

# San Francisco Bay Area Upland Habitat Goals Project

*Preserving Biological Diversity for Future Generations*

A Project of the Bay Area Open Space Council



*funding provided by:*

California State Coastal Conservancy

Gordon and Betty Moore Foundation

California Resources Agency

California Coastal and Marine Initiative of the

Resources Legacy Fund Foundation

Richard and Rhoda Goldman Fund

David and Lucile Packard Foundation

US Fish and Wildlife Service Coastal Program at San Francisco Bay

*Technical assistance provided by:*

National Park Service Rivers, Trails and

Conservation Assistance Program





- San Francisco Bay Region
- What is Upland Habitat Goals?
- Why a Regional Plan?
- Methodology
- Access to Datasets/GIS
- Climate Change

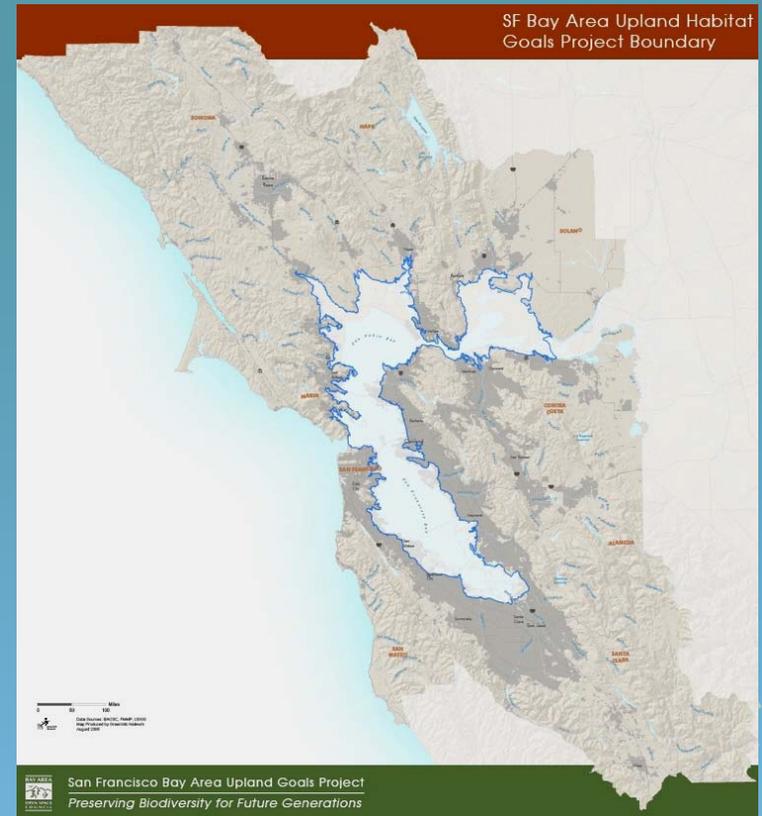




# What is the Upland Habitat Goals Project?

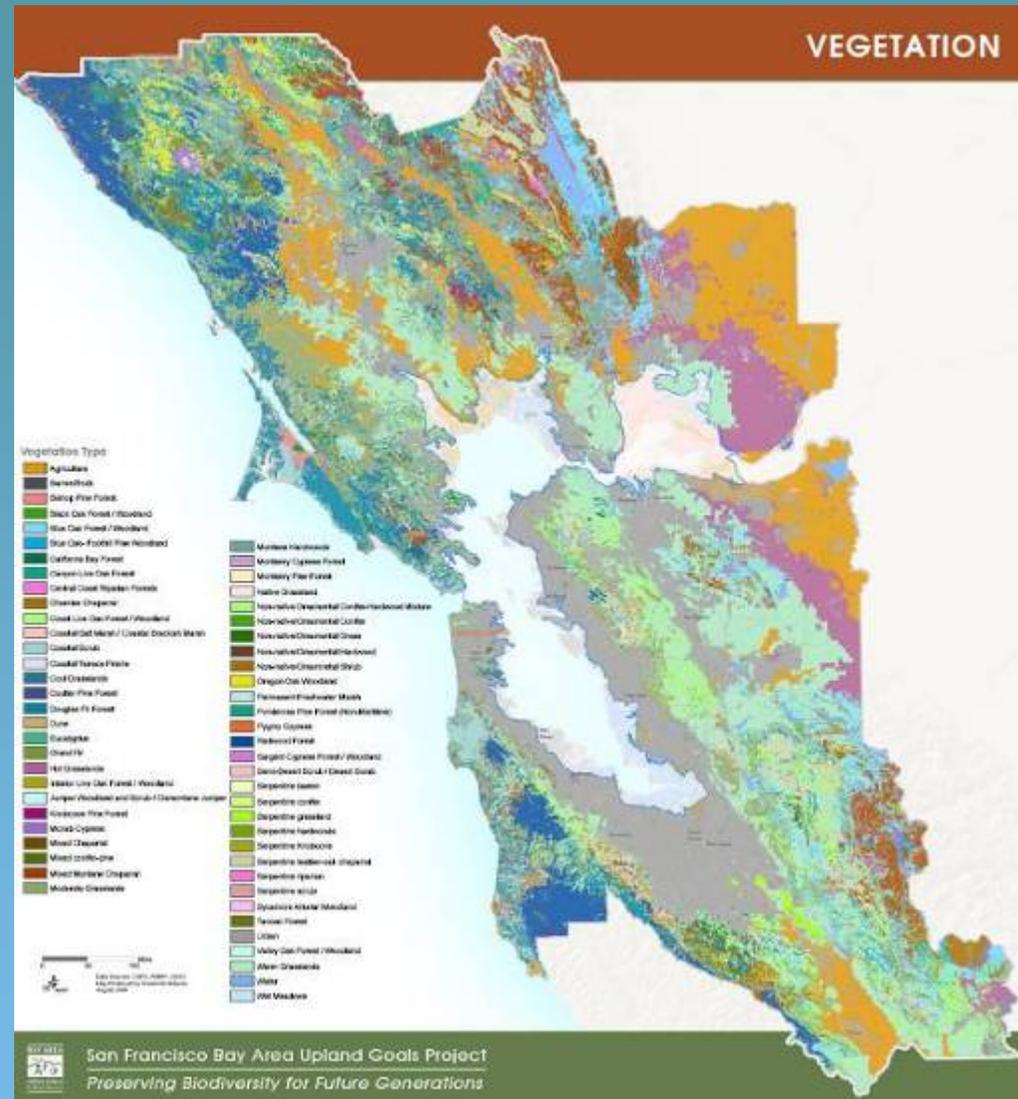


- Regional Biodiversity Conservation Plan
- How many acres of what types of habitats and in what configuration to preserve biodiversity in 9-county Bay Area?
- Identify a NETWORK of conservation lands.



- no list of prioritized properties
- voluntary implementation

- Report with maps
- Framework to allow incorporation of new data and update goals
- Access to methods and tools for finer-scale planning
- GIS database available online
- Online interactive tool

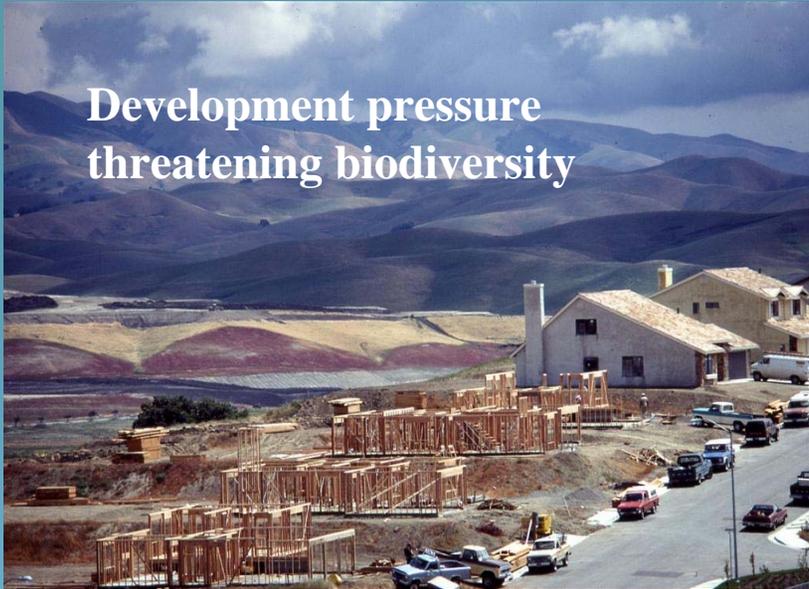


# What am I going to talk about? – Road Map

- San Francisco Bay Region
- What is Upland Habitat Goals?
- **Why a Regional Plan?**
- Methodology
- Access to Datasets/GIS
- Climate Change



# Why the Upland Habitat Goals Project?



Development pressure  
threatening biodiversity



Successful implementation  
of the Baylands Ecosystem  
Goals completed in 1999



Bay Area needs a science-based  
vision that recommends  
protection & management  
strategies to preserve biodiversity



*Lech Natunovich, CNPS*



- Introduction
- San Francisco Bay Region
- What is Upland Habitat Goals?
- Why a Regional Plan?
- **Methodology**
- Access to Datasets/GIS
- Applying the Goals



## 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



*Peer Review*



### Coarse Filter

*Vegetation*

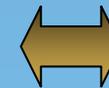
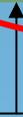
### Fine Filter

*Mammals*

*Birds*

*Riparian/Fish*

*Amphibians,  
Reptiles &  
Invertebrates*



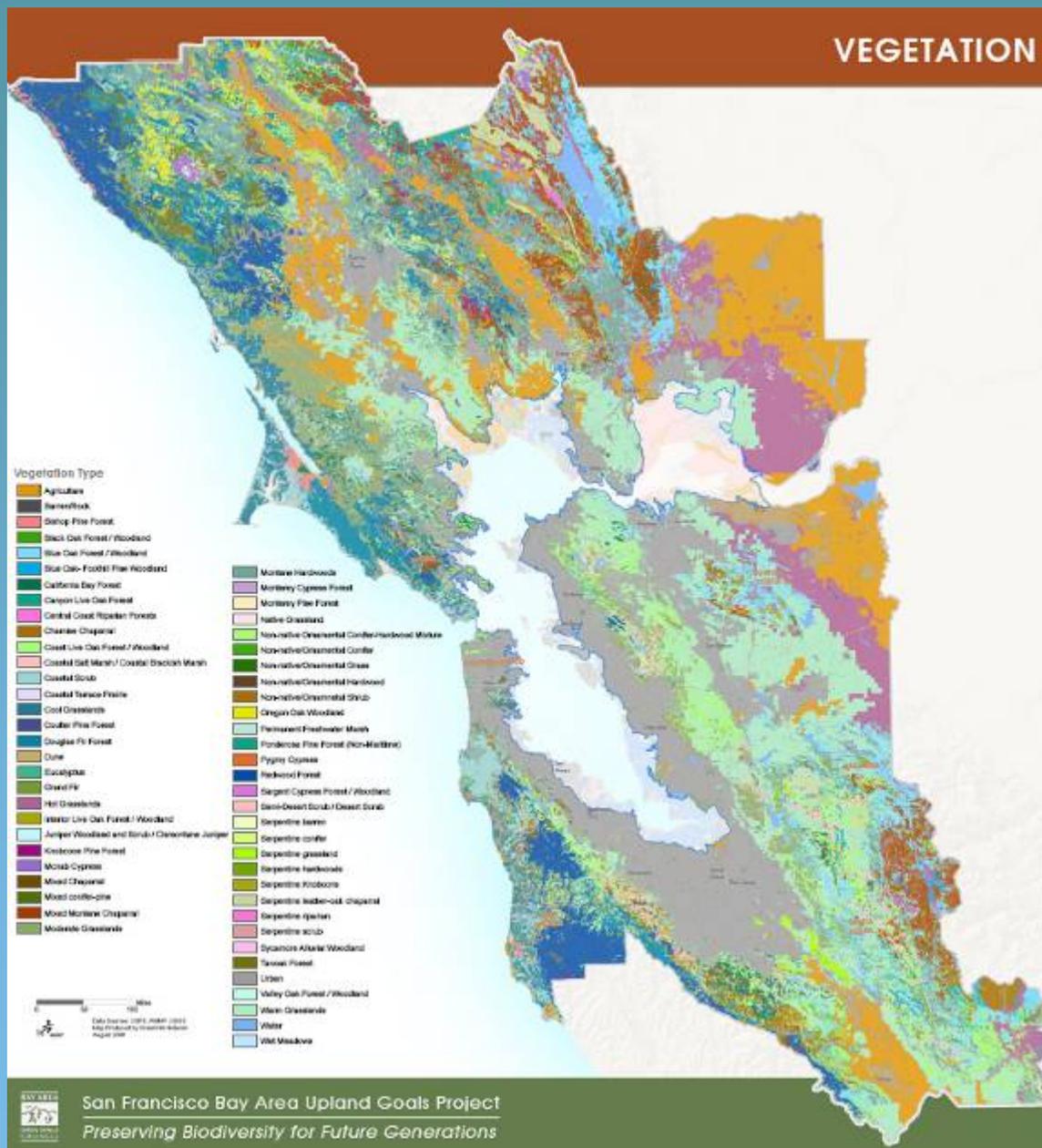
*Peer Review*

Final Report with habitat recommendations,  
management practices, implementation  
strategies, evaluation criteria

# Coarse Filter Analysis - Vegetation Map



## VEGETATION



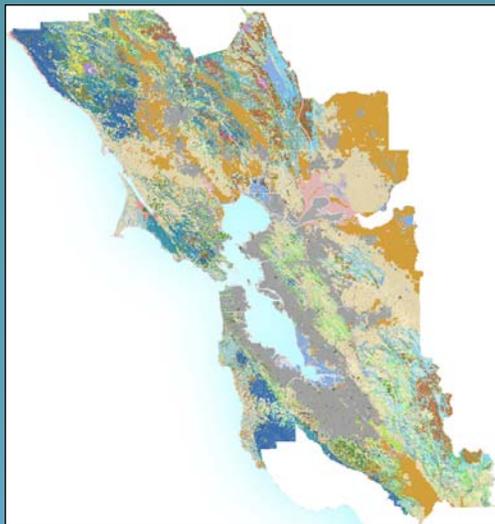
- Purpose: represent the diversity of vegetation cover
- 60 cover types, 51 natural/semi-natural
- 30 m grid
- Compromise between high resolution classification and even coverage across Bay Area
- Expert opinion from Vegetation Focus Team
- Update – FMMP Ag and Urban



- 29 Landscape Units (4 Urban Areas)
- Based on physiographic features – valleys and mountains
- Capture diversity and biogeography of vegetation across study area
- Provide a means to break down recommendations into geographically coherent units.

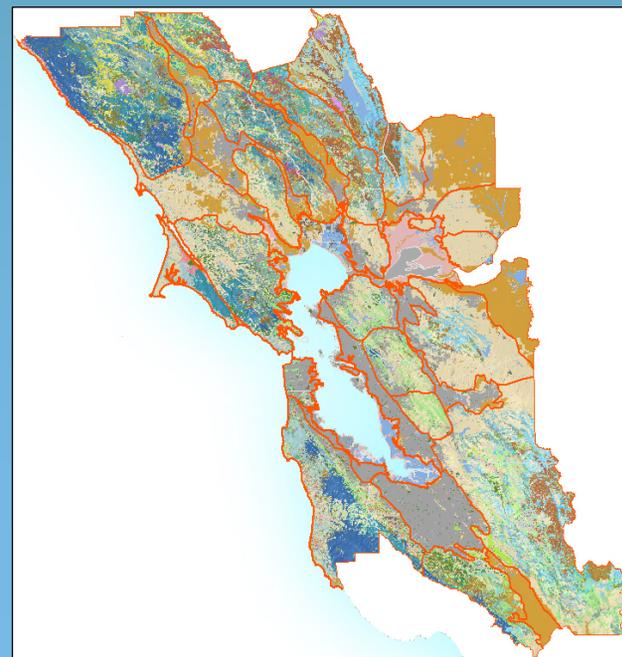
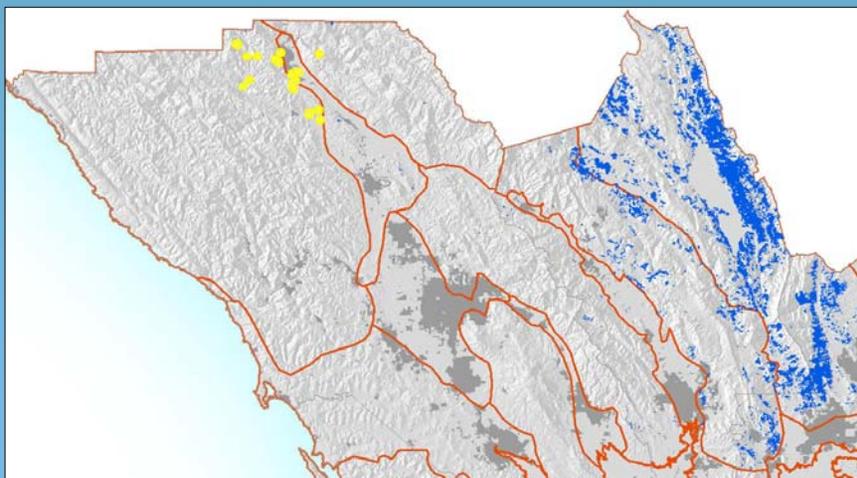


# Coarse Filter Analysis – Conservation Targets



500+ Vegetation Types in  
29 Landscape Units  
Conservation Targets

Blue Oak Woodland





# Coarse Filter - Rarity Rankings

## Rarity Ranking exercise with Vegetation Focus Team

- Rank 1 – Globally Rare, Locally “Highly” Significant
- Rank 2 – Locally Rare (<5% of LU)
- Rank 3 – Common or “matrix” (>5% of LU)
- Rank 4 – Urban, Intensive Ag, Non-native (golf courses, etc.)

## Conservation goals

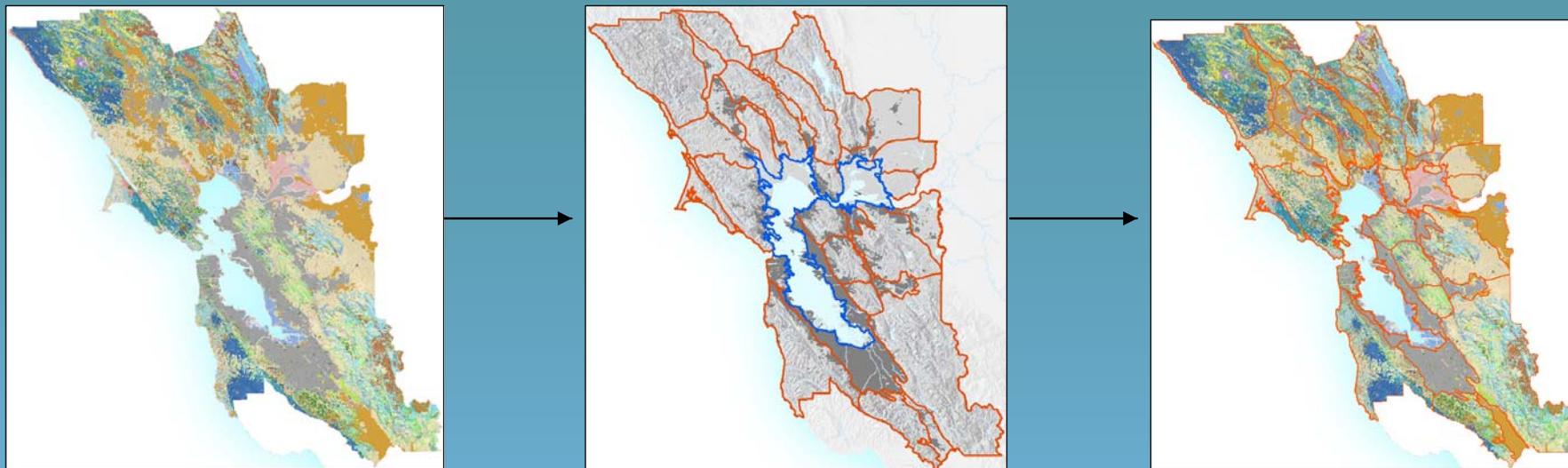
- Rank 1=90% of remaining vegetation type
- Rank 2=75%
- Rank 3=50%

## 500+ Conservation Targets

- Rank 1, 2 & 3 vegetation types in all Landscape Units



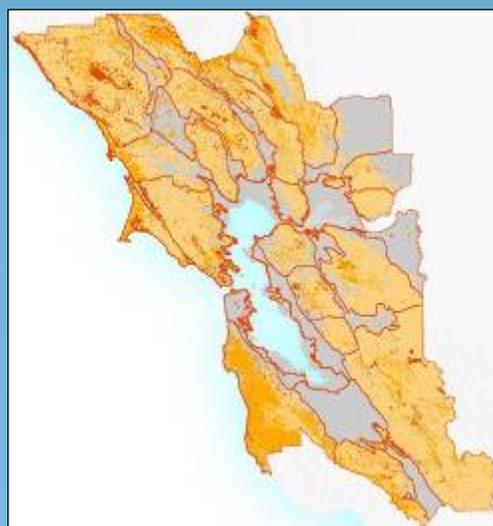
## Conservation Targets Vegetation Types x Landscape Units



**Protection Goals –**  
Rank 1,2,3 (90%,75%,50%)

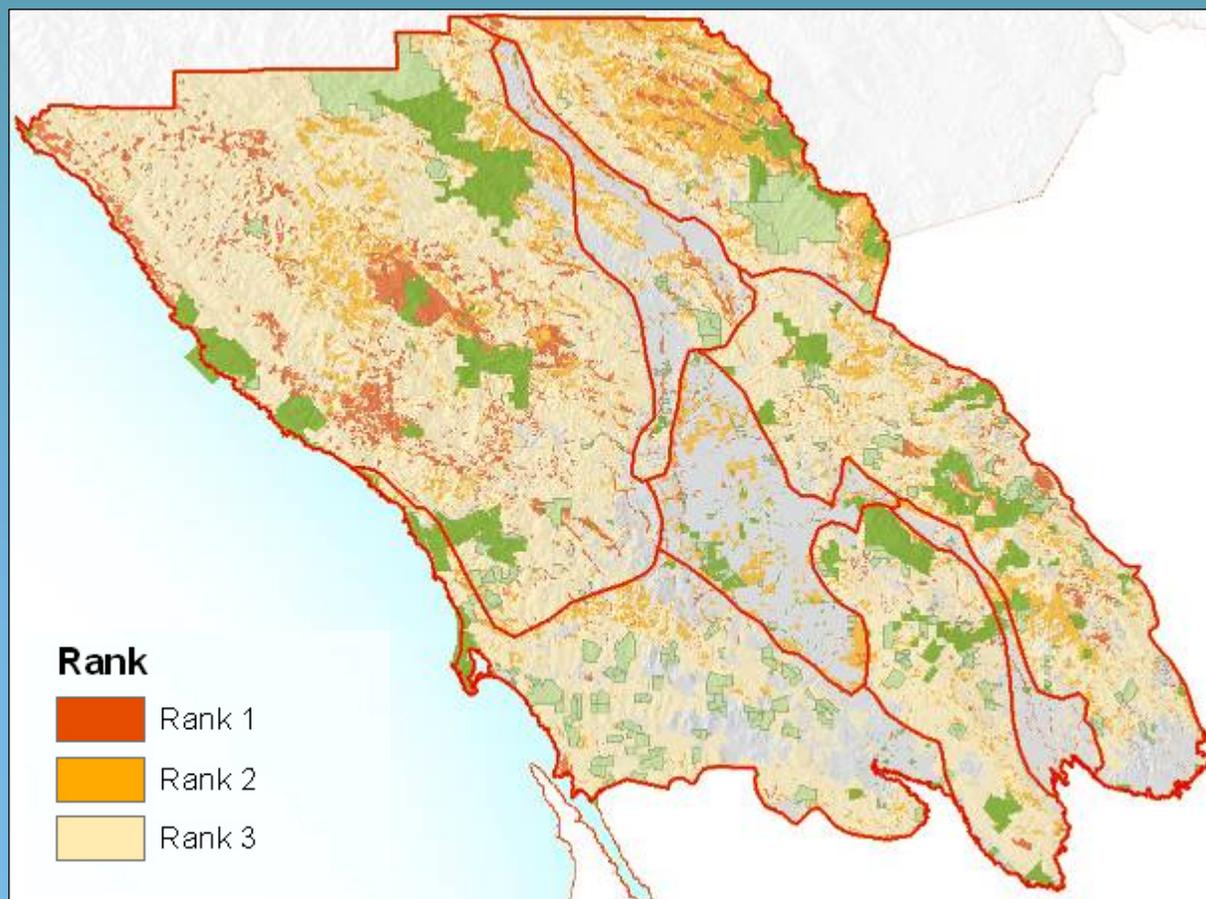
### Rank

-  Rank 1
-  Rank 2
-  Rank 3



- Closer Look at Sonoma Area.
- Here are our mapped ranks 1-3
- We want 90% of Rank 1, 75% of Rank 2, and 50% of Rank 3

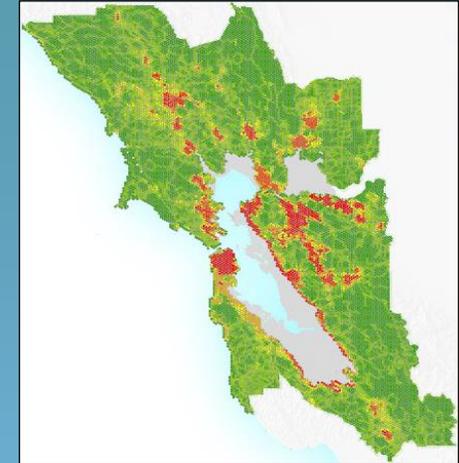
How to choose best configuration??



## Site Selection Model that meets set goals - MARXAN

Achieves an efficient Conservation Lands Network based on inputs:

1. Conservation Targets – Vegetation and Fine Filter
2. Conservation Goals – Rank 1,2,3 (90%,75%,50%)
3. Suitability of Landscape for Conservation – fragmentation
4. Existing Protected Areas
5. Planning Units – 100 Hectare Hexagons ~250 acres



Starting Point for discussion



## Steering Committee

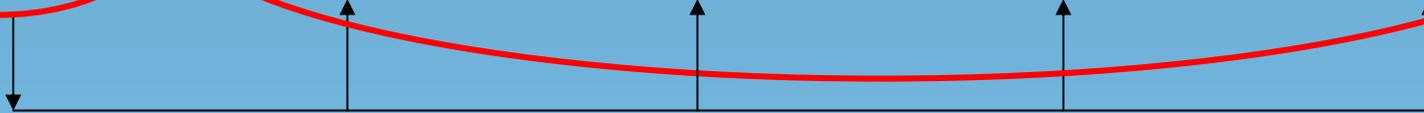
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### Coarse Filter



### Fine Filter



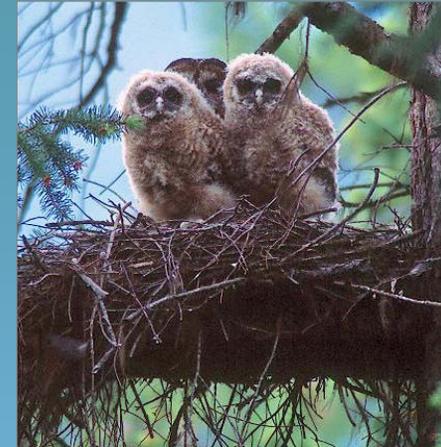
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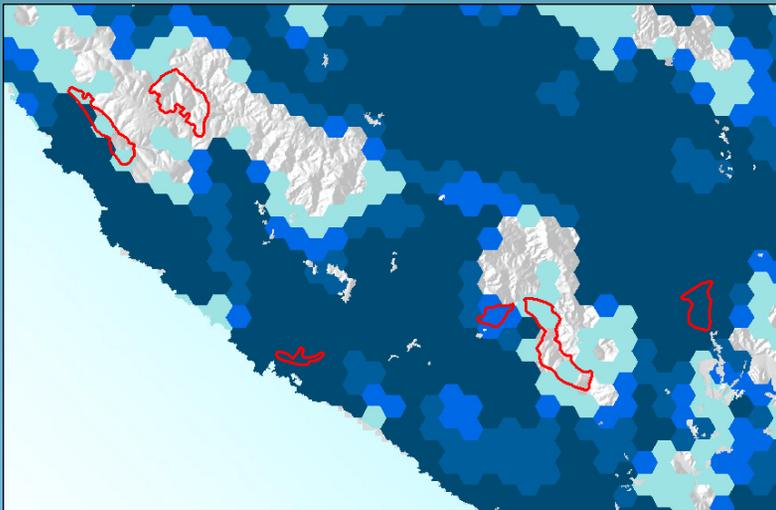
## Enhance the Coarse Filter (Vegetation Communities) with Fine Filter Targets:

- Additional Plant Targets – Old Growth Redwoods, T&E Species in CNDDB
- Mammals – American Badger, Porcupine, T&E Species in CNDDB
- Birds – Spotted Owl, Breeding Bird Areas, CNDDB
- Fish and Riparian Areas – Steelhead and Coho
- Amphibian/Reptiles/Invertebrates – Western Pond Turtle
- Other – Vernal Pools

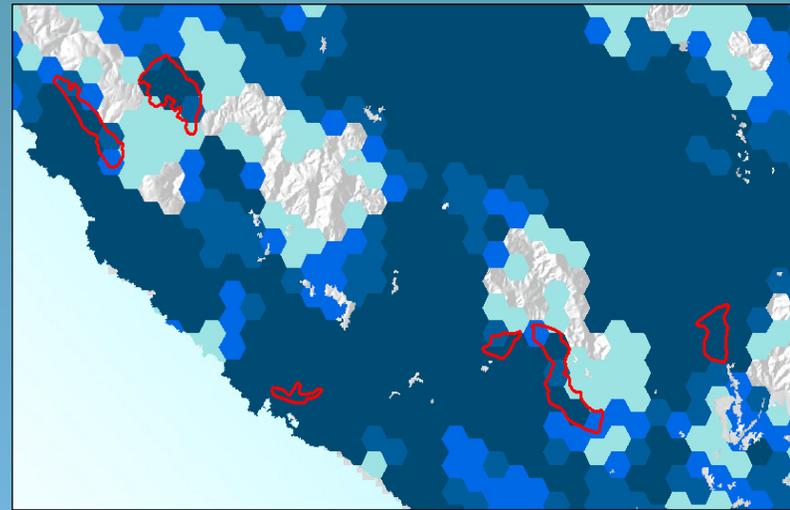




- Old Growth Redwood areas missing in biodiversity recommendations in Sonoma and San Mateo counties.



Before

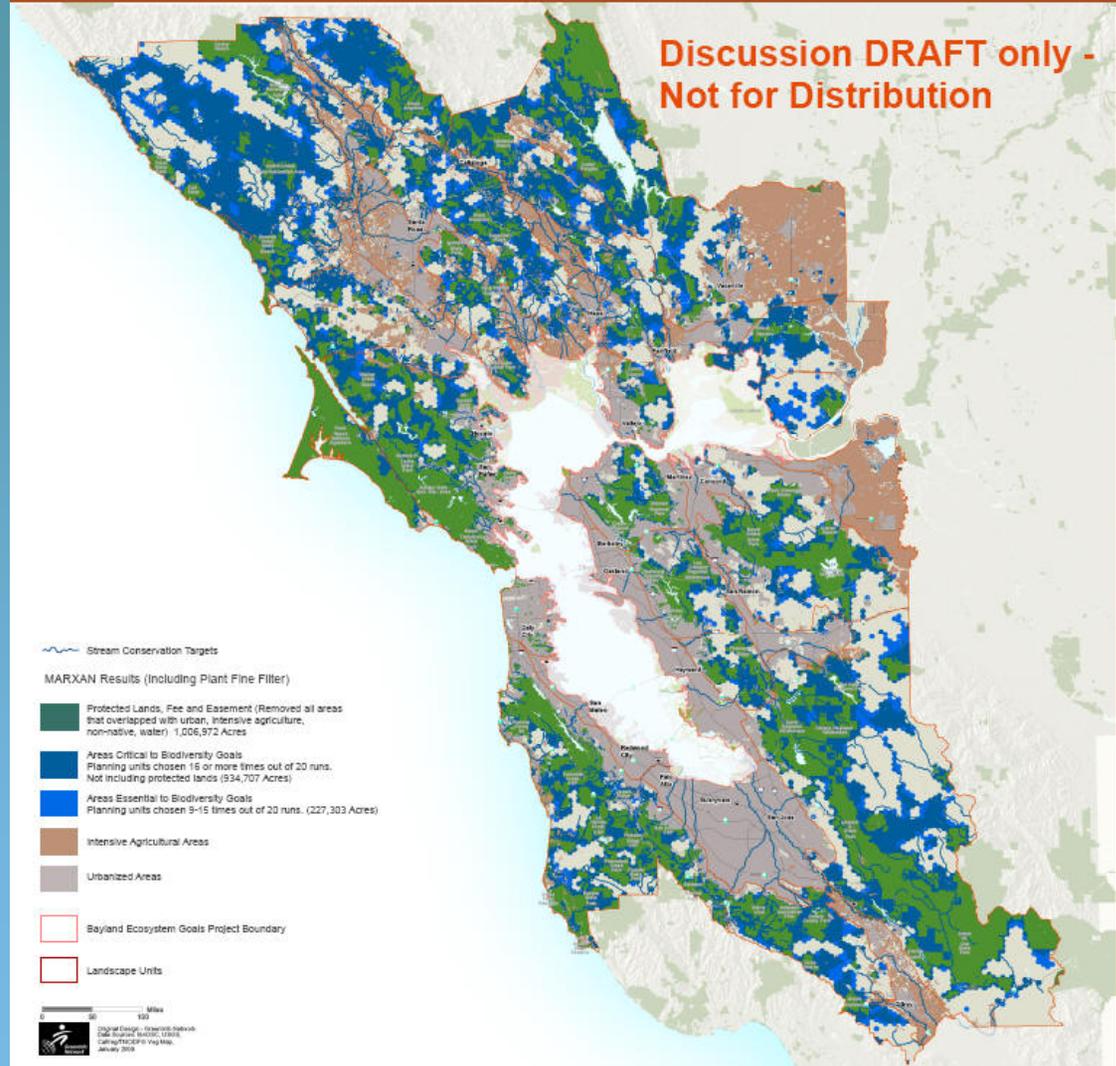


After



## Conservation Lands Network

Discussion DRAFT only -  
Not for Distribution



- Draft Results of Coarse Filter Analysis (some fine filter targets)
- Further adjust to incorporate fine filter targets
- Connectivity Analysis
- Future Climate Scenarios?

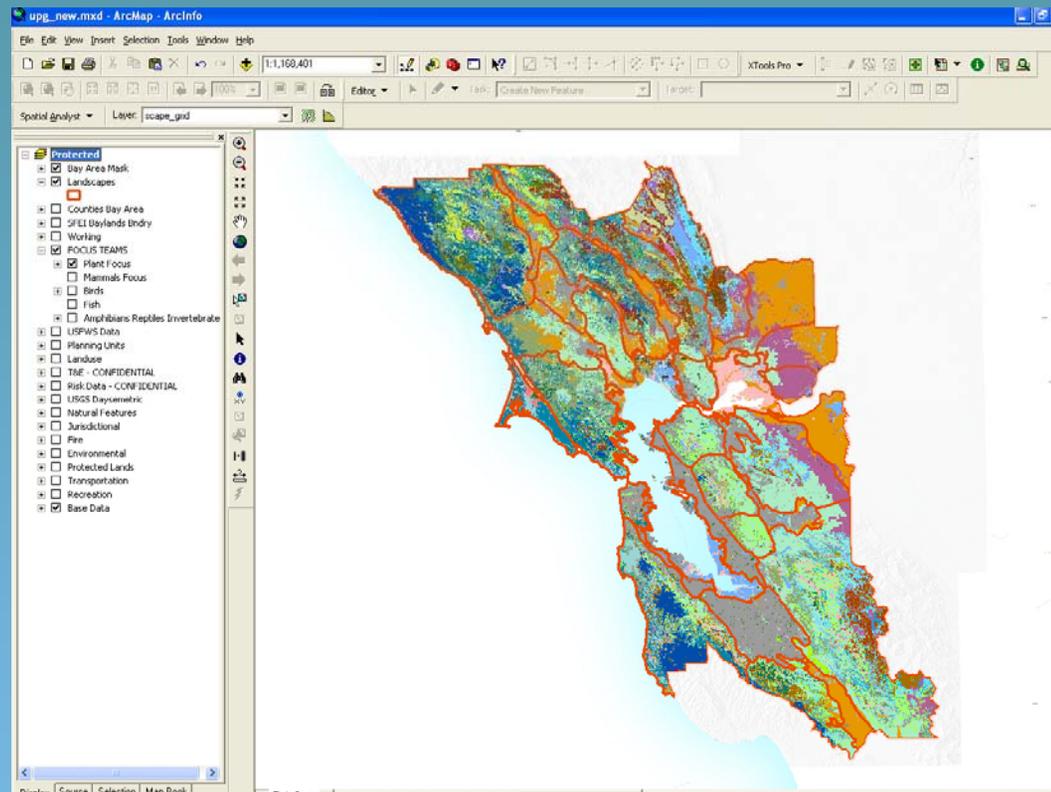


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- **Access to Datasets/GIS**
- Climate Change



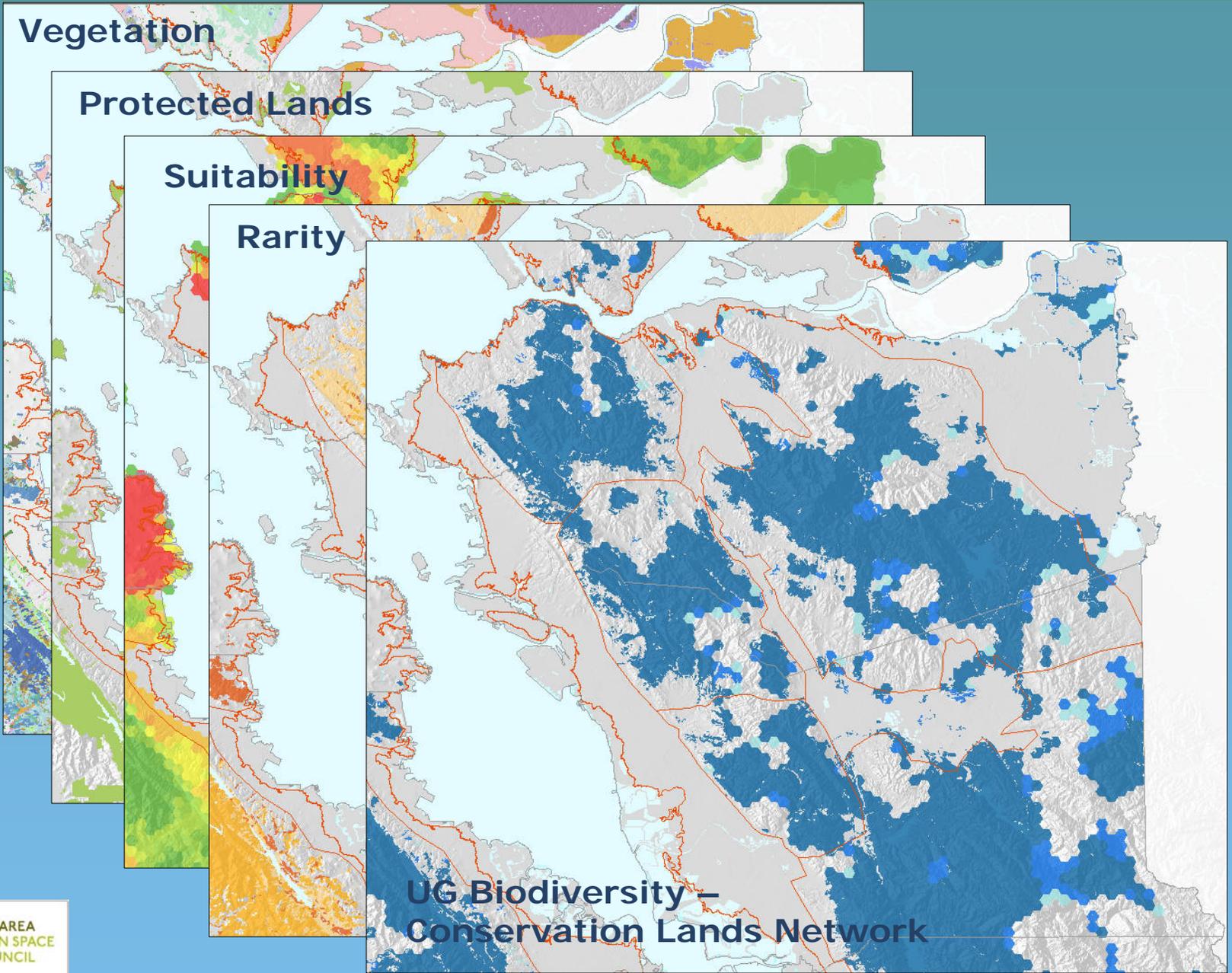
Incredible Resource for Bay Area Land Conservation Managers, Researchers and Planners.  
Free!!

- Not just GIS datasets
- Preassembled project
- Data organized into groups
- Preset symbology
- Cartographic set up
- Clean attributes
- Associated Handbook



GIS Database – Available Now!!  
[www.openspacecouncil.org](http://www.openspacecouncil.org)

# Applying the Goals – Key Datasets





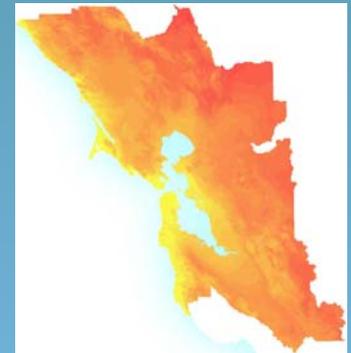
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- **Climate Change**



- Coarse Filter builds in a buffer against climate change - setting high goals for each rarity ranked veg type in each landscape unit
- Captures a broad range of mesoclimatic gradients that contributes to species richness
- Linkages between large protected areas will provide room to move as temps change
- We plan to evaluate the mesoclimatic coverage by overlaying the Marxan-derived Conservation Lands Network with PRISM grids of temperature and precipitation.



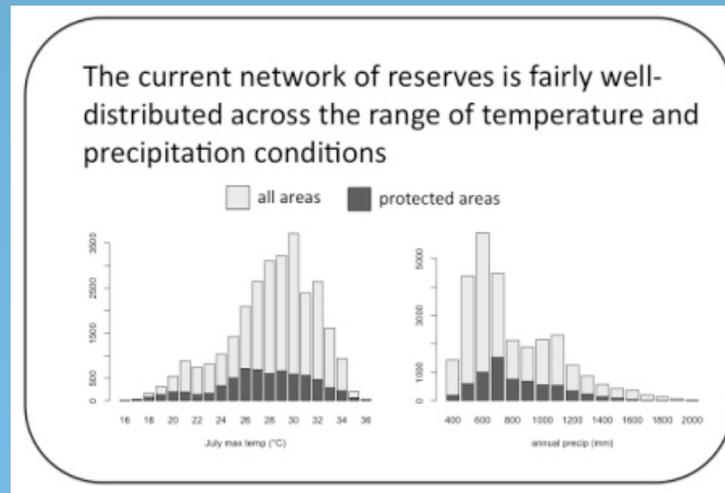
January Minimum Temp



July Max Temp



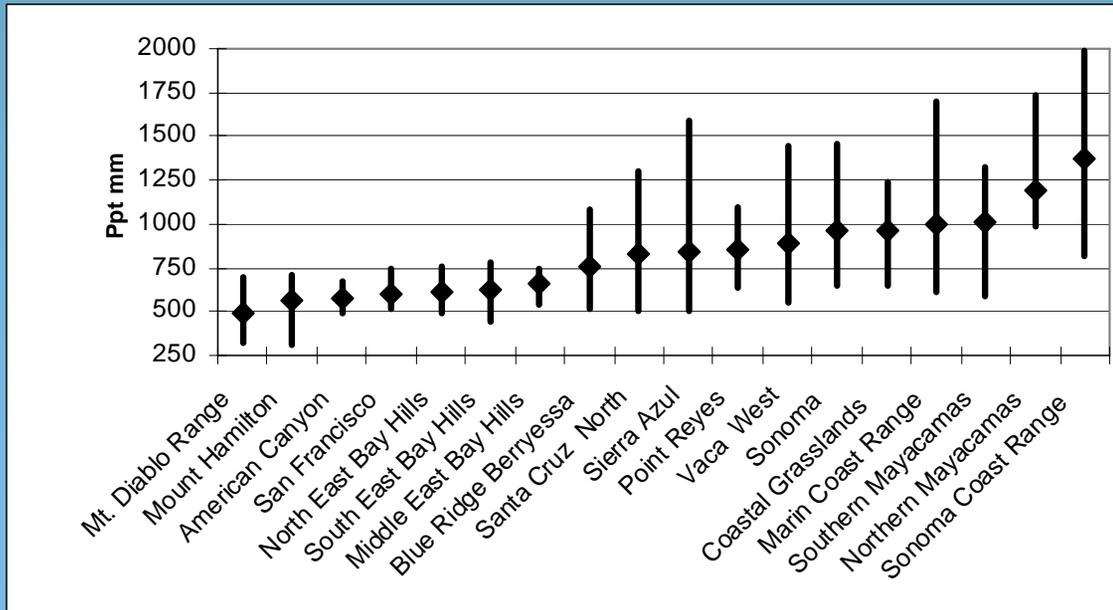
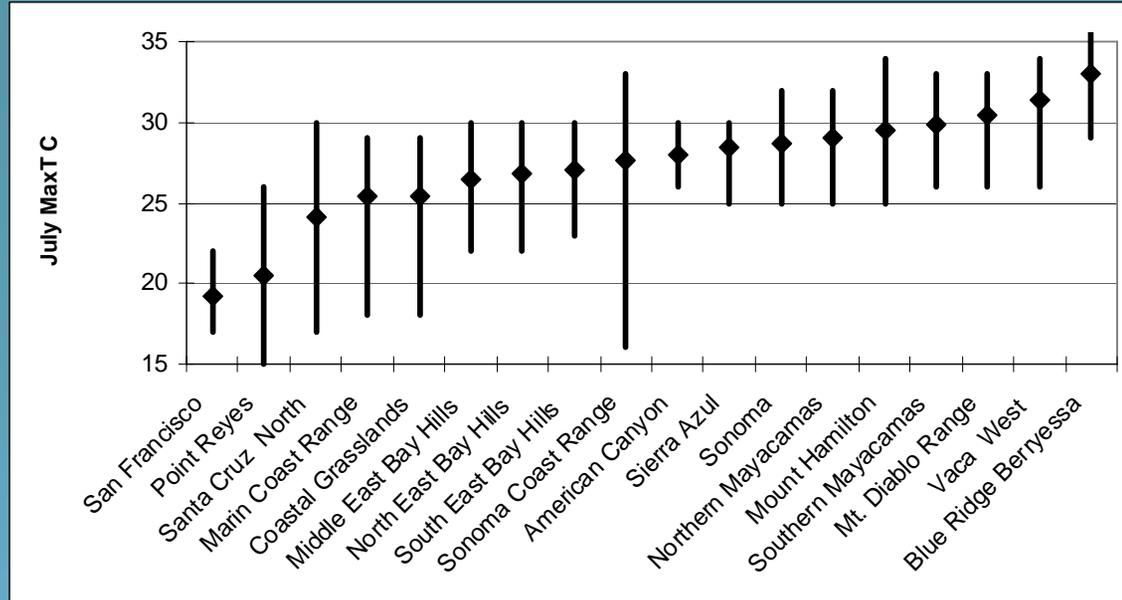
Annual Precipitation



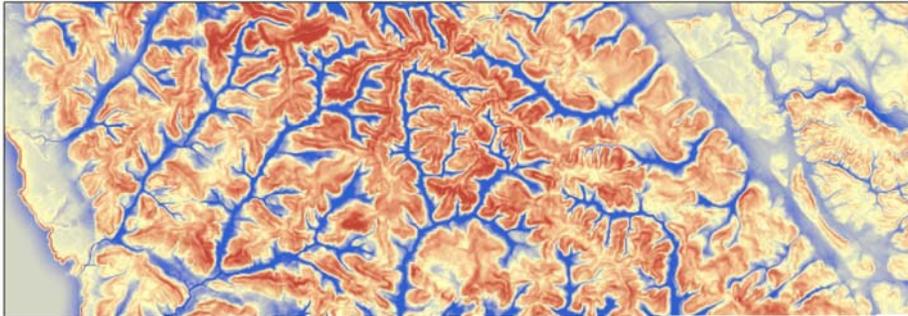
Ackerly, 2009

# Climate – Mesoclimate X Landscape Unit

Evaluate the spatial range of any climate variable within any landscape unit



## Temp Differential Shrub Ground

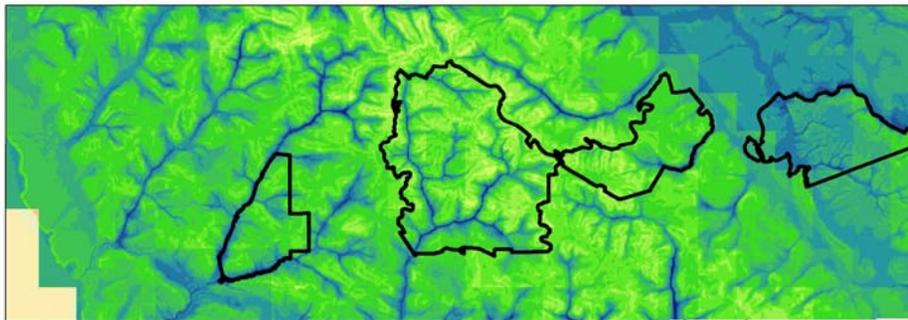


## PRISM Jan Tmin

### Tmin Jan



## Temp Differential + PRISM Shrub Ground



8-10°C inversion measured with Thermochrons

Extrapolate across the landscape using topography

Lay underneath PRISM

“Reality” at scale of population processes (10-30 m)

Evaluate variability within park parcel, any polygon, at scale at which populations are working (10-30m)

**Take Home Message -**  
**Local resiliency is quite high once spatial variability factored, can take a fairly big hit at macro climate level!**



- **Current Status –**
  - **Coarse Filter Analysis complete**
  - **All Focus teams have met**
  - **Finalizing data from Focus Teams, rerunning Marxan**
  - **Slow down due to funding issues.**
- **Consider the Upland Goals Project as a source of data, collaboration and integration of your research to applied conservation planning.**
- **Planning to build an online interactive tool to assess biodiversity values of particular areas. Add climate change scenarios down the road?**
- **Looking forward to connecting with you all on additional research.**

**Nancy Schaefer, Project Manager**  
**Bay Area Open Space Council Consultant**

**Melanie Denninger, Project Leader**  
**Coastal Conservancy**

**Stuart Weiss, PhD, Science Advisor**  
**Bay Area Open Space Council Consultant**

**Ryan Branciforte, Director of Conservation Planning**  
**Bay Area Open Space Council**

**Thanks again to the**  
**Gordon and Betty Moore Foundation!**

**Photos: Thanks to Jereme Monteau,**  
**Stu Weiss and Lech Naumovich**





GIS Database – Available Now!! [www.openspacecouncil.org](http://www.openspacecouncil.org)



## Contact Info:

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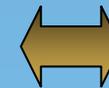
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