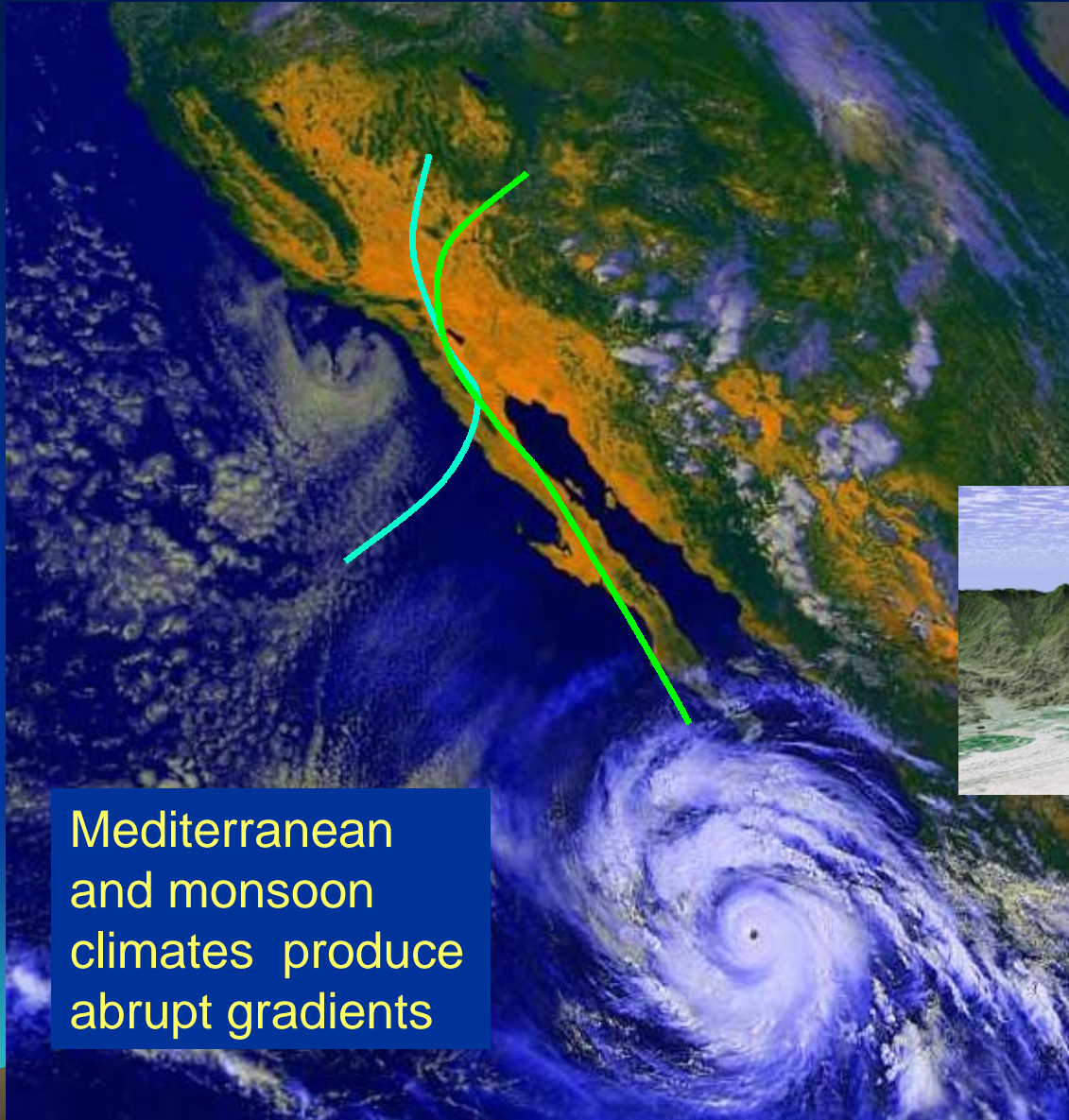
A satellite image of Earth showing California and a hurricane. The state of California is highlighted in orange and red, contrasting with the green and blue of the surrounding land and oceans. A large, swirling hurricane is visible in the lower right quadrant of the image. The text is overlaid on the top left and bottom left of the image.

# Habitat Fragmentation in California: our past, current rate, and likely future

**Tom Scott**

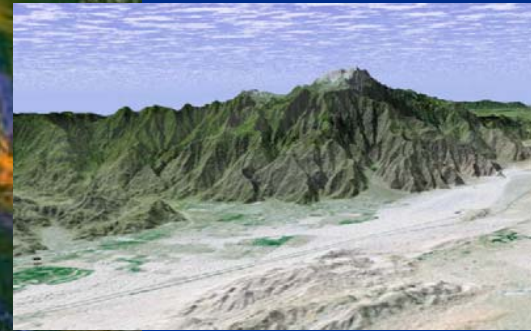
IHRMP, Department of Environmental  
Science, Policy and Management,  
UC Berkeley  
Center for Conservation Biology,  
UC Riverside

# California is a land of abrupt transitions



Mediterranean  
and monsoon  
climates produce  
abrupt gradients

Movements of the Pacific  
and North American  
tectonic plates create a  
geological caliope



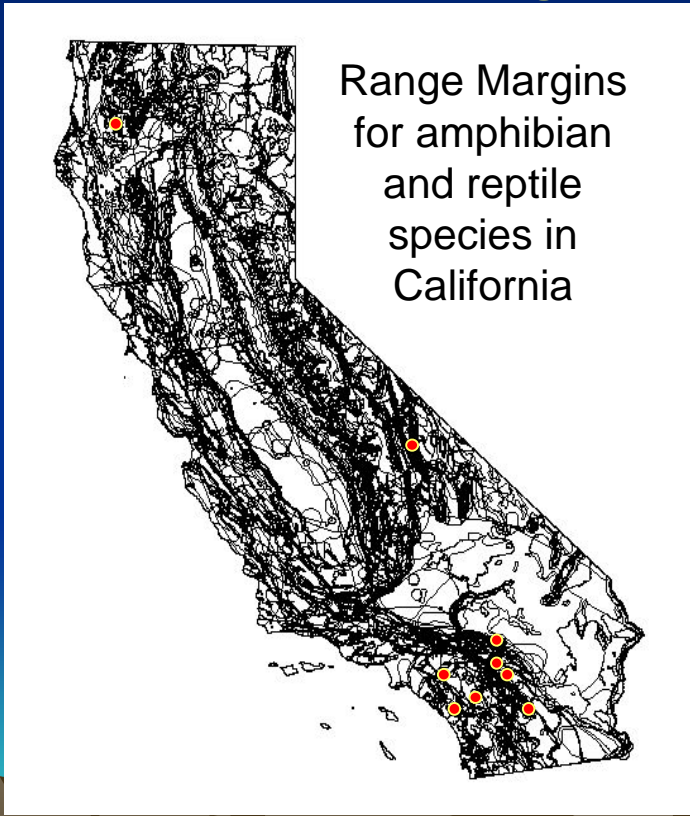
Red-breasted Nuthatch  
(North to Yukon )



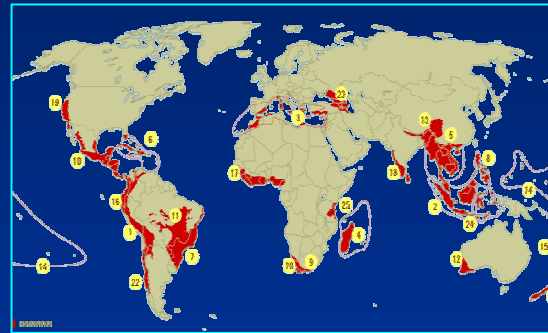
Vermillion Flycatcher  
(South to Equator)

Result is the greatest number of rare and endemic species in the continental United States, and the greatest potential for endangered species conflicts

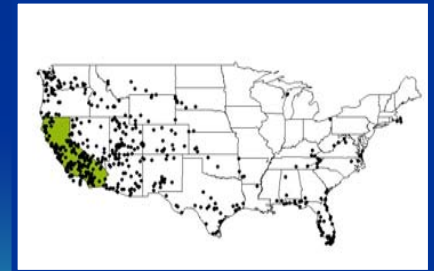
### Endemic Species at distributional margins



### Biodiversity Hot Spots

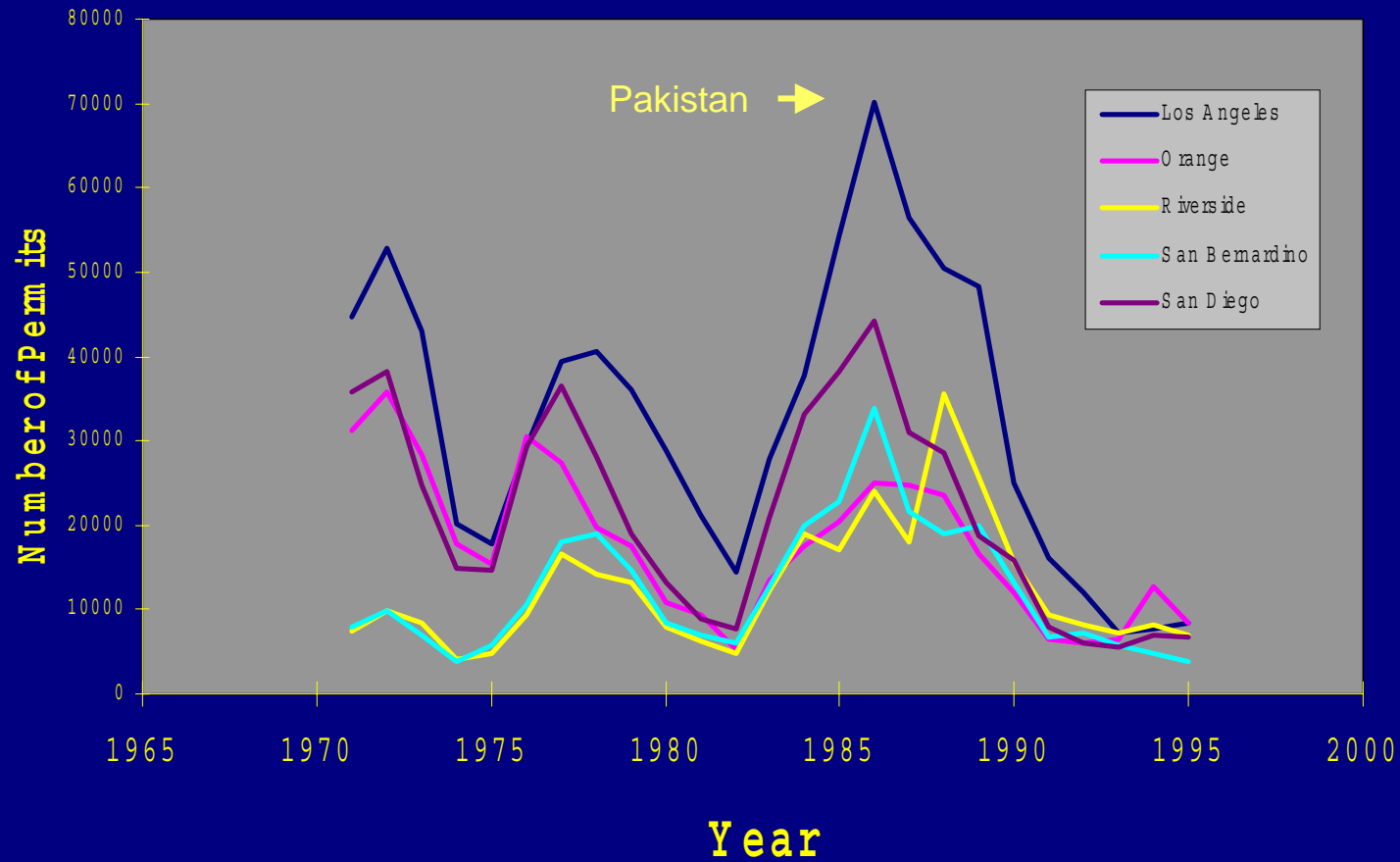


### Listed Species



# Actualized by hyperbolic rates of suburbanization

## Building Permits Issued



# A SENSE OF LOSS AND ANGST

The desire for open space and wildlands continues to drive rural and semi-rural housing development



Expanded road networks  
Stealth Cities  
Captured Wildlands

This demand for wild amenities creates an exceptionally odd juxtaposition of destruction and demand

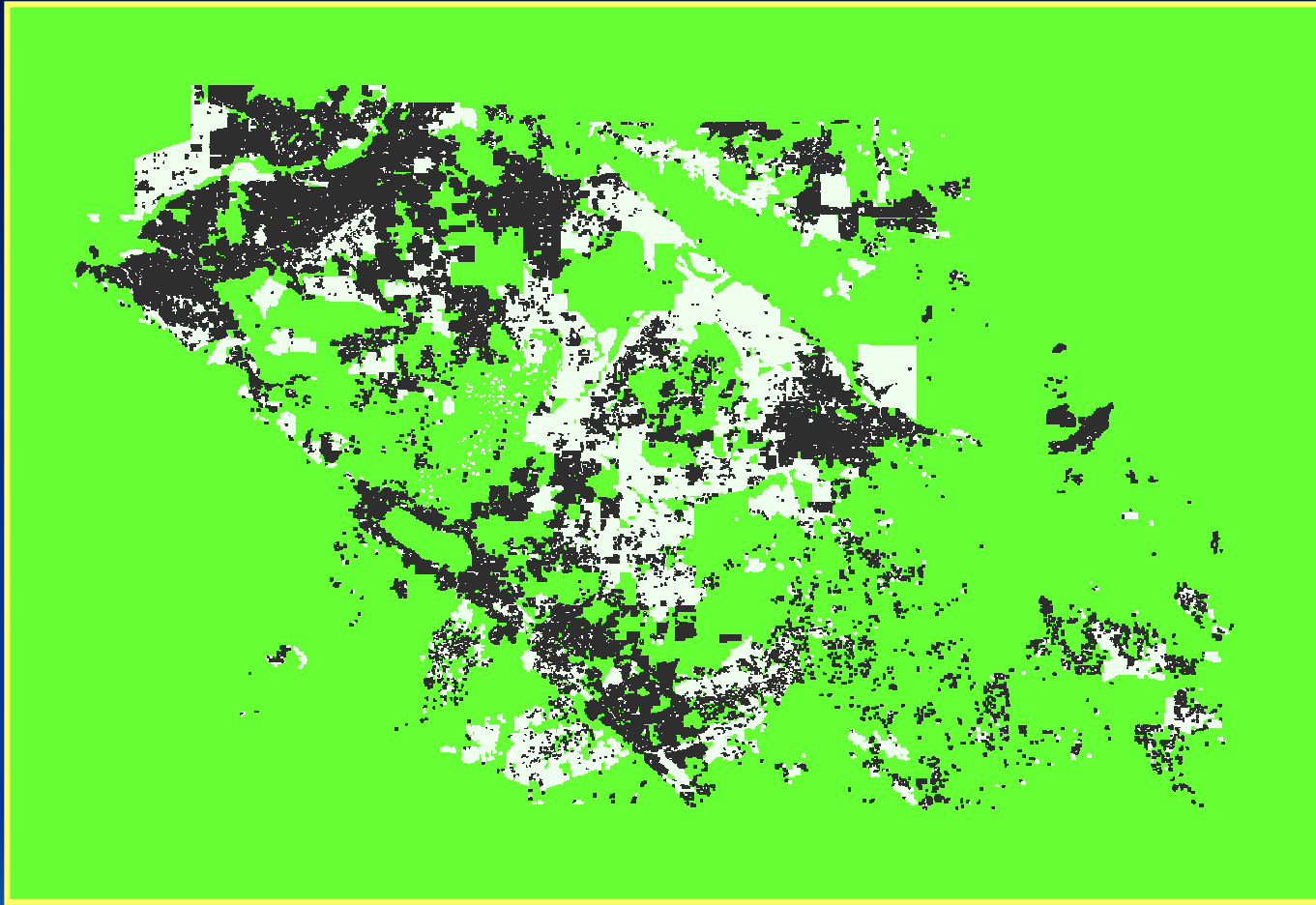


# Theme of my talk

Most of us  
envision  
two Californias,  
one where we live  
and work,  
the other where  
wild things roam



But our reality is the Wildland Urban Interface

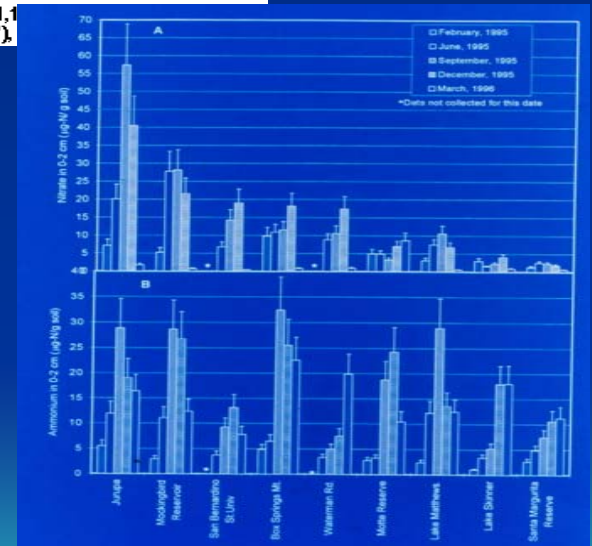
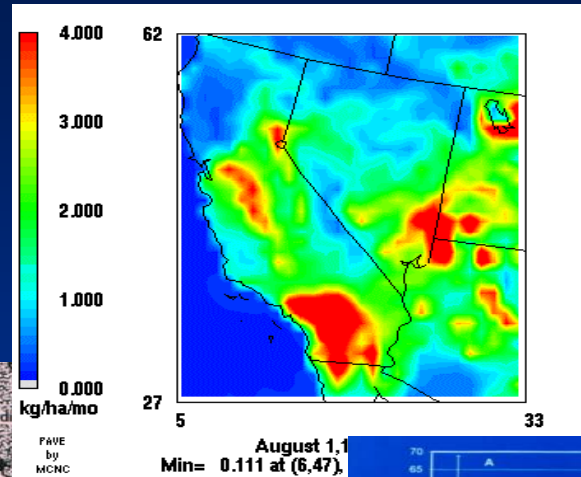
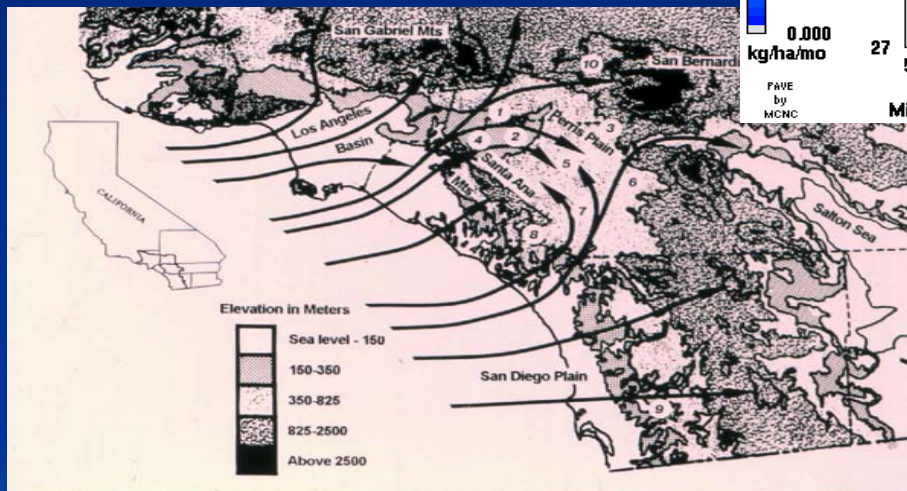


Renamed the wild urban interzone by CDF



Extending this thought one step further,

Nothing in California escapes human influence



Regional Nitrogen Deposition Work of Drs. Edith Allen and Gail Tonneson

If no place in California escapes human influence

- Need to reexamine

Our belief systems surrounding wildlands

Our perspectives on management and preservation

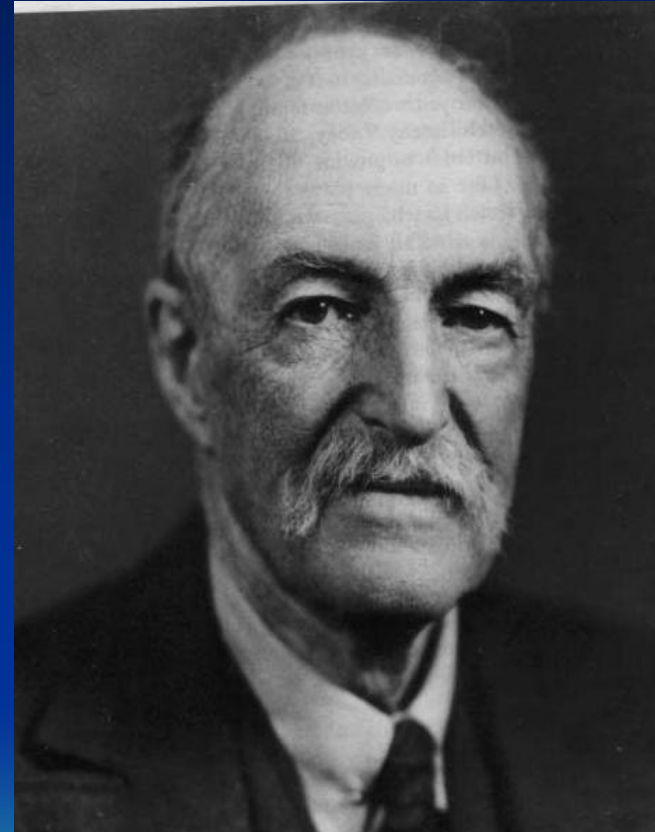
- Should we continue to envision a separate California and the necessity of systems which are untainted by humans?

Perhaps not.

- With this admission comes a certain kind of flexibility in thinking that isn't possible if we try to maintain an artificial dichotomy

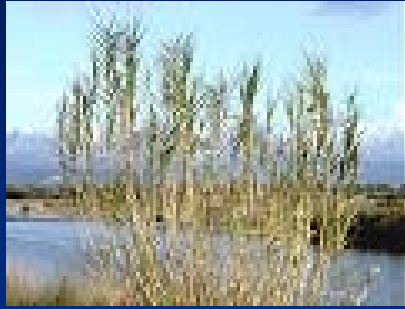


Most of us grew up with John Muir's perspective of *wilderness apart*, and but few have been exposed to Gifford Pinchot's concept of wildland management

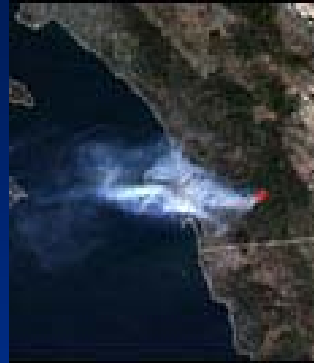


Muir's viewpoint is still a proper framework to reverence Nature, but Pinchot's pragmatism may lead to better persistence of species

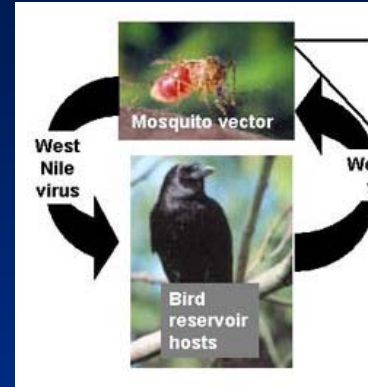
# Ecological processes effectively nullify the concept of intact areas and natural regulation in preserves



**Invasive Species**



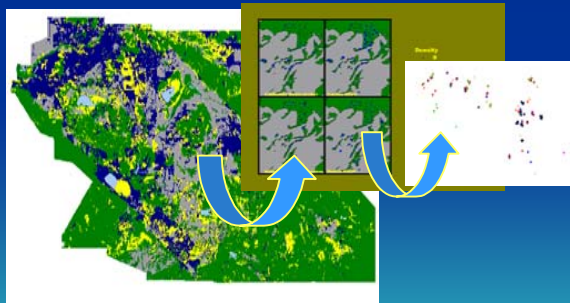
**Energy: Fire in preserve patches**



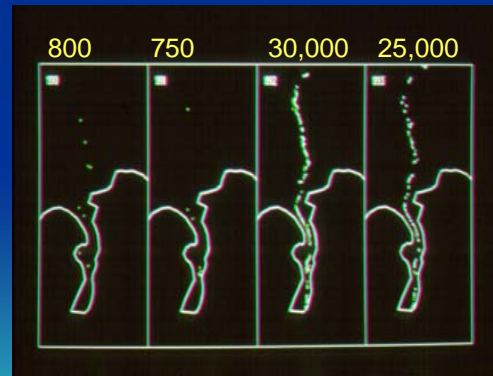
**Continental Epidemics /Epizootics**



**Air pollution**



**Biological: Spatial dynamics of populations and ecological associations**



**Human presence: occupancy and use**



**Gravity: Urban drizzle, refuse, ravel, and floods**

Only about 6% of California's land area is urban or suburban

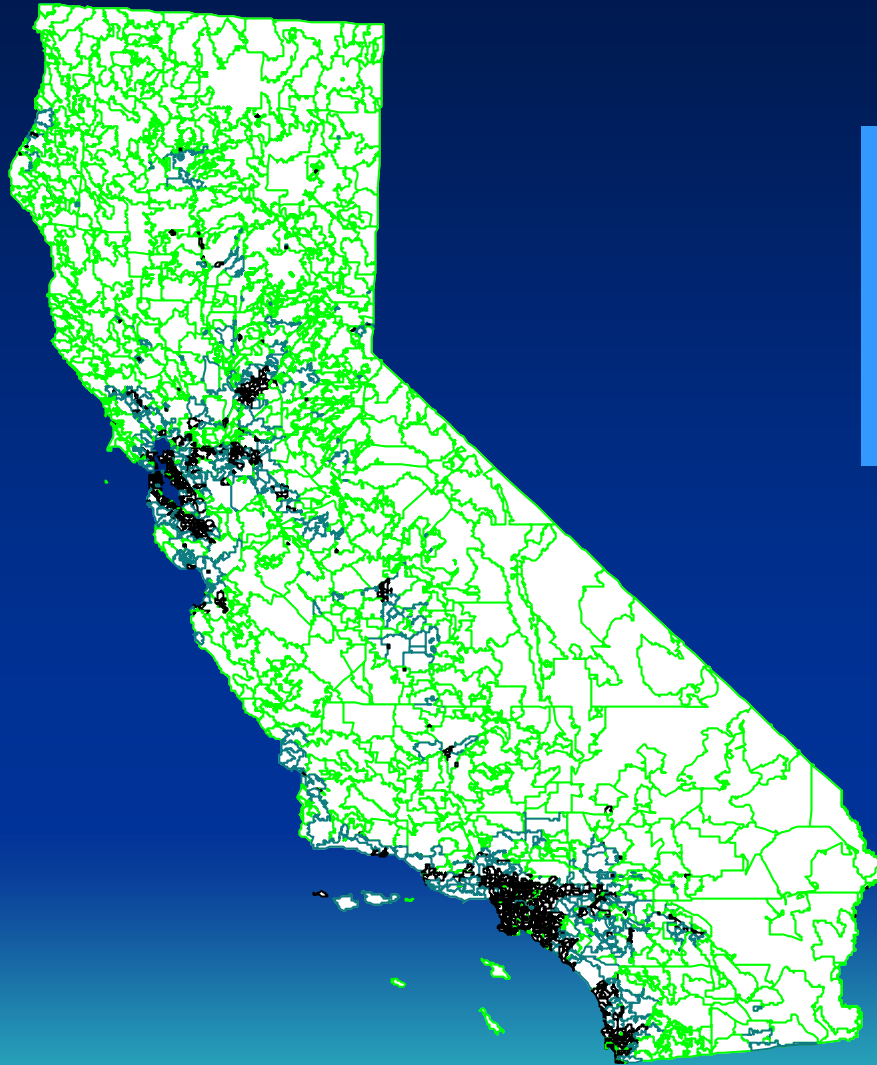


Density of housing for  
California zip codes

■  $>250$  houses/km<sup>2</sup>

■  $<1$  houses/km<sup>2</sup>

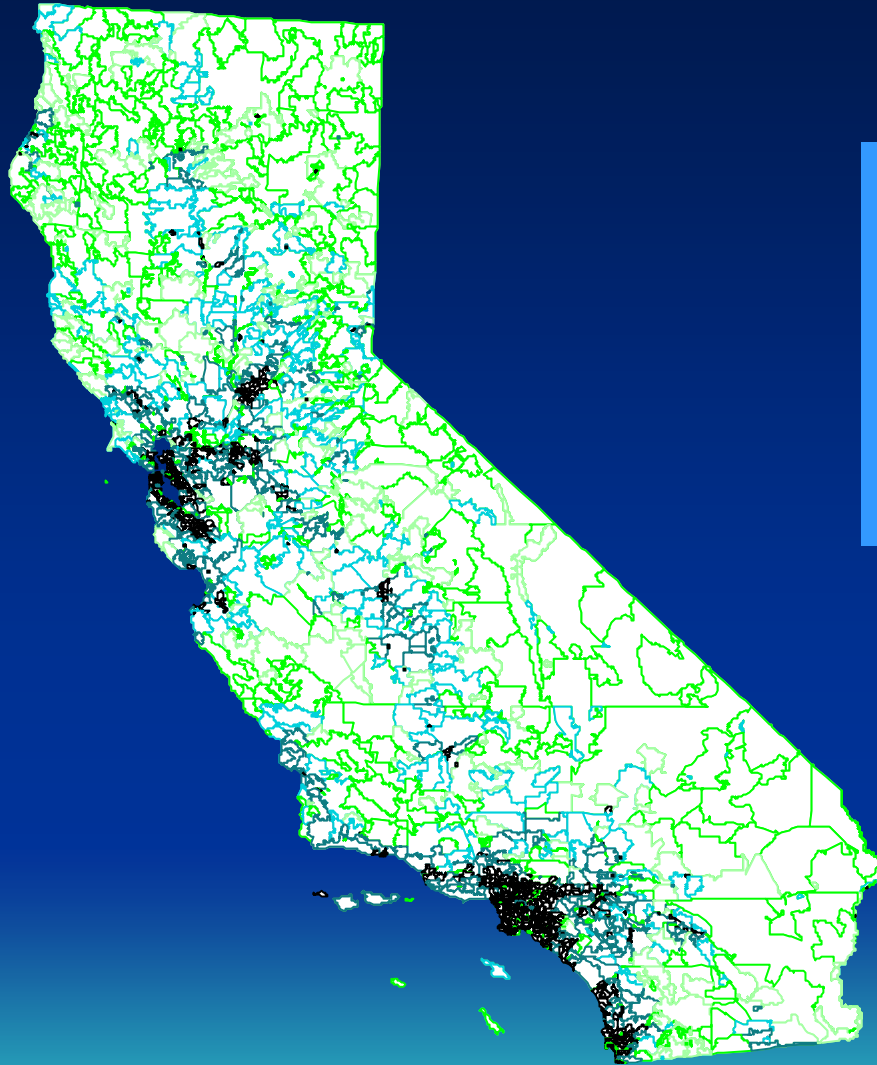
About 13% of the land area is rural/ranchette



Density of housing for  
California zip codes

- $>250$  houses/km<sup>2</sup>
- 25 to 249 houses/km<sup>2</sup>
- $<25$  houses/km<sup>2</sup>

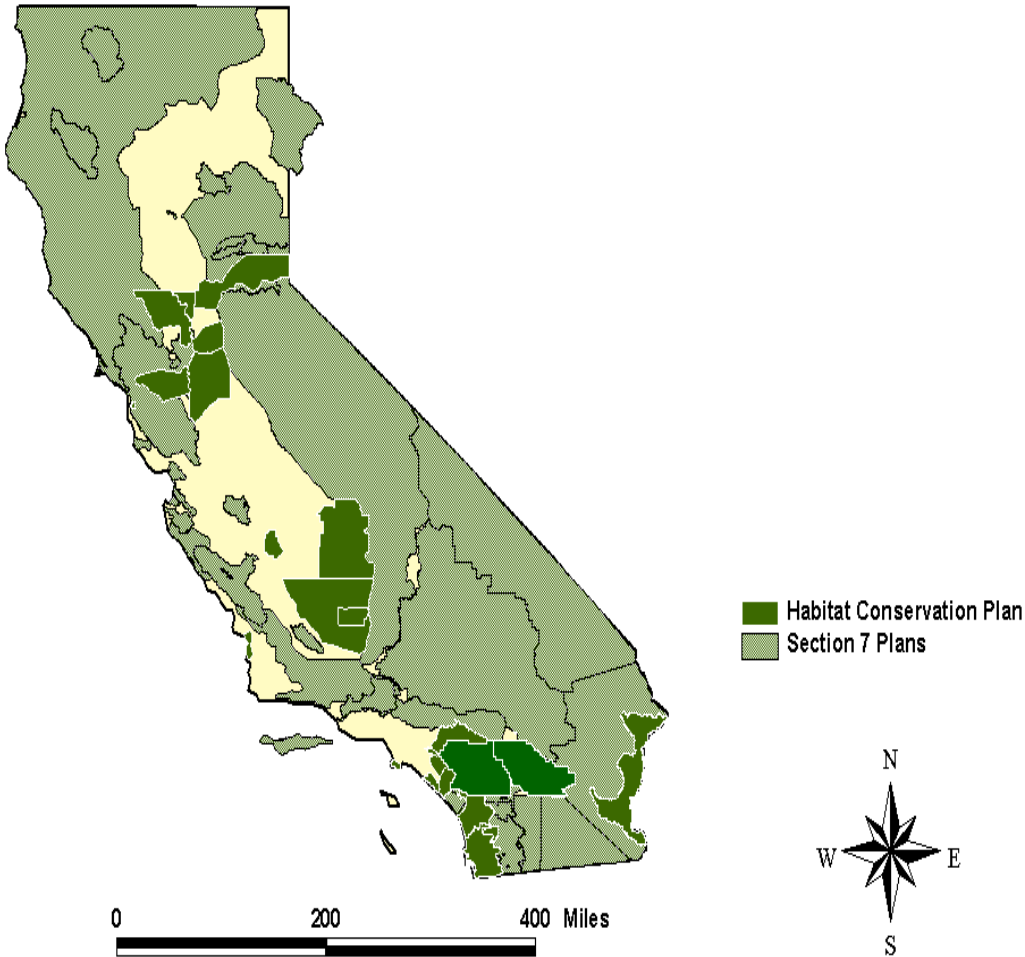
But about half the land area is in the Wildand Urban Interface



Density of housing for  
California zip codes

- >250 houses/km<sup>2</sup>
- 25 to 249 houses/km<sup>2</sup>
- 1 to 24 houses/km<sup>2</sup>
- <1 houses/km<sup>2</sup>

# California Regional HCPs and Section 7 Plans

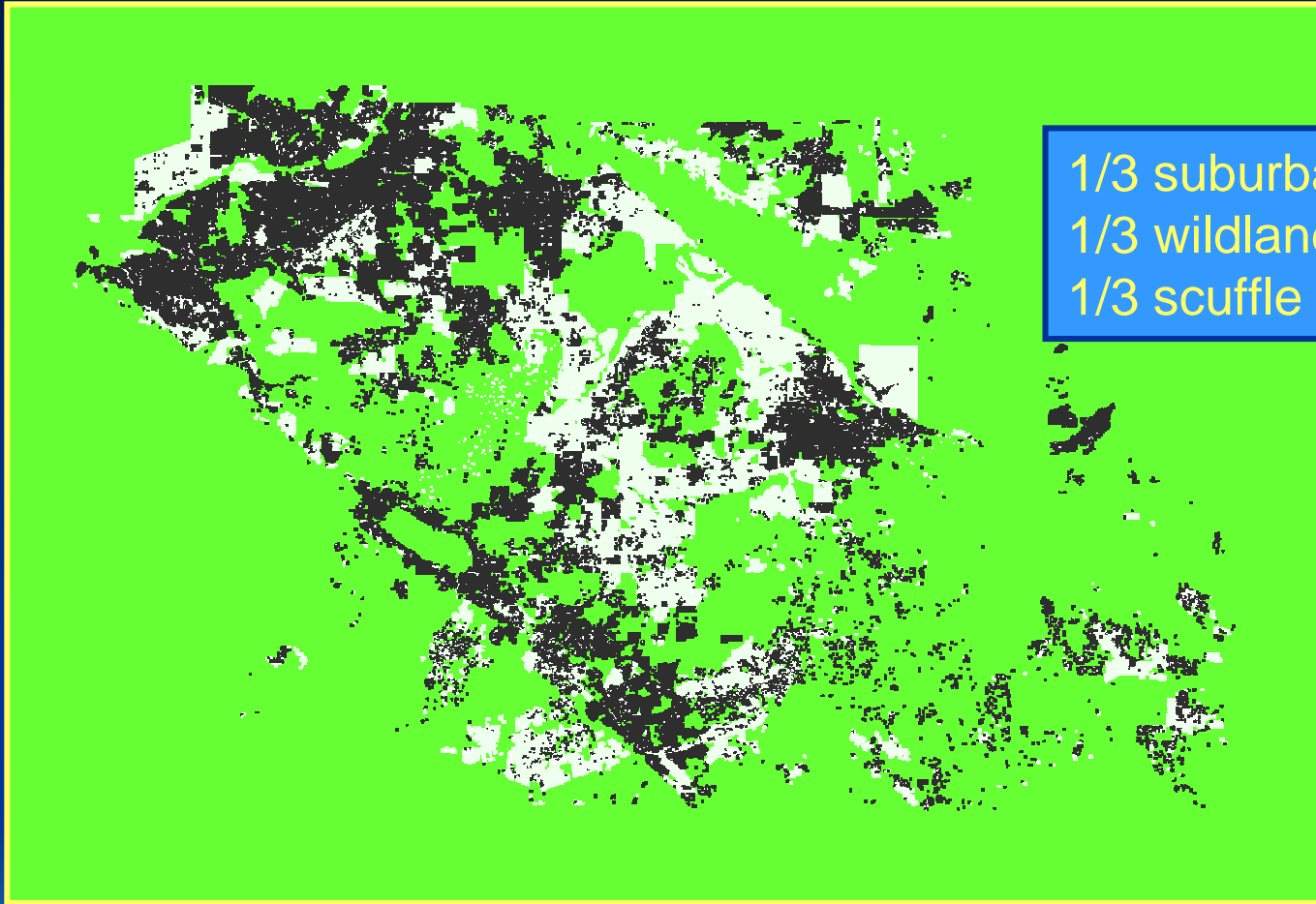


A recognized need for managing ecosystem, but a greater need to get in from of the bulldozers

Necessity of bioregional planning for undeveloped Land



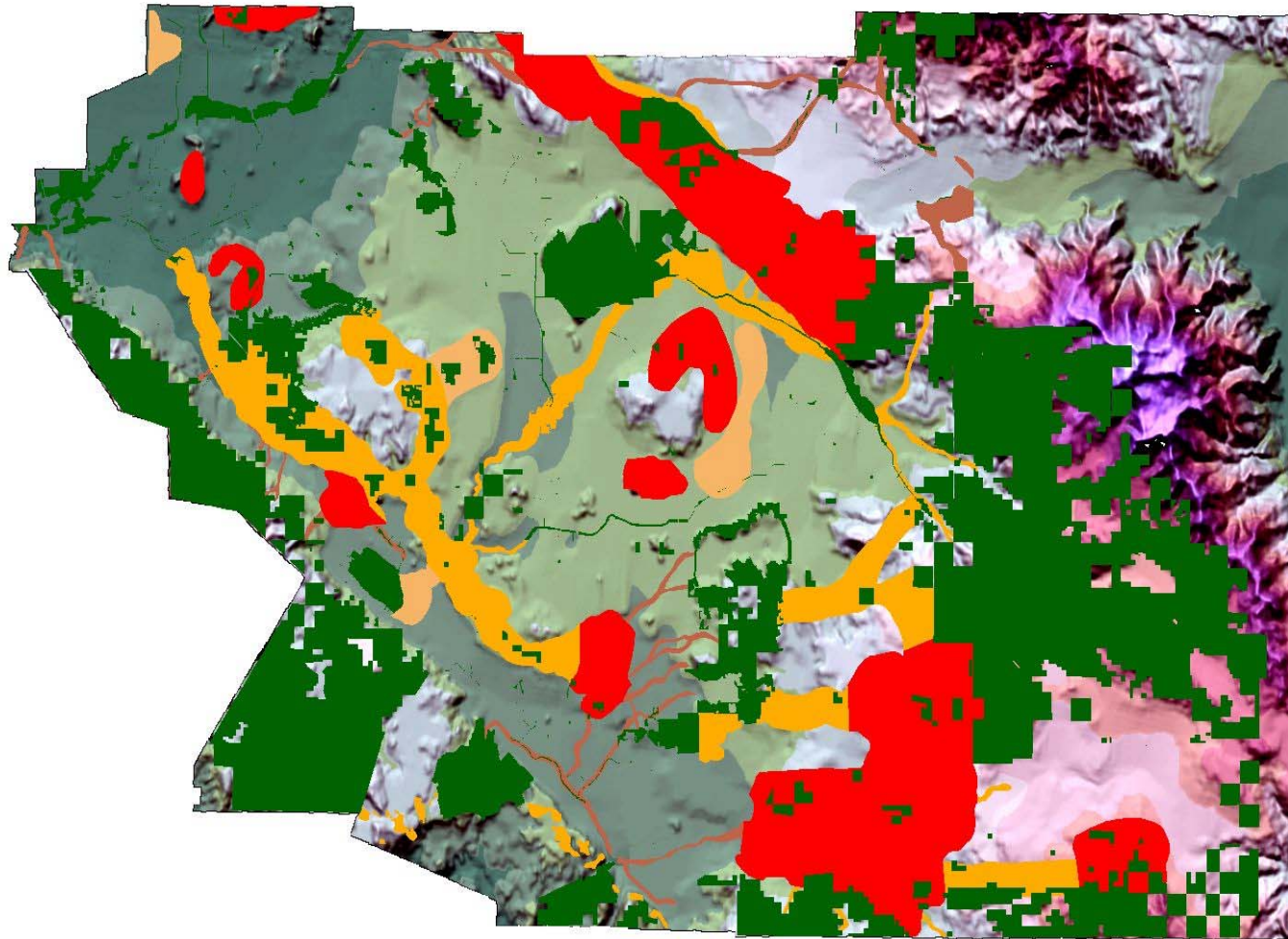
# Western Riverside County is divided by thirds



1/3 suburban – urban  
1/3 wildland -- preserve  
1/3 scuffle zone

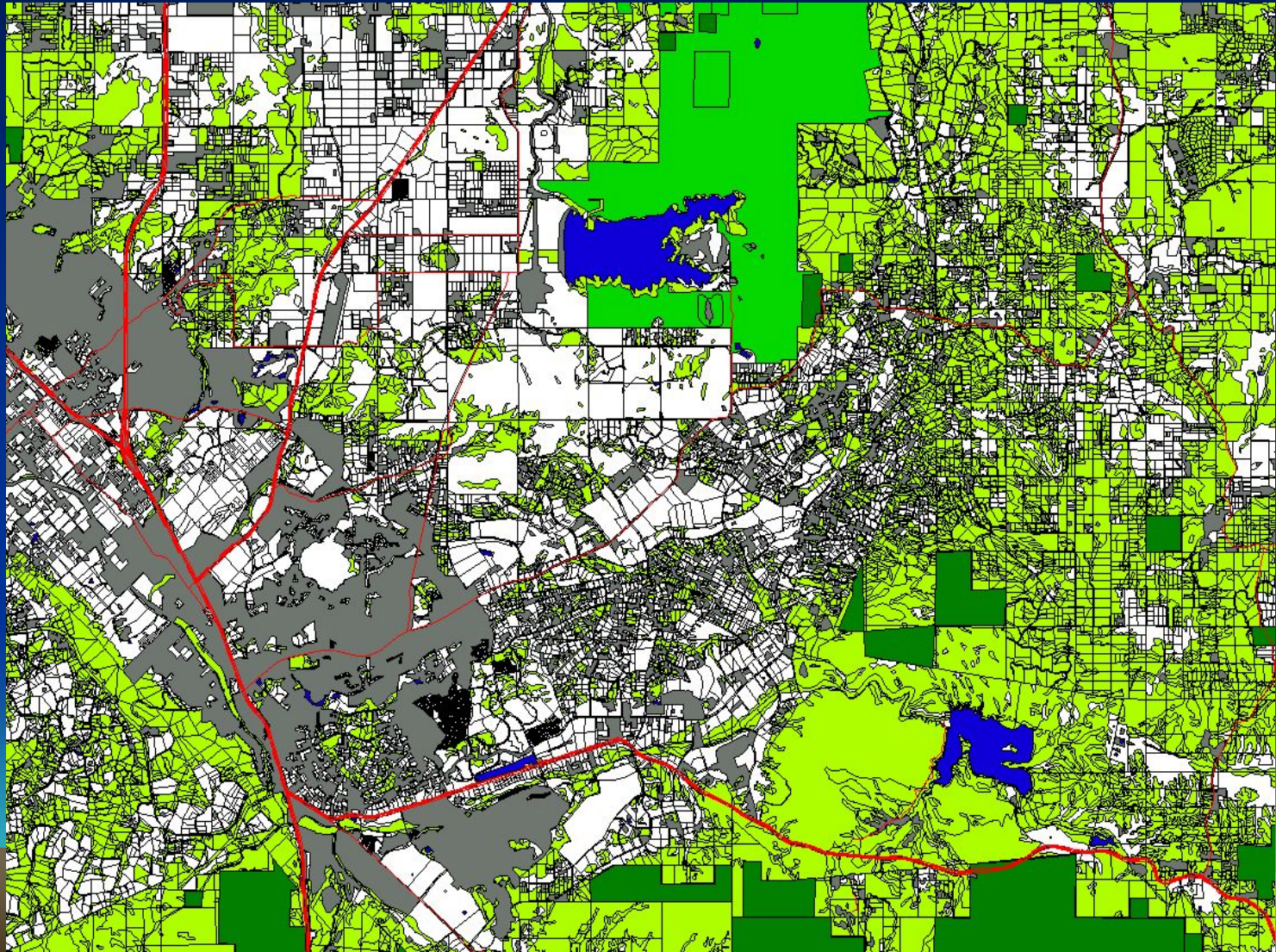
Has 2300 km of suburban edge

Separation is a natural function of polygons



Over-emphasize homogeneity and boundary decisions

But in the footrace for preservation we often lose sight of the complex ecological processes and interactions on the ground



# Also loose our sense of ecosystem dynamics

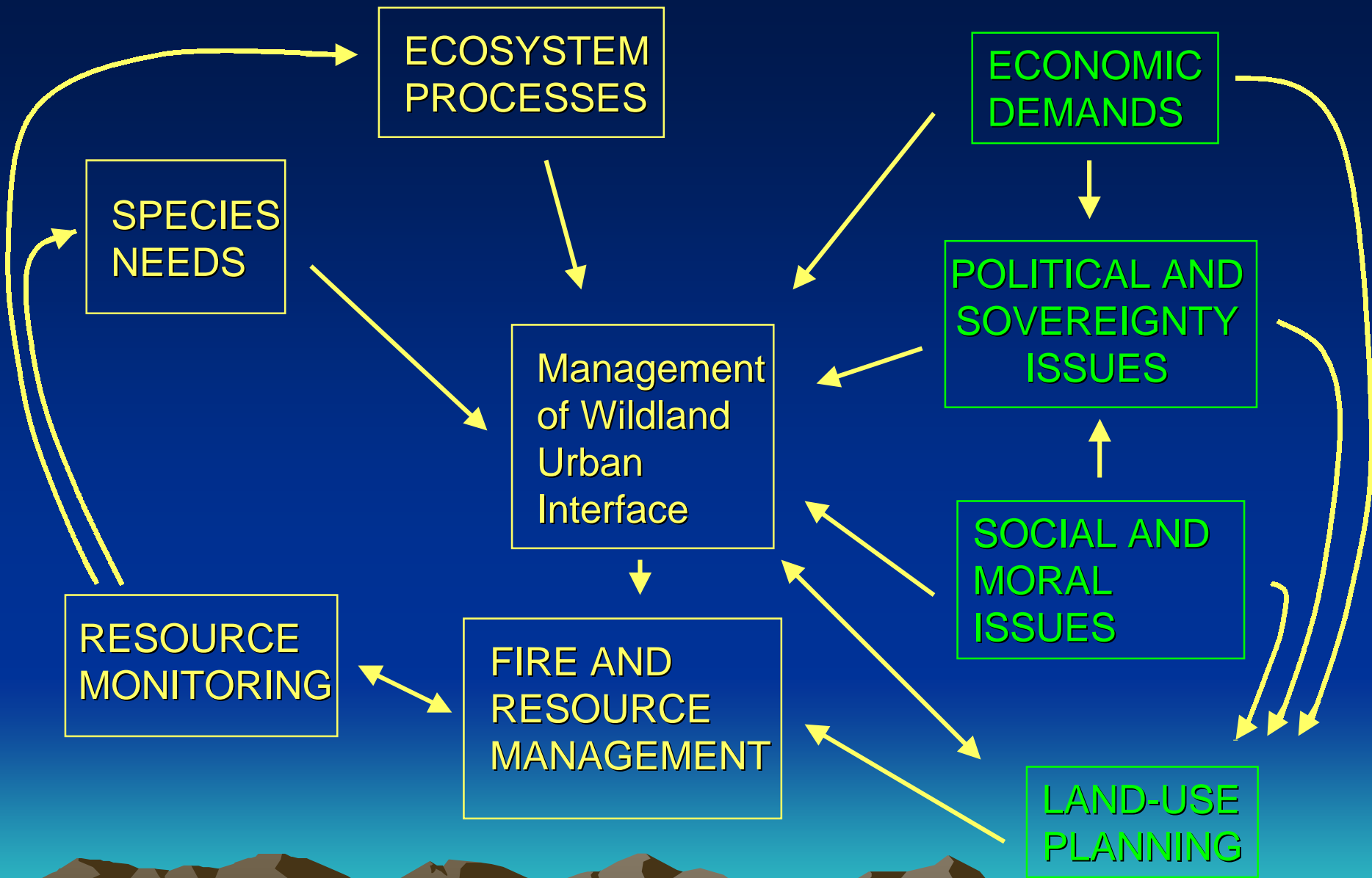
Strong indication that overuse and drought(s) in the early 1900's,  
But a recovery in of biomass since 1930



1928



1990



How can we re-establish a balance between process and preservation?

Disciplinary topics which help balance in management and preservation:

Invasive Plants

Wildfire and Fuel Management

Air pollution

Runoff

Wildland Recreation

Connectivity



Invasive species,

by definition,

unite the concepts of land preservation  
and ecological process together

I hope this helps you to recognize the  
unique position of CAL-IPC to help  
California transition into the 21<sup>st</sup> century

