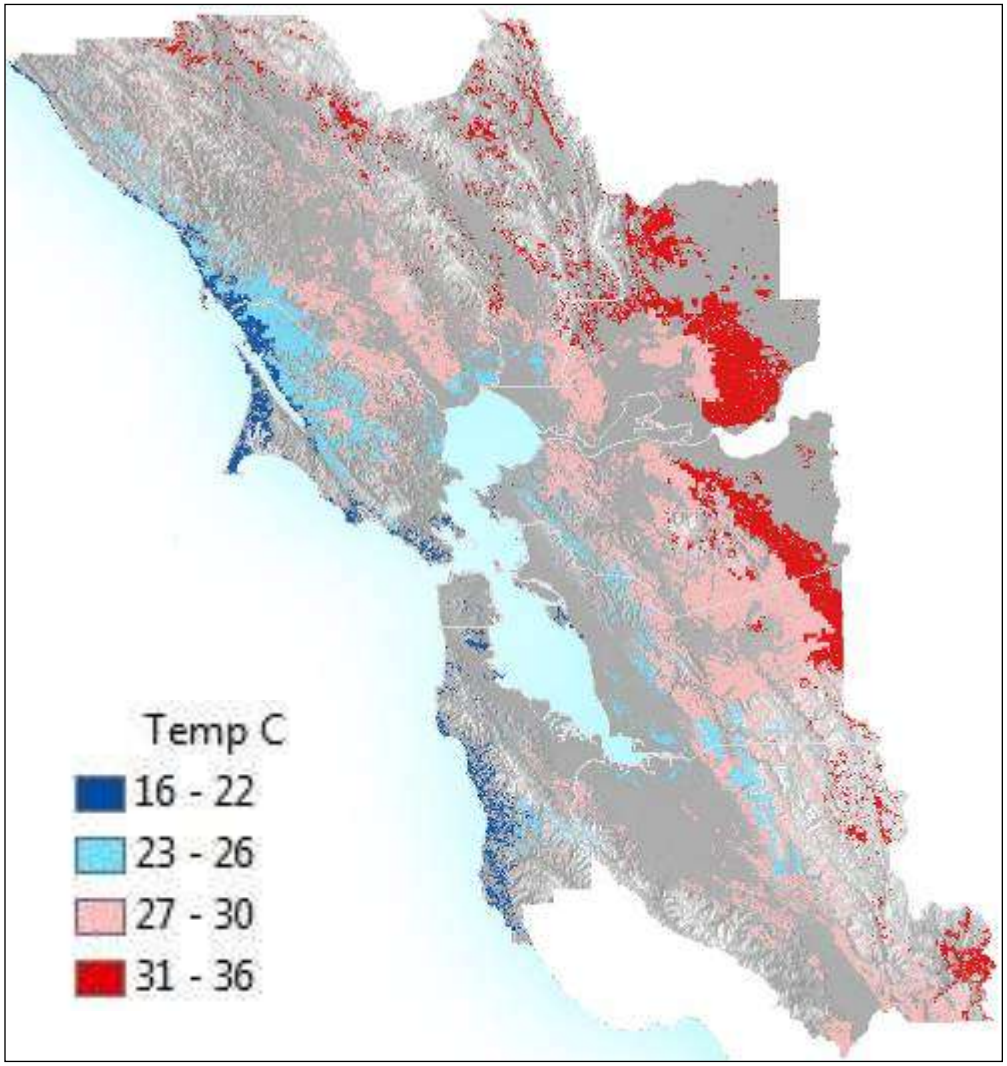
- Annual Grassland type over 1 million acres!



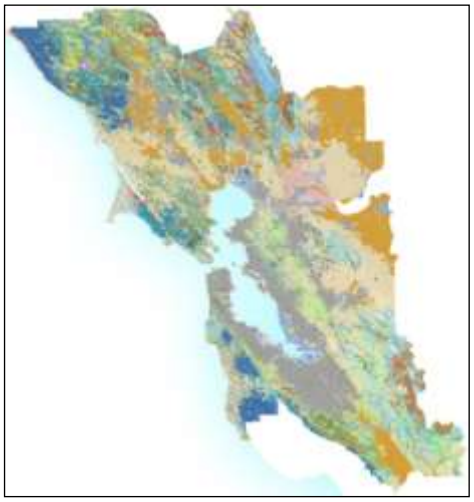
Vegetation Map Enhancements

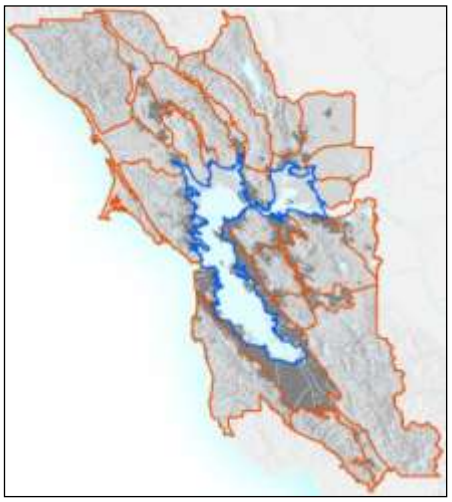
Primary Vegetation Enhancements:

- Climatic Grassland Stratification – July Max Temp – cool, moderate, warm and hot
  - From PRISM, Oregon State University



The Conservation Lands Network – Coarse Filter

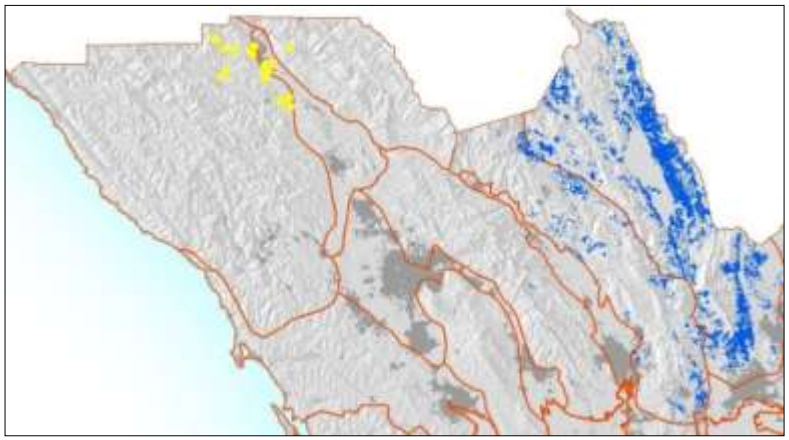




556 Coarse Filter Conservation Targets

Vegetation Types x Landscape Unit

Blue Oak Woodland



The Conservation Lands Network

556 Vegetation Type (Coarse Filter) Conservation Targets

Rarity Rank and Conservation Goals

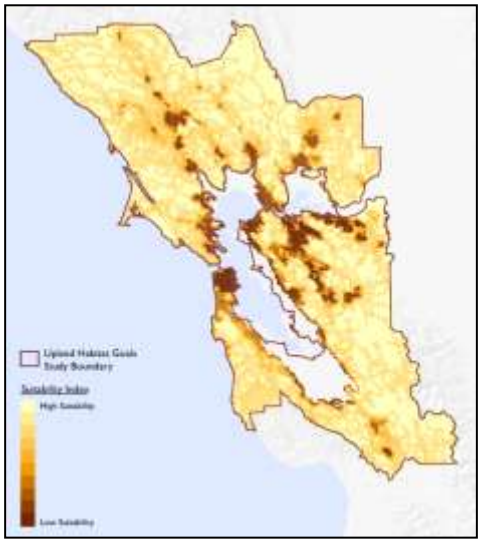
- **Rank 1 – Globally Rare, Locally "Highly" Significant - 90% goal**
- **Rank 2 – Locally Rare (5% or less of LU) – 75% goal**
- **Rank 3 – Common or "matrix" (>5% of LU) – 50% goal**
- **Rank 4 – Urban, Cultivated Agriculture, Rural Residential, Non-native (golf courses, etc.) – 0% goal**

The Conservation Lands Network

MARXAN - Site Selection Software to meet goals

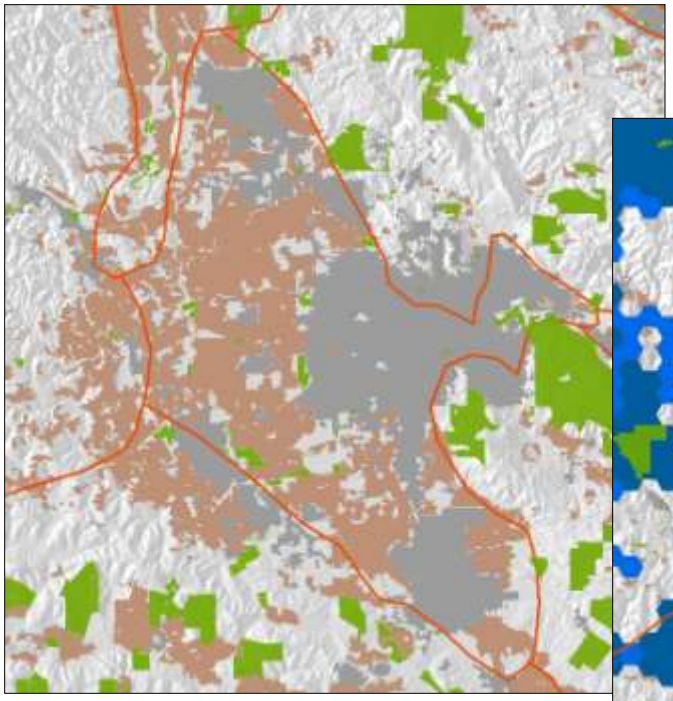
Creates Conservation Lands Network based on inputs:

1. **Existing Protected Areas**
2. **Conservation Goals for Vegetation Type Targets – Rank 1, 2, 3 (90%, 75%, 50%)**
3. **Conservation Suitability – ecological integrity**
4. **Planning Units – 100 Hectare Hexagons ~247 acres**

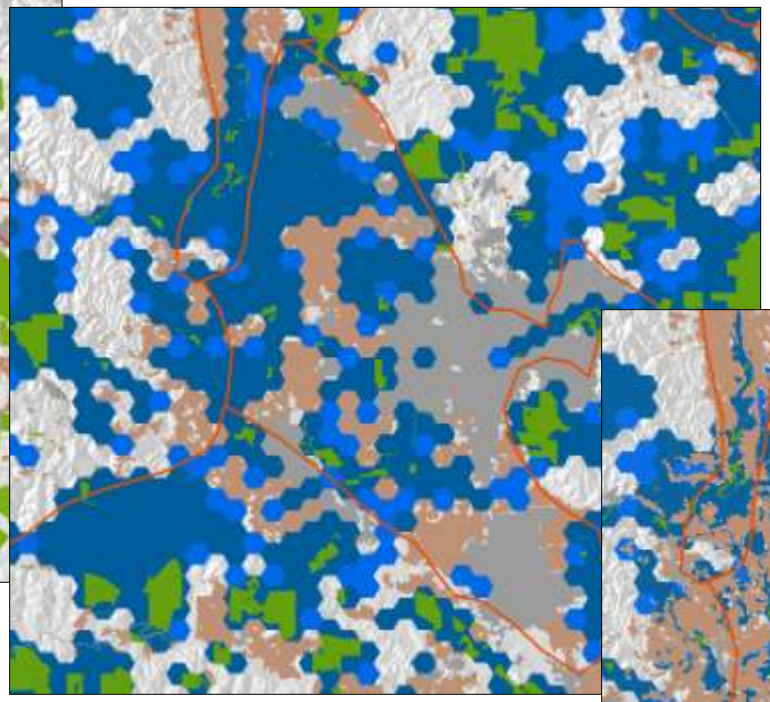


Coarse Filter Conservation Lands Network =
<u>Starting Point</u> for discussion with focus teams.

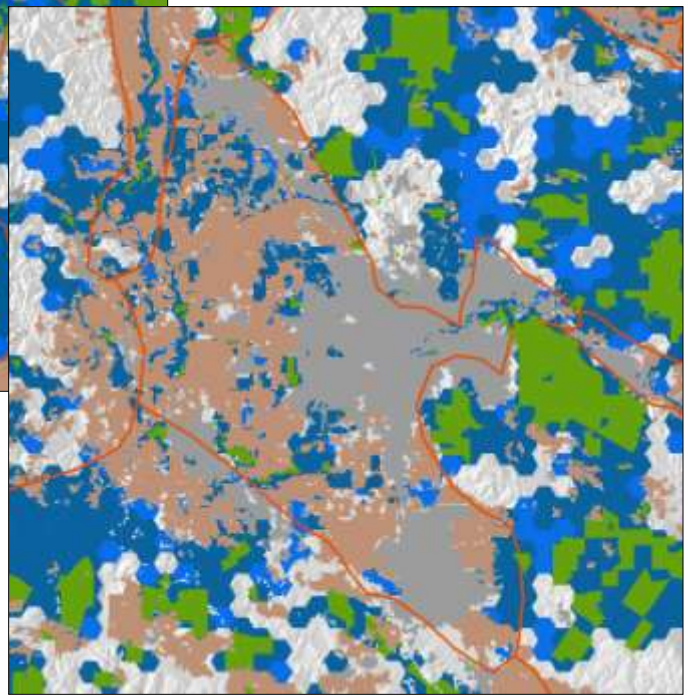
Designing Conservation Lands Network – MARXAN



Intensive Ag & Urban Land Uses



Marxan-Selected Conservation Lands



Conservation Lands Network minus Ag & Urban

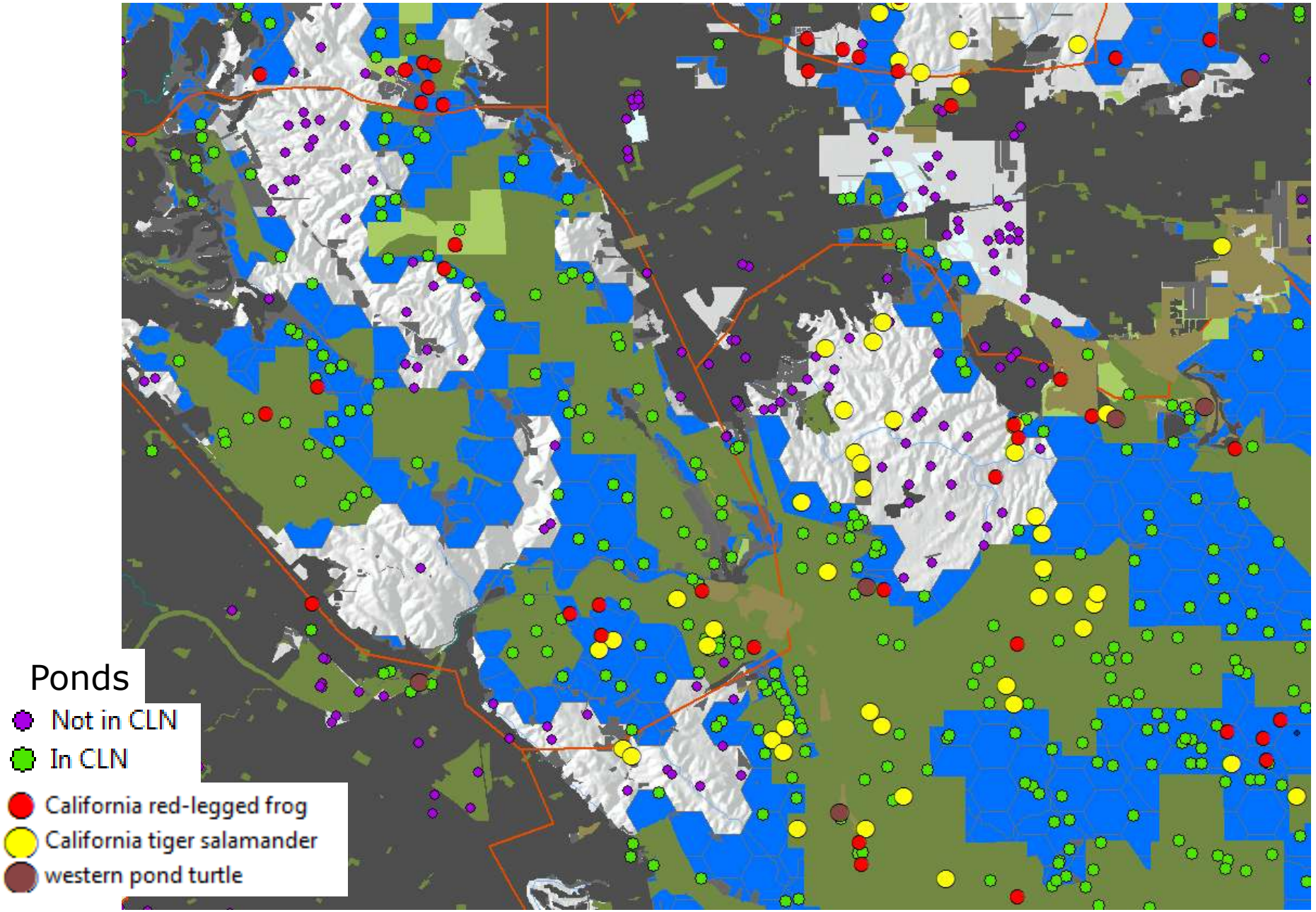
The Conservation Lands Network – Fine Filter

Refine Conservation Lands Network with Fine Filter Targets:

- **Plants – Old Growth Redwoods, Vernal Pools, CNDDB T, E, and rare species**
- **Mammals – American Badger, Porcupine, CNDDB T&E species**
- **Birds – Spotted Owl, Breeding Bird Atlases, CNDDB, Important Bird Areas**
- **Fish and Riparian – ALL STREAMS - Steelhead and Coho**
- **Amphibians, Reptiles & Invertebrates – Western Pond Turtle, California Red-legged Frog, Bay Checkerspot Butterfly**



CLRF CTS WPT Pleasanton/SEBH CNDDB



The Conservation Lands Network – Riparian/Fish Focus Team

All streams are targets and part of the Conservation Lands Network.

Some are more immediately important than others: anadramous fish diverse native fishes

Goal: Restore riparian ecological processes & functions for healthy assemblages of native fish.

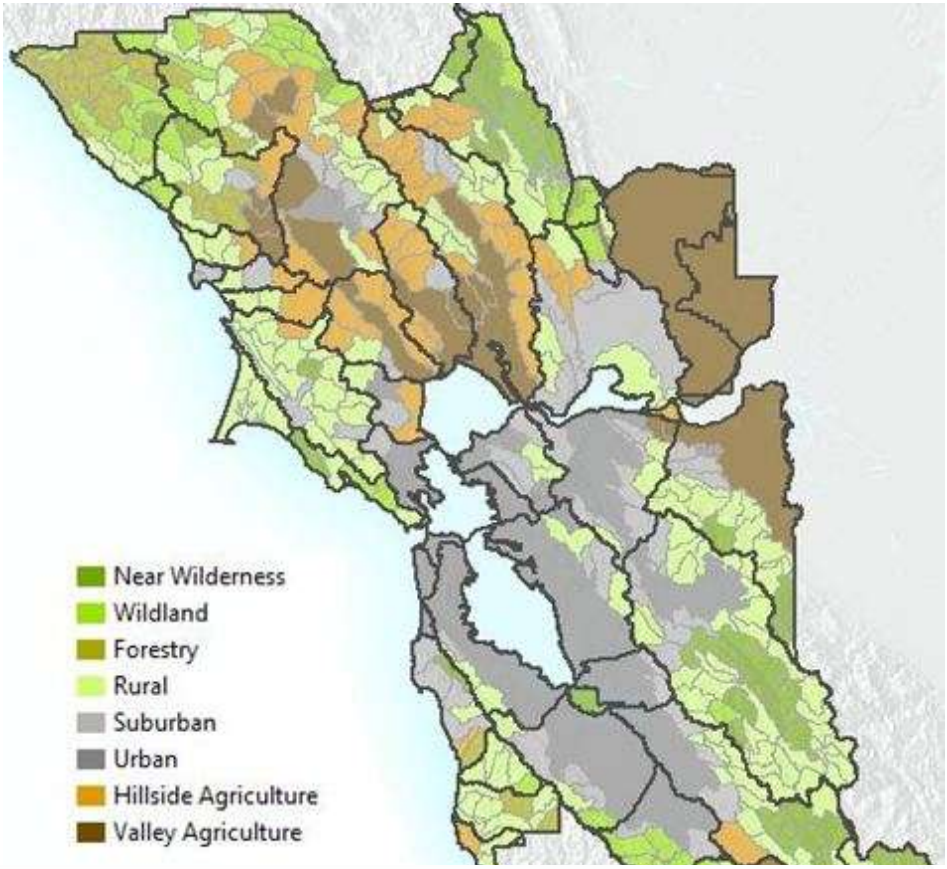
Watershed Integrity

Cluster Analysis - similarly impacted watersheds

Map integrity issues and help inform Management Recommendations

8 Clusters of Relevance:

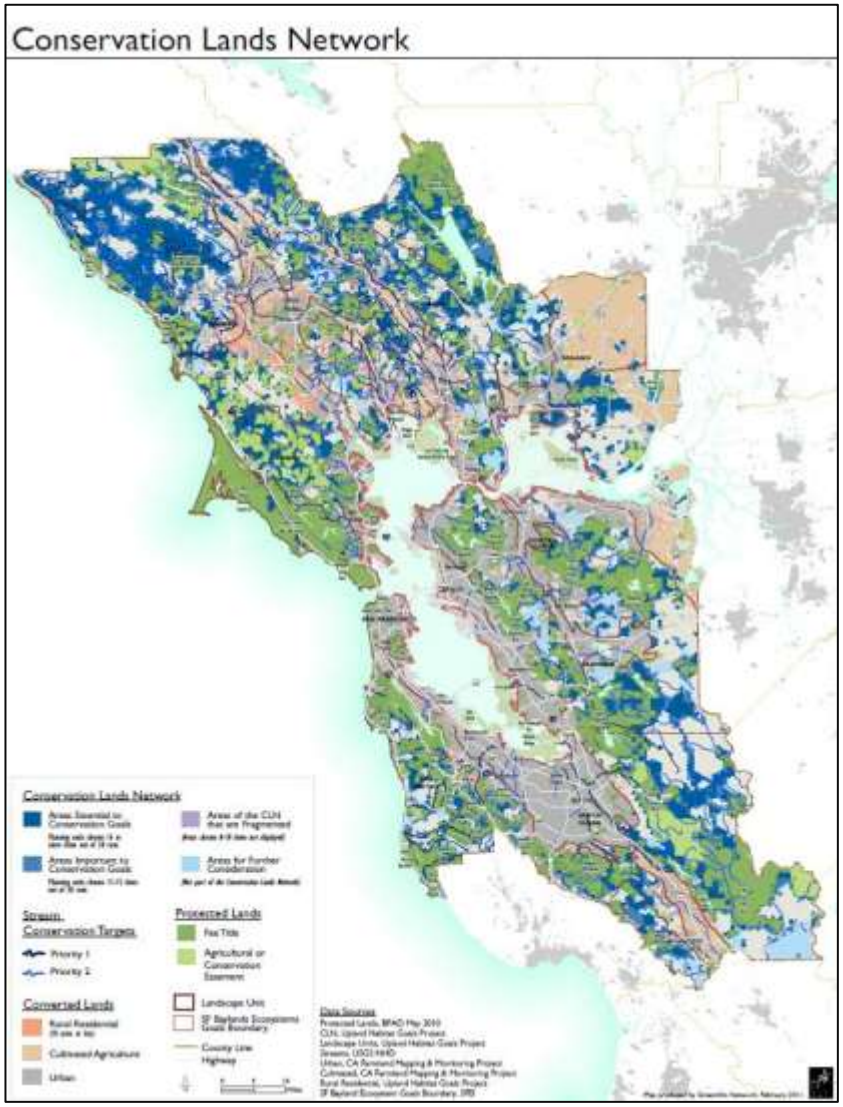
- **Near Wilderness**
- **Wildland**
- **Forestry**
- **Rural**
- **Suburban**
- **Urban**
- **Hillside Agriculture**
- **Valley Agriculture**



Cluster	# of PWS	Acres	% Urban	% Ag	Pop Density	% THP	Erosion	Distance from roads
Near Wilderness	48	338,264	L	L	L	L	H	H
Wildlands	48	311,368	L	L	L	L	H	M
Forestry	31	170,334	L	L	M	H	H	M
Rural	211	1,267,389	L	L	M	L	M	M
Suburban	62	552,628	M	L	H	L	L	M
Urban Plains	42	686,233	H	L	H	L	L	L
Hillside Agriculture	51	467,452	L	H	M	L	M	M
Valley Agriculture/Urban	22	728,369	M	H	H	L	L	L

L = low, M = medium, H = high

The Conservation Lands Network 1.0



- Areas Essential for Conservation Goals (dark blue) – selected 16 -20 times.
- Areas Important for Conservation Goals (medium blue) – selected 11 to 15 times.
- Fragmented Areas (light purple).
- Areas for Further Consideration (light blue).

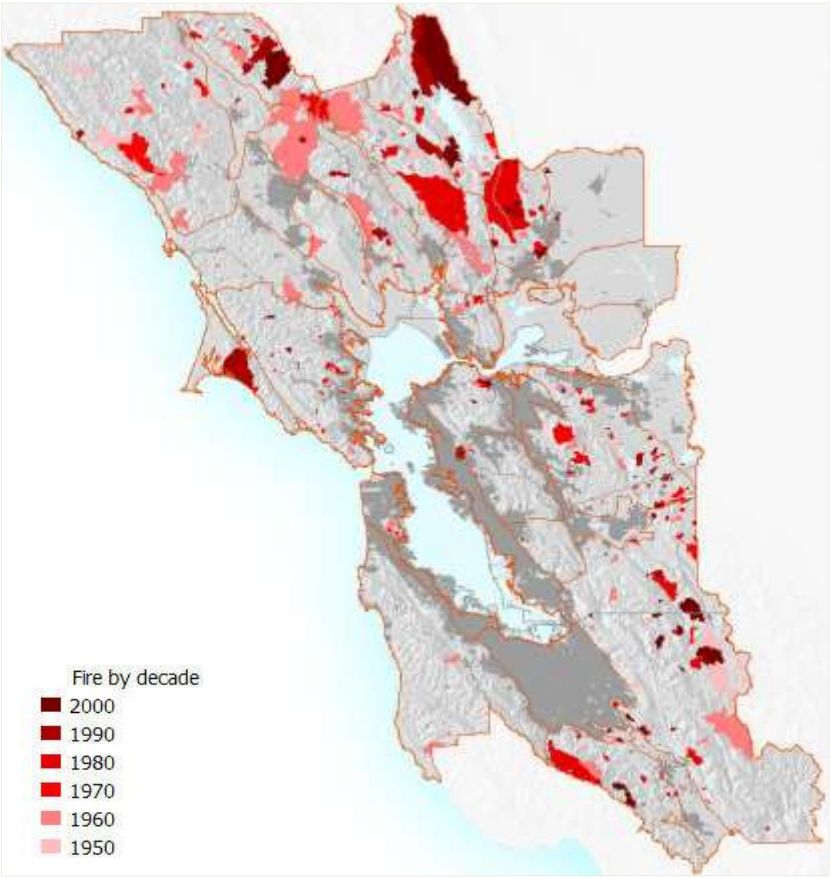
Stewardship and Management

- **Stewardship – the institutional framework and process for managing lands**
- **Management – the actual on the ground actions (fire, grazing, mechanical, manual, species movement, etc.)**
- **Adaptive management - feedback on effectiveness of actions through appropriate monitoring**

The Conservation Lands Network 1.0

Conservation Target Viability Factors

1. Climate change*
2. Atmospheric nitrogen deposition*
3. Fire*
4. Ecological succession*
5. Floods and drought*
6. Landslides and erosion*
7. Invasive plants*******
8. Non-native animals
9. Pathogens and disease*

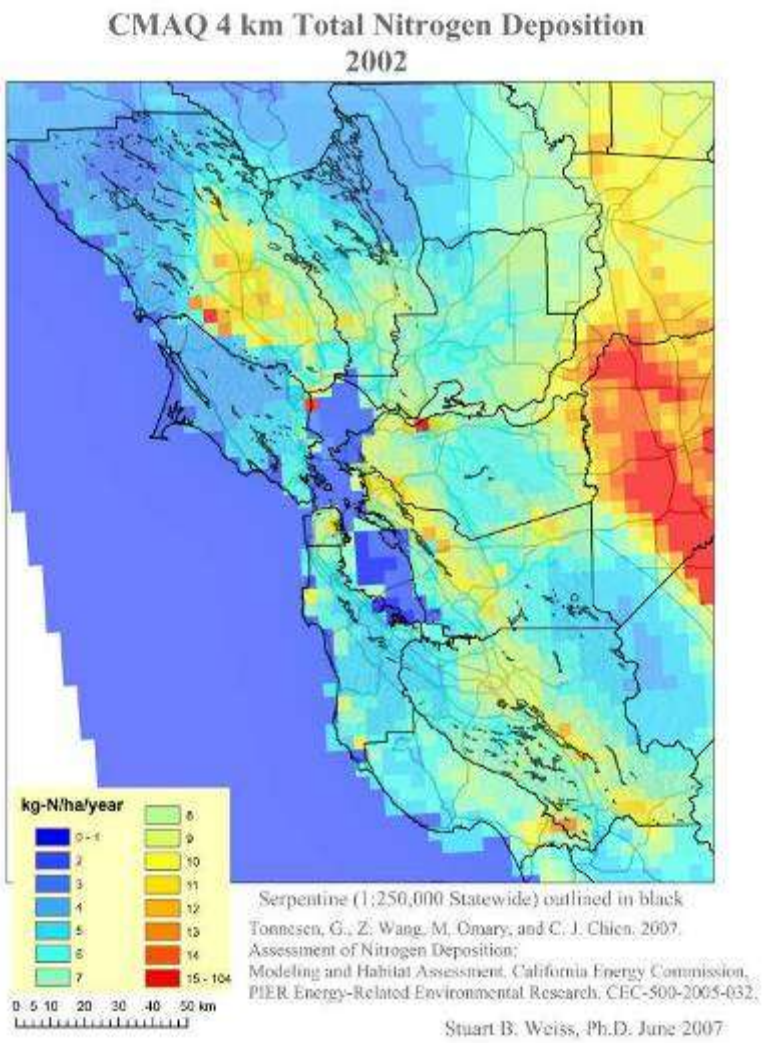


Management Recommendations

Viability Summaries – Invasive Plants

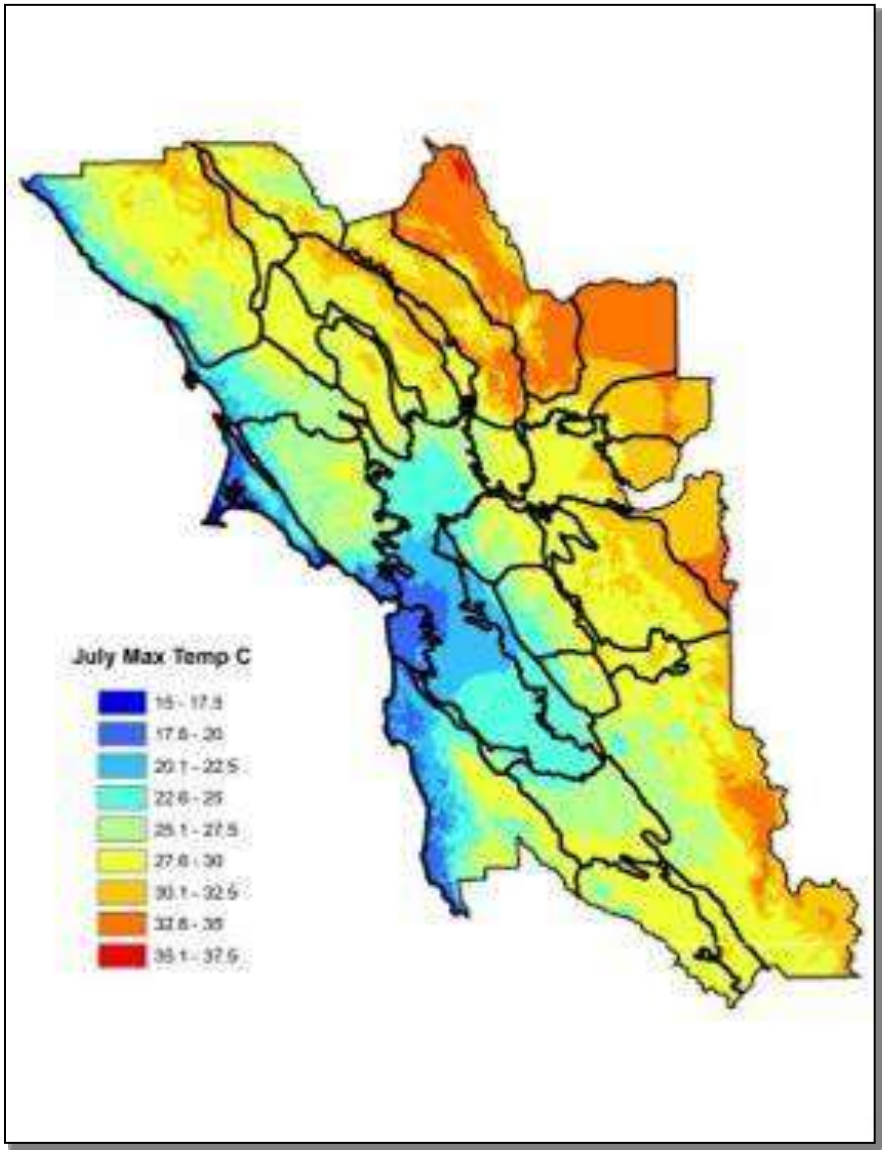
1. **Strategic level – mapping and prioritization**
2. **Tactical level – how to kill the weeds**
3. **Operational level – deployment of the right people and right tools, at the right place and right time**
4. **Institutional infrastructure – Cal-IPC, BAEDN, WMAs, etc.**
5. **Property boundaries are major confounding factor**
6. **Long-term funding, timing**
7. **CEQA and ESA mitigation for N-deposition**

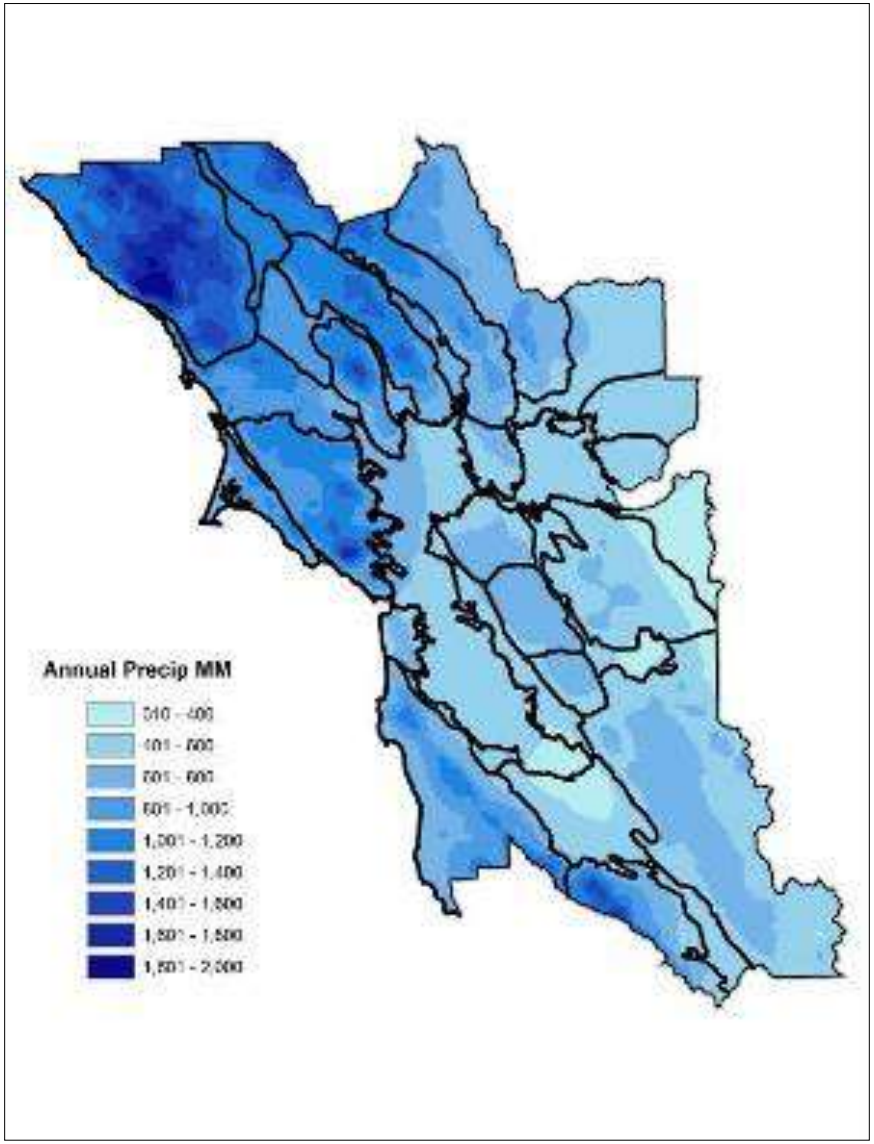
Viability Summaries – Nitrogen Deposition



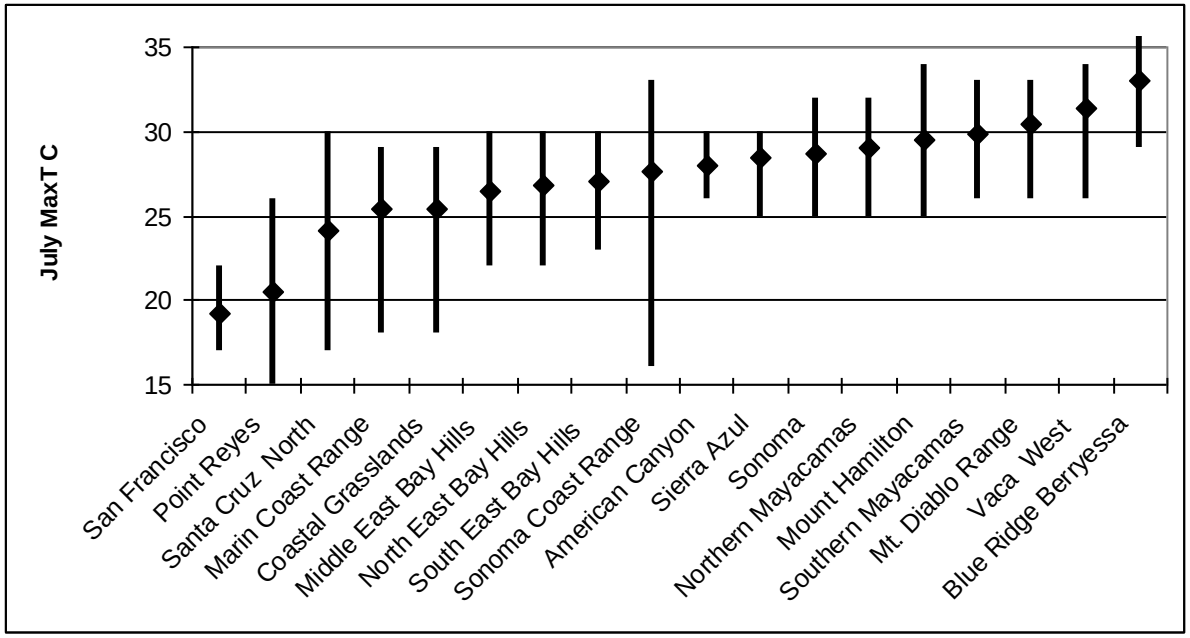
Keystone Species: Ranchers

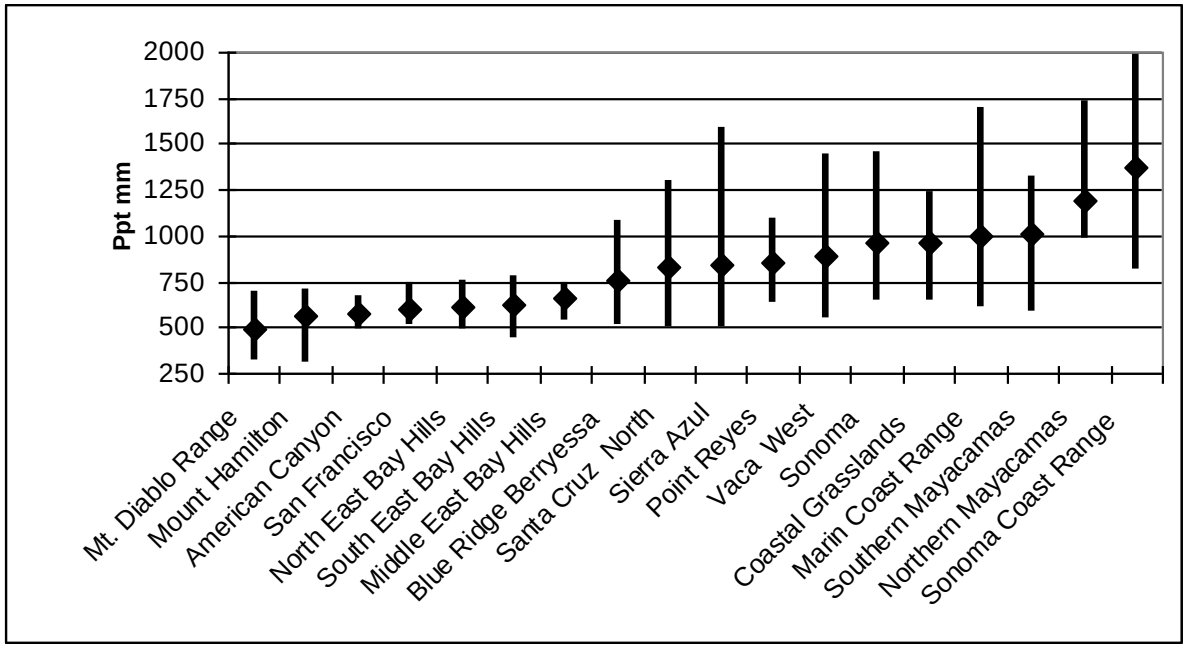
Climate – PRISM Maximum Temp + Precipitation 800m



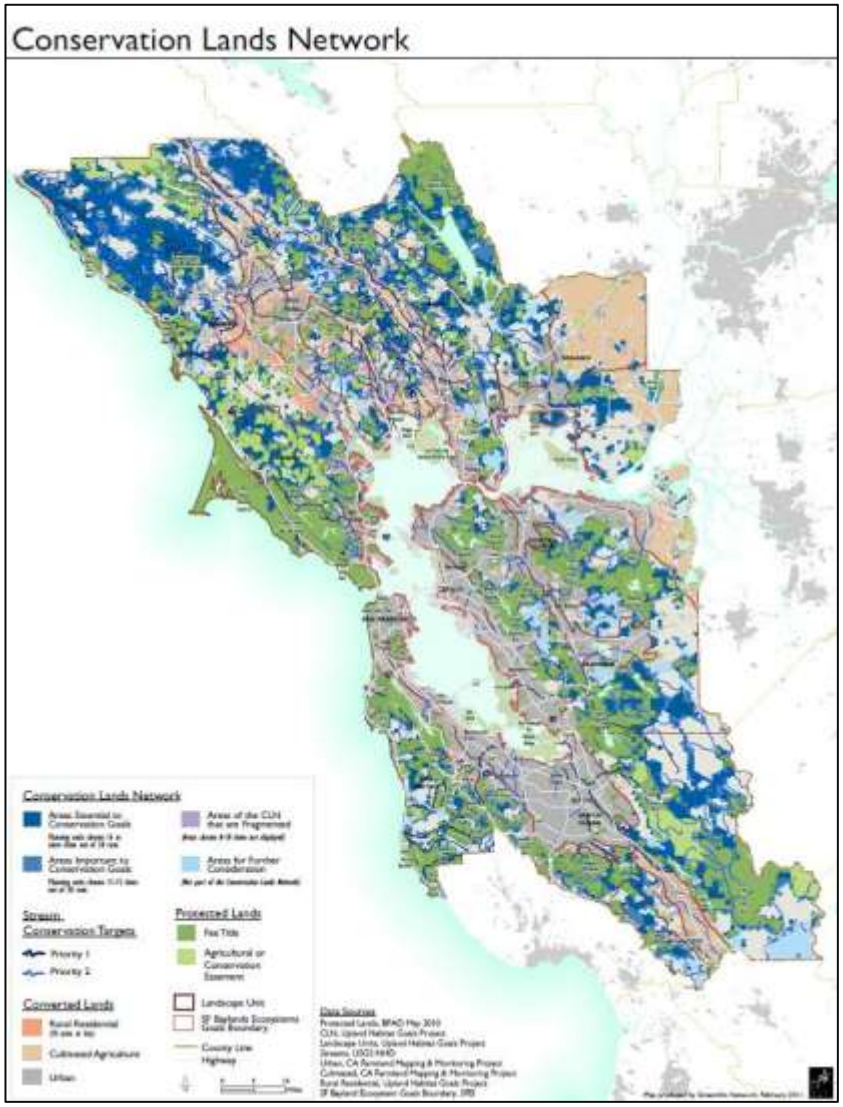


Climate – Mesoclimate X Landscape Unit





The Conservation Lands Network 1.0



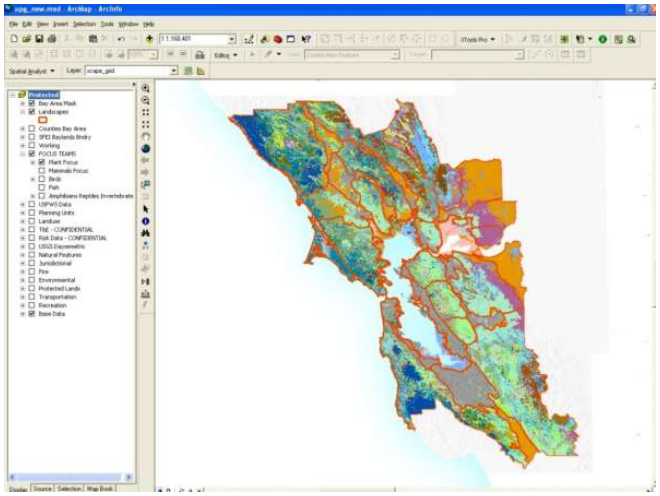
- Network is dynamic.
- Ground truthing is essential.
- Goals set for targets throughout range to support resilience.

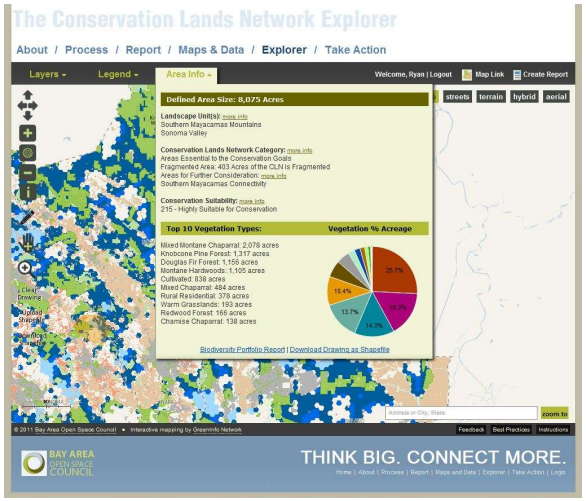
The Conservation Lands Network

www.BayAreaLands.org

Conservation Lands Network Explorer

Comprehensive GIS Database

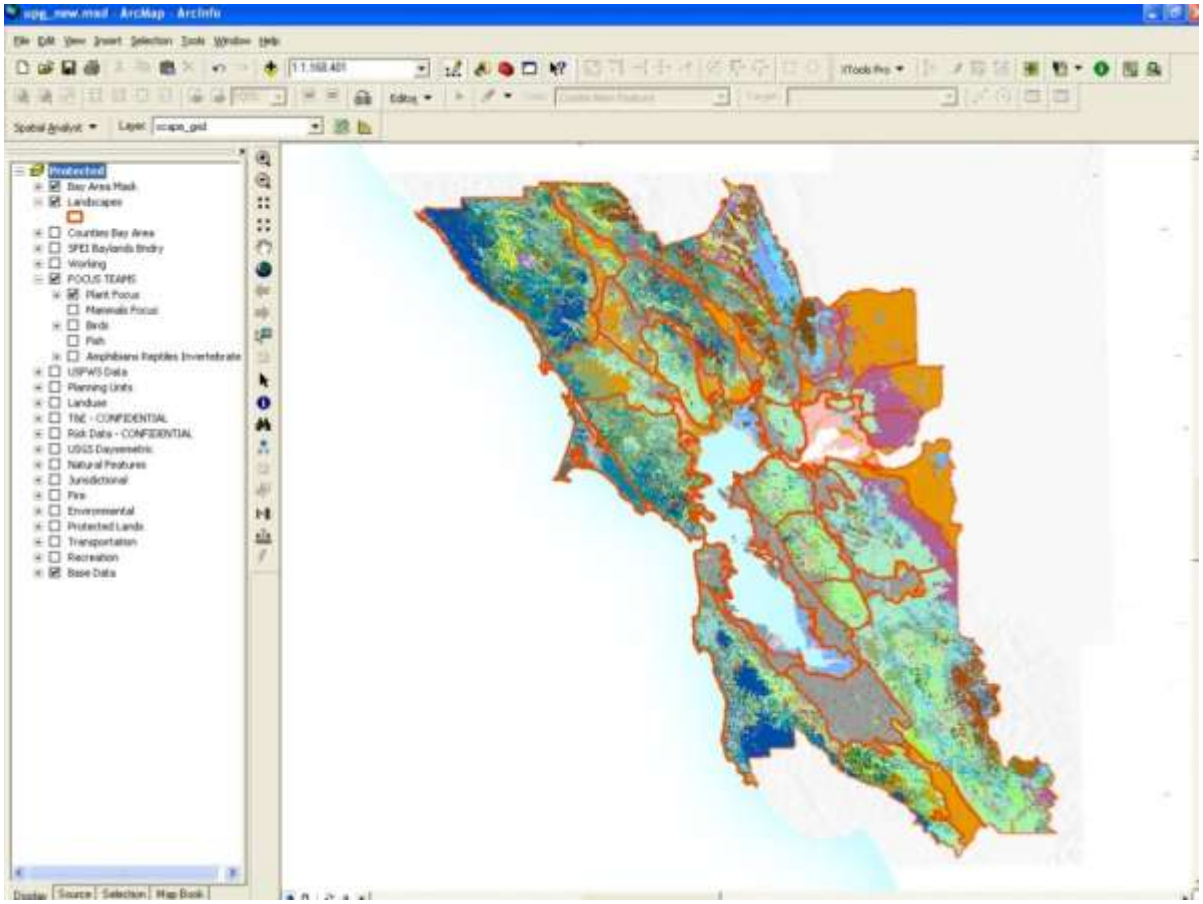


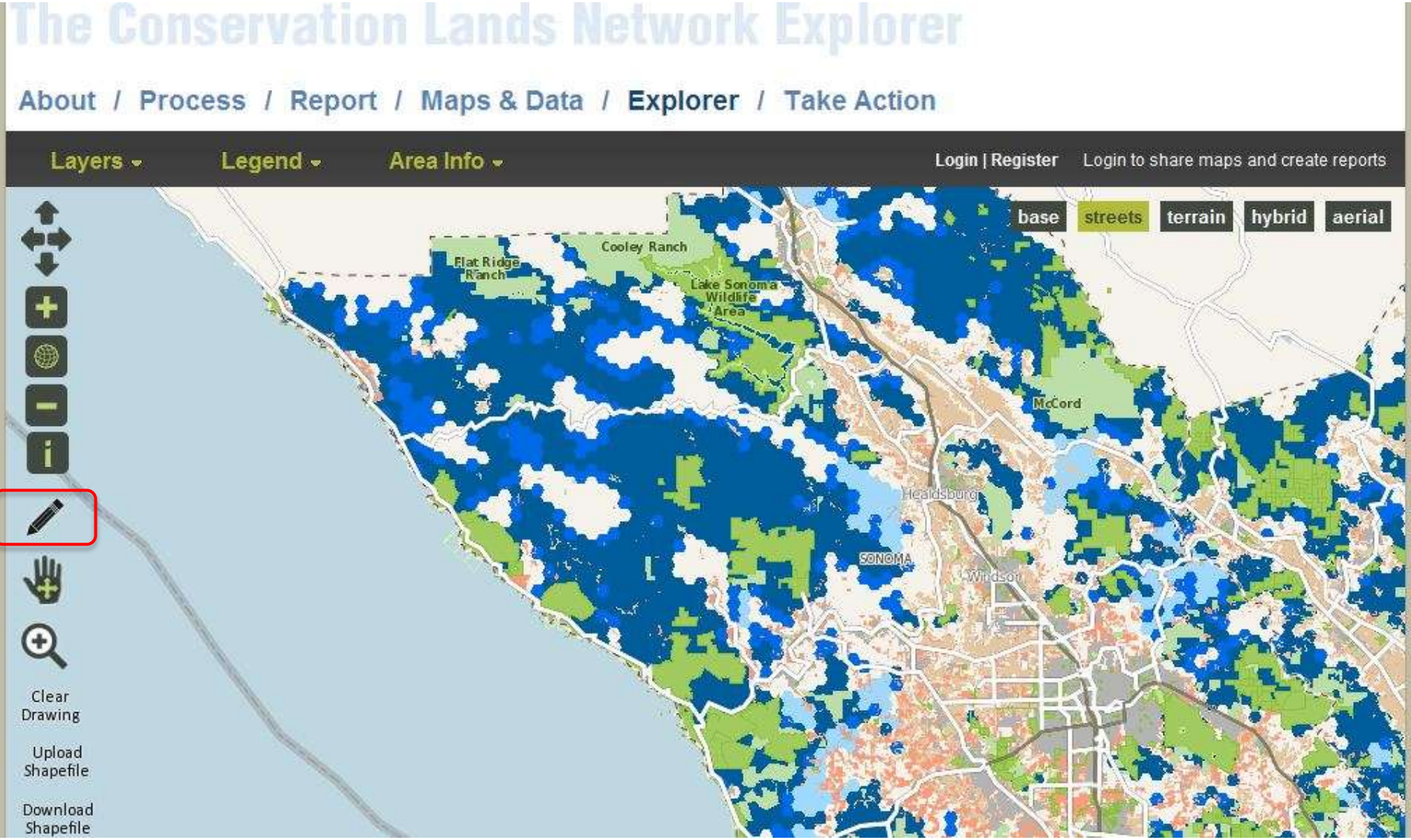


The Conservation Lands Network

Comprehensive GIS Database

- > 100 GIS Datasets
- Complete Metadata
- Symbology
- Comprehensive Data

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Legend
Area Info
Login | Register
Login to share maps and create reports
base
streets
terrain
hybrid
aerial
Cooley Ranch
Flat Ridge Ranch
Lake Sonoma Wildlife Area
McCord
Healdsburg
SONOMA
Windsor
Clear Drawing
Upload Shapefile
Download Shapefile

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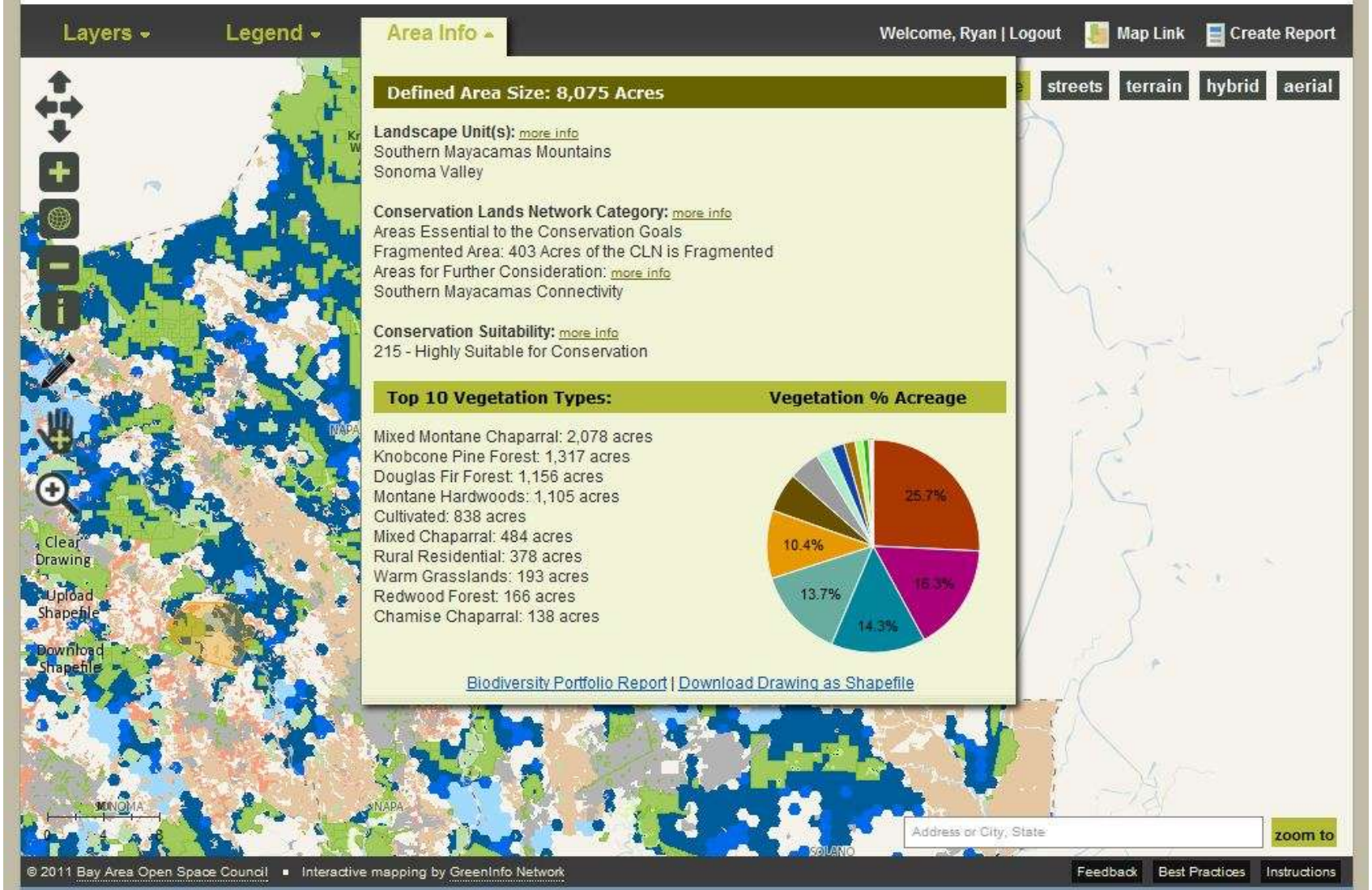

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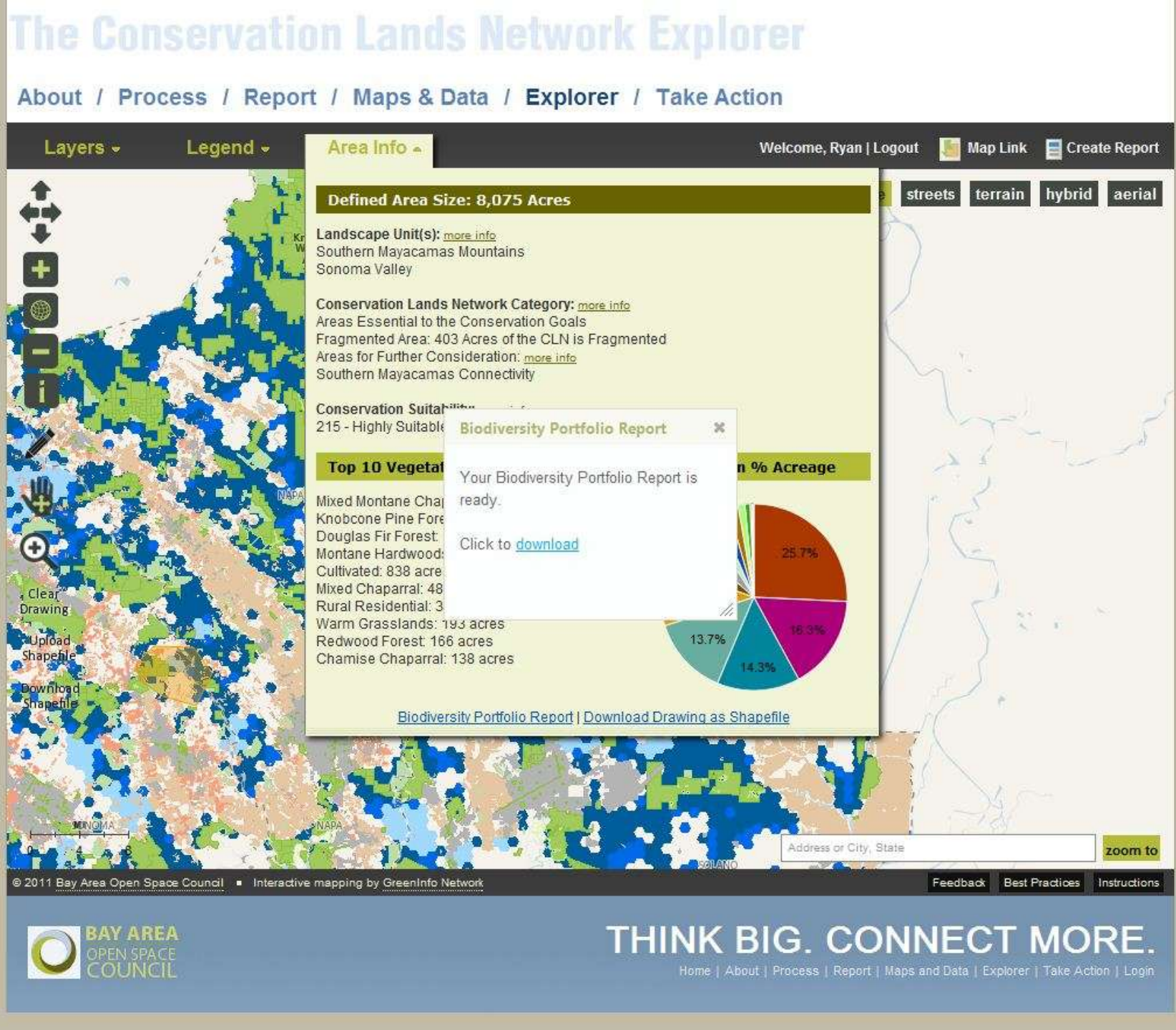
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About / Process / Report / Maps & Data / Explorer / Take Action
Layers
Legend
Area Info
Welcome, Ryan | Logout
Map Link
Create Report
streets
terrain
hybrid
aerial
Defined Area Size: 8,075 Acres
Landscape Unit(s): more info
Southern Mayacamas Mountains
Sonoma Valley
Conservation Lands Network Category: more info
Areas Essential to the Conservation Goals
Fragmented Area: 403 Acres of the CLN is Fragmented
Areas for Further Consideration: more info
Southern Mayacamas Connectivity
Conservation Suitabil
215 - Highly Suitable
Biodiversity Portfolio Report
Your Biodiversity Portfolio Report is ready.
Click to download
Top 10 Vegetat
n % Acreage
Mixed Montane Cha
Knobcone Pine Fore
Douglas Fir Forest:
Montane Hardwood
Cultivated: 838 acre
Mixed Chaparral: 48
Rural Residential: 3
Warm Grasslands: 193 acres
Redwood Forest: 166 acres
Chamise Chaparral: 138 acres
25.7%
16.3%
14.3%
13.7%
Biodiversity Portfolio Report | Download Drawing as Shapefile
Clear Drawing
Upload Shapefile
Download Shapefile
NAPA
SONOMA
SOLANO
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zoom to
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BAY AREA OPEN SPACE COUNCIL

THE CONSERVATION LANDS NETWORK
Biodiversity Portfolio Report

This is the Biodiversity Portfolio Report for the area that you defined. The following information is intended to give you a better understanding of the biodiversity values of the specified area and how it contributes to the regional biodiversity goals. Click on blue titles for more information about that category.

Landscape Unit:

Tri-Valley

Defined Area Size:

20,962 Acres, 8,483 Hectares

Conservation Lands Network Category:

Areas Important to the Conservation Goals: 3,455 acres
Areas Essential to the Conservation Goals: 9,722 acres
Fragmented Area: 581 Acres of the CLN is Fragmented
Areas for Further Consideration: more info
Tassajara Hills

Converted Lands:

Cultivated acres: 277
Rural residential acres: 705
Urban acres: 150

Conservation Suitability:

216 (Highly Suitable for Conservation) more info

Protected Land Within Selected Area:

120 acres

Nitrogen Deposition:

6.55 Kg/H/Yr (High)

Climate Index Averages:

January Min Temp - 2-4 deg. C
July Max Temp - 29-31 deg. C
Annual Precipitation - 374-618 mm/year
Cloud Cover - 22% of days Jul to Sept 2000-2006, cover at 10:30am

Elevation (derived from a 10m DEM):

Range = 128 - 419 meters Mean = 219 meters

% Slope (derived from a 10m DEM):

Range = 0 - 74 % Mean = 17 %

Note - The scale of the map generated in this report is tied to the scale of your map in the Conservation Lands Network Explorer when you draw the custom area with the pencil tool.

Stream Conservation Targets
- Priority 1 Streams
- Priority 2 Streams

Protected Lands
- Open to the public
- Permit required

Conservation Lands Network *(Areas chosen 0-10 times not displayed)*
- Areas Essential to Conservation Goals *Planning units chosen 16 or more times out of 20 runs*
- Areas Important to Conservation Goals *Planning units chosen 11-15 times out of 20 runs*
- Portion of the CLN that is Fragmented
- Areas for Further Consideration (AFC)

This report was created on April 28, 2011 using the Conservation Lands Network Explorer.

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BAY AREA OPEN SPACE COUNCIL

THE CONSERVATION LANDS NETWORK

Biodiversity Portfolio Report

This is the Biodiversity Portfolio Report for the area that you defined. The following information is intended to give you a better understanding of the biodiversity values of the specified area and how it contributes to the regional biodiversity goals. Click on blue titles for more information about that category.

CONSERVATION TARGETS

Coarse Filter Vegetation Targets:

VEGETATION TYPE CONSERVATION TARGET	RARITY RANK	SELECTED AREA			LANDSCAPE UNIT	
		TOTAL ACREAGE	PROTECTED ACREAGE	ACREAGE TOWARD LANDSCAPE UNIT GOAL	LANDSCAPE UNIT GOAL	ACREAGE TO MEET GOALS
Montane Hardwoods - Mt. Diablo Range	1	32	0	32	159	116
Central Coast Riparian Forests - Mt. Diablo Range	1	19	0	19	251	147
Warm Grasslands - Mt. Diablo Range	3	15,414	0	15,414	43,114	19,387
Warm Grasslands - Tri-Valley	3	1,462	76	1,386	2,782	2,283
Hot Grasslands - Tri-Valley	3	256	0	256	341	303
Blue Oak Forest / Woodland - Mt. Diablo Range	3	17	0	17	11,994	-
Cultivated - Tri-Valley	4	1,863	37	1,826	0	-
Cultivated - Mt. Diablo Range	4	763	0	763	0	-
Rural Residential - Mt. Diablo Range	4	442	0	442	0	-
Urban - Mt. Diablo Range	4	422	0	422	0	-
Rural Residential - Tri-Valley	4	148	0	148	0	-
Urban - Tri-Valley	4	110	4	106	0	-
Water - Mt. Diablo Range	4	7	0	7	0	-
		20,955	117	20,838		

Fine Filter Targets:

CONSERVATION TARGET - POINTS	RARITY RANK	SELECTED AREA			LANDSCAPE UNIT	
		TOTAL AMOUNT	PROTECTED AMOUNT	AMOUNT TOWARD LANDSCAPE UNIT GOAL	LANDSCAPE UNIT GOAL	AMOUNT TO MEET GOALS
San Joaquin spearscale - Mt. Diablo Range (*Atriplex joaquiniana*)	1	3	0	3	14	14
Congdon's tarplant - Mt. Diablo Range (*Centromadia parryi ssp. congdonii*)	1	1	0	1	2	2
brittlescale - Tri-Valley (*Atriplex depressa*)	1	1	0	1	2	2
heartscale - Mt. Diablo Range (*Atriplex cordulata*)	2	2	0	2	2	2
Pond - Mt. Diablo Range	3	53	0	53	361	165
Pond - Tri-Valley	3	2	0	2	33	28
		62	0	62		

CONSERVATION TARGET - AREAS	RARITY RANK	SELECTED AREA			LANDSCAPE UNIT	
		TOTAL ACREAGE	PROTECTED ACREAGE	ACREAGE TOWARD LANDSCAPE UNIT GOAL	LANDSCAPE UNIT GOAL	ACREAGE TO MEET GOALS
Vernal Pools - Tri-Valley	1	535	0	535	1278	1231
Congdon's tarplant - Mt. Diablo Range (*Centromadia parryi ssp. congdonii*)	1	366	0	366	483	464
Congdon's tarplant - Tri-Valley (*Centromadia parryi ssp. congdonii*)	1	199	0	199	330	328

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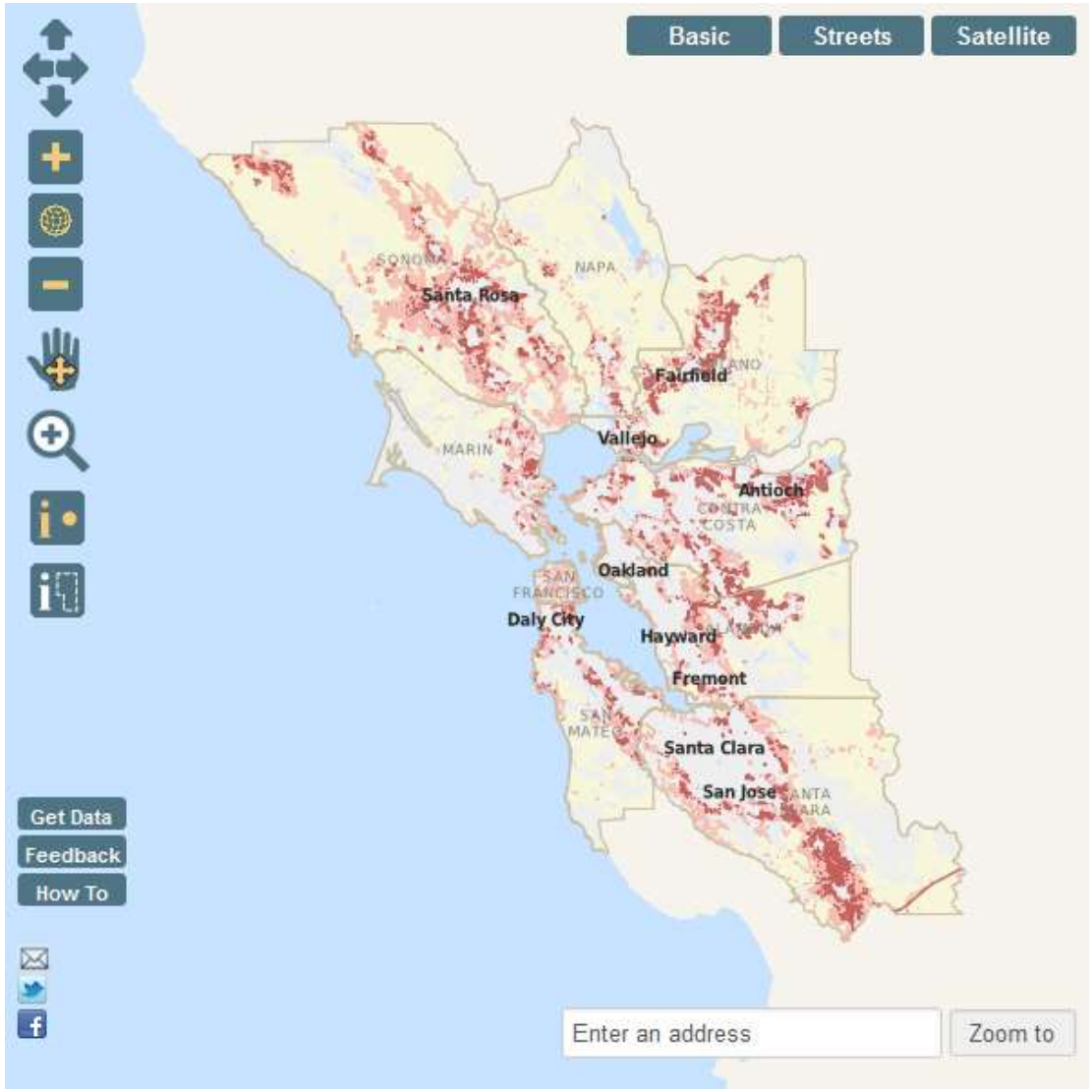
Making the vision a reality…

1. Use the Conservation Lands Network as a guide.
2. Create incentives for landowners.
3. Support sound stewardship and adaptive management.
4. Protect streams and restore ecological functions.
5. Integrate into public policy.
6. Continue current funding programs and create new funding sources and partnerships.

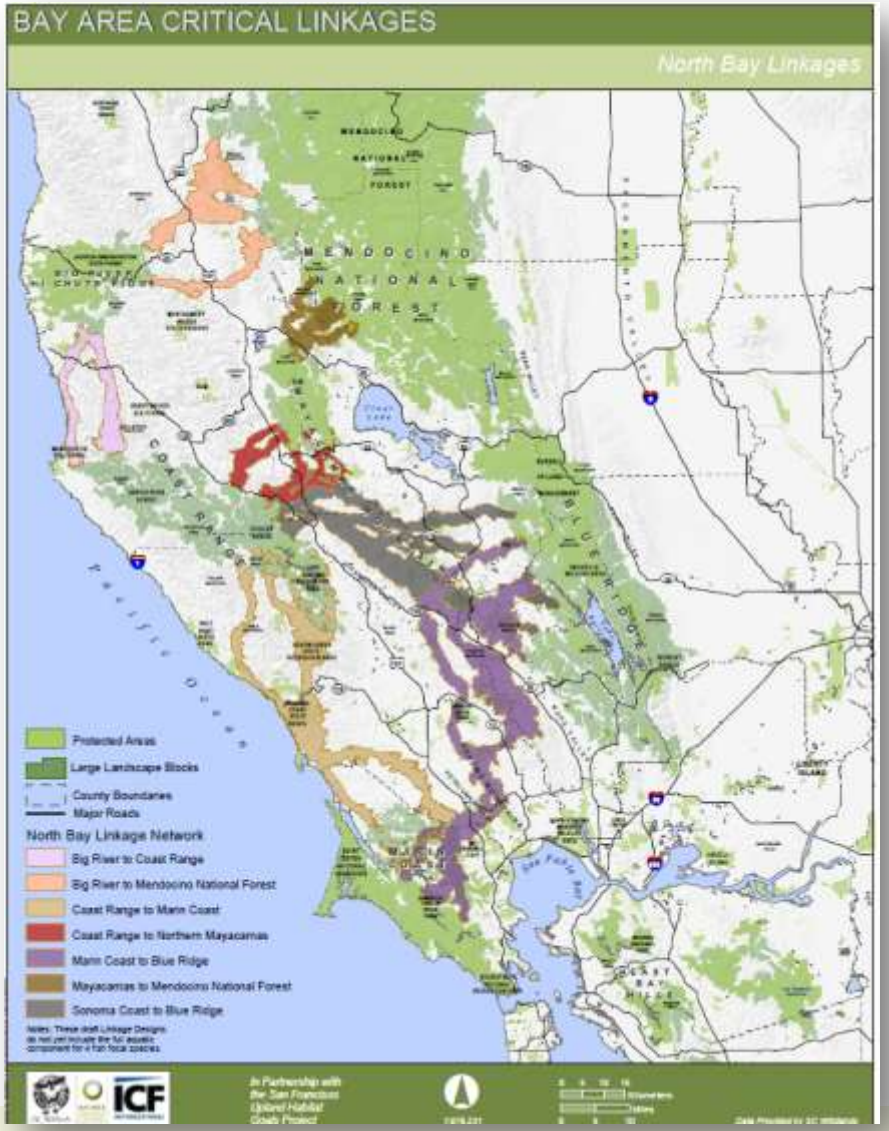
Next Steps: Development Risk

- Evaluate risk of development.
- Map lands protected by policy.
- Greenbelt Risk Mapper

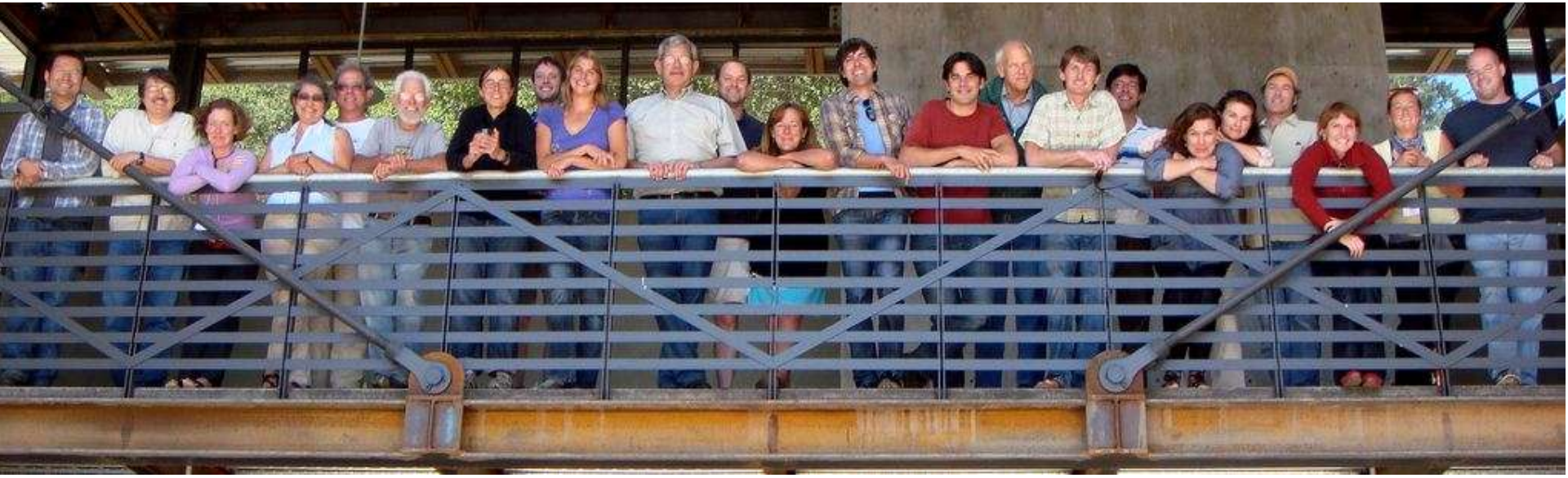


Next Steps: Critical Linkages: The Bay Area and Beyond

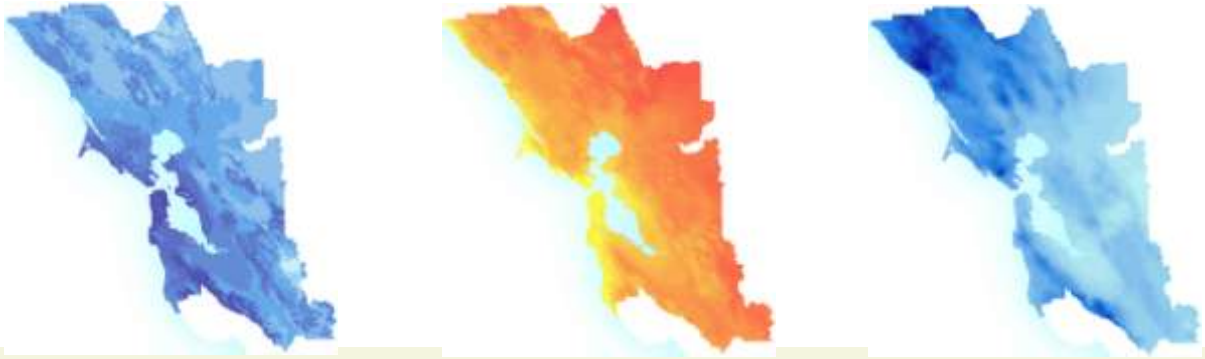
- **Connectivity for wildlife in the San Francisco Bay Area and beyond**
- **To be integrated into the Conservation Lands Network**



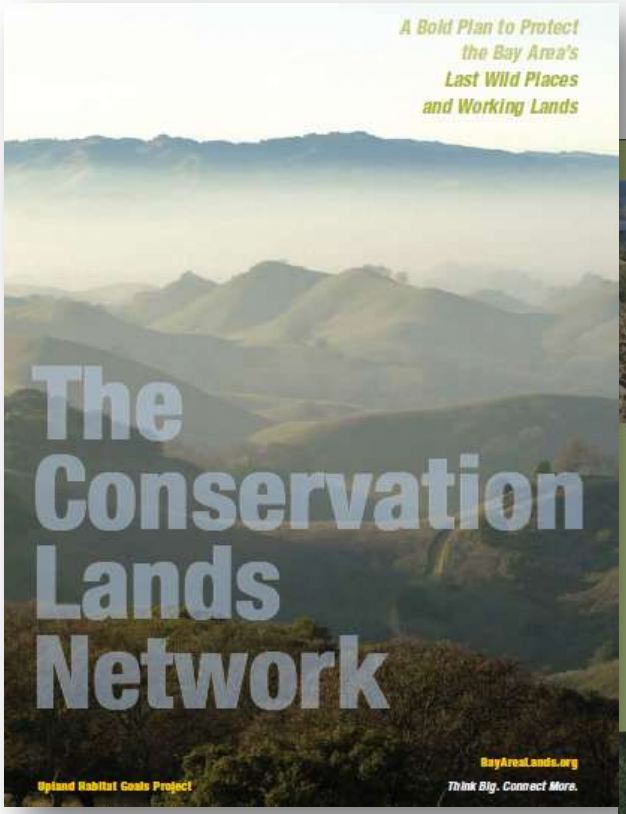
Next Steps: Climate Change Terrestrial Climate Change Collaborative (TBC3)

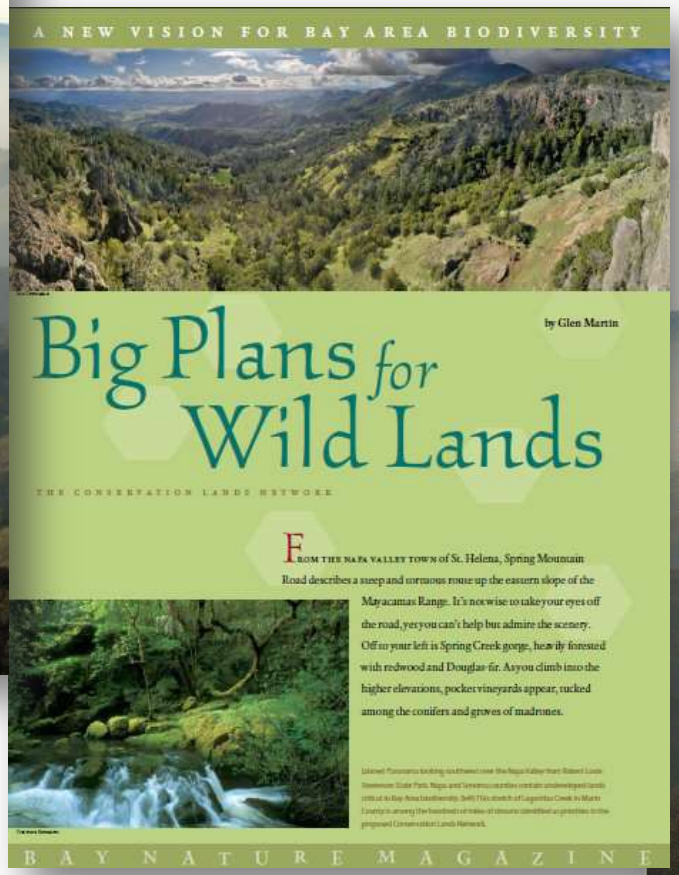


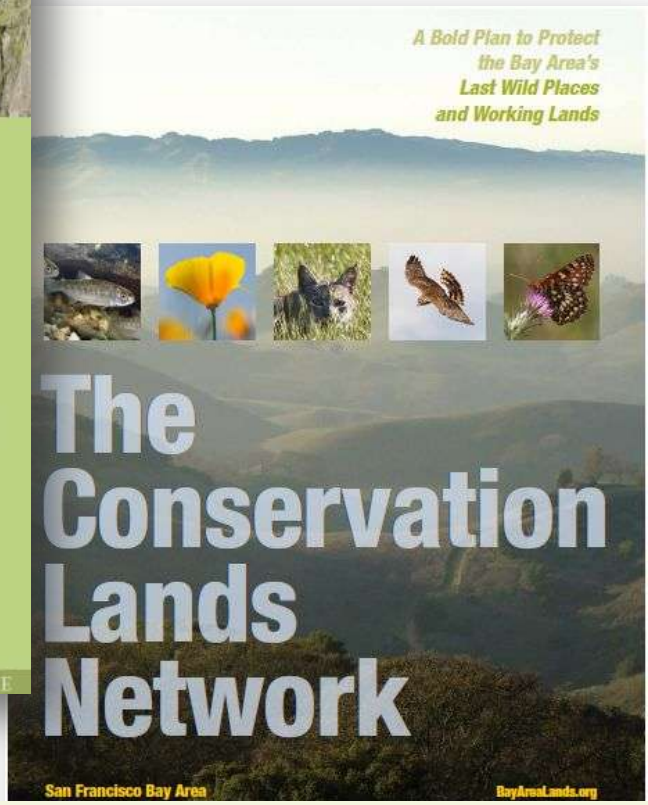
Scientists working collaboratively to incorporate climate change modeling into land conservation efforts in the Bay Area.



The Conservation Lands Network: Publications









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