

An aerial photograph of a wide, green valley. A river flows from the upper left towards the lower right, meandering through the landscape. The valley is filled with lush green grass and scattered clusters of evergreen trees. In the far distance, a range of low mountains or hills stretches across the horizon under a clear sky. The overall scene depicts a natural, undisturbed landscape.

Agriculture is sustainable when it is ecologically sound, economically viable, socially just, culturally appropriate, and based on a holistic scientific approach.



1980 purchased 23,636 acres

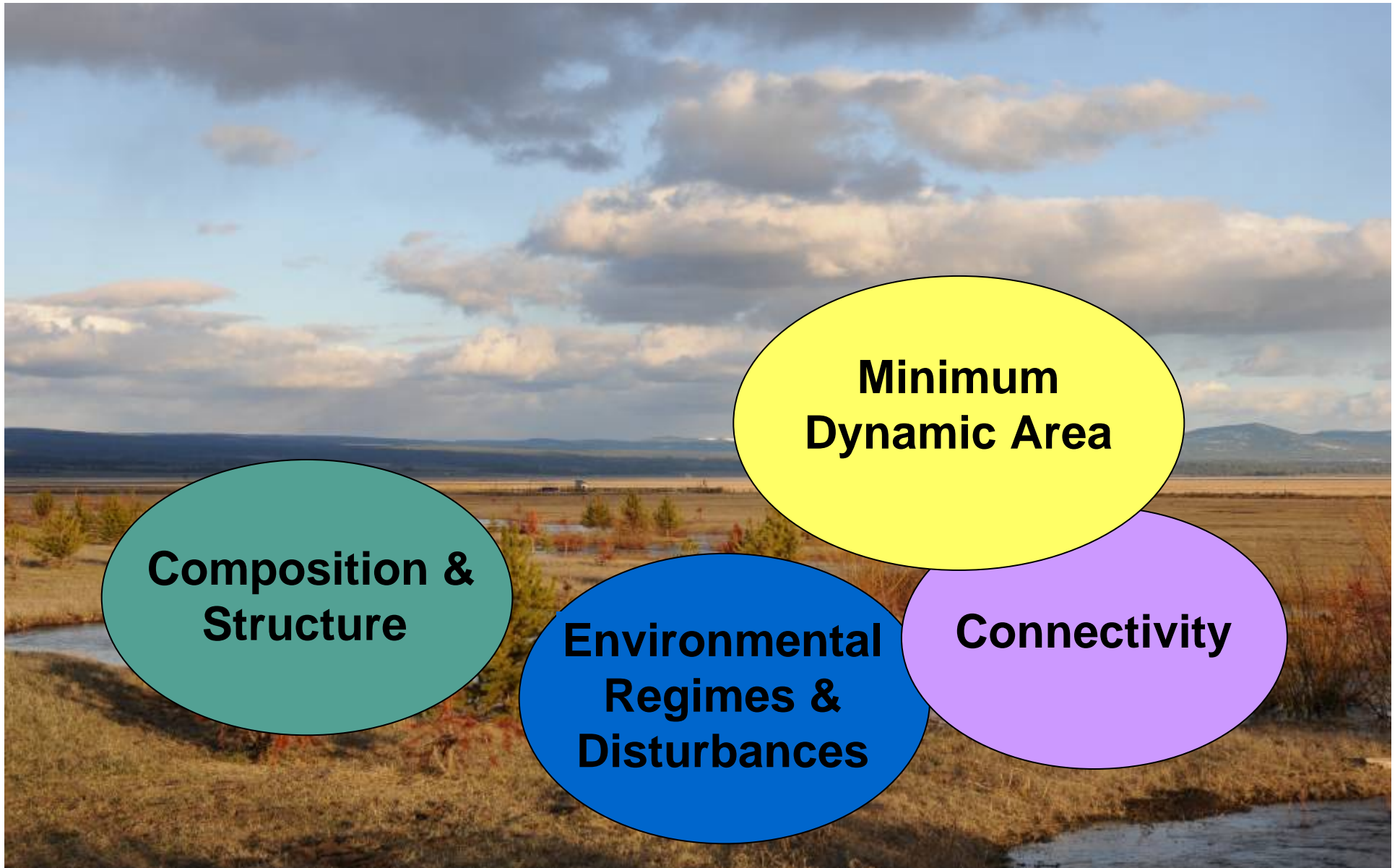
- 40 year grazing lease to ZX Ranch
- Initiated research and monitoring programs
- Payment of County taxes to Lake and Klamath Counties

1999 added 2,845 acres, Roseburg Resources

- Forested tracts, did not pursue water rights

2000 added 5,058 acres in the NE corner

- Most of this area enrolled in WPR, fen, no water rights





Restore historic landform & hydrologic function

- Remove landform physical aberrations
- Restore hydrologic connectivity (hydroperiod)

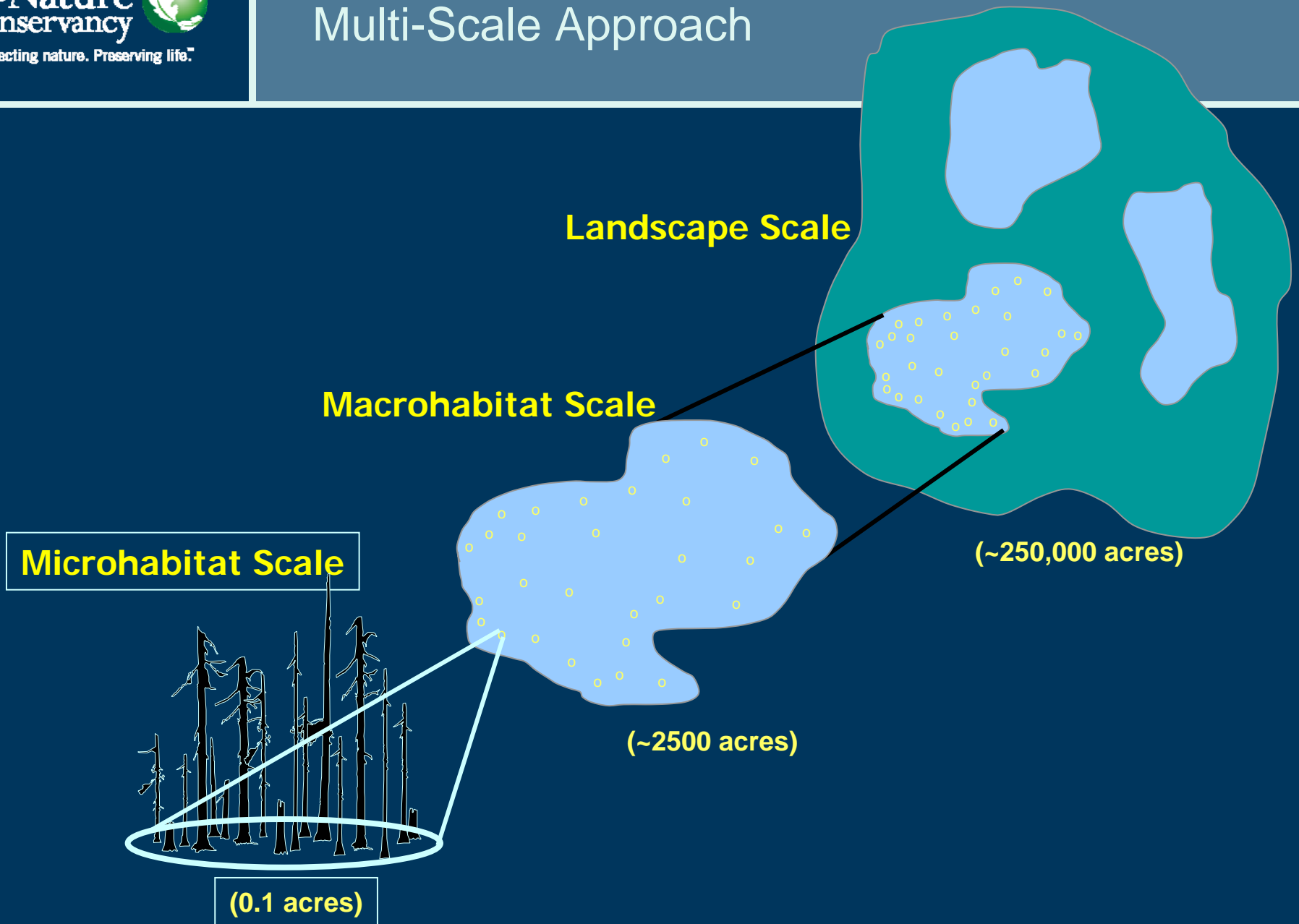
Provide 10,000 Animal Unit Months

Manage wetlands to improve wildlife habitat

At the watershed scale (208,832 acres)

- Enhance health and biomass of native salmonids
- Eliminate non-native species (flora and fauna)
- Expedite the restoration of fire-adapted ecosystems: monitoring habitats and populations of cavity nesting birds and big game

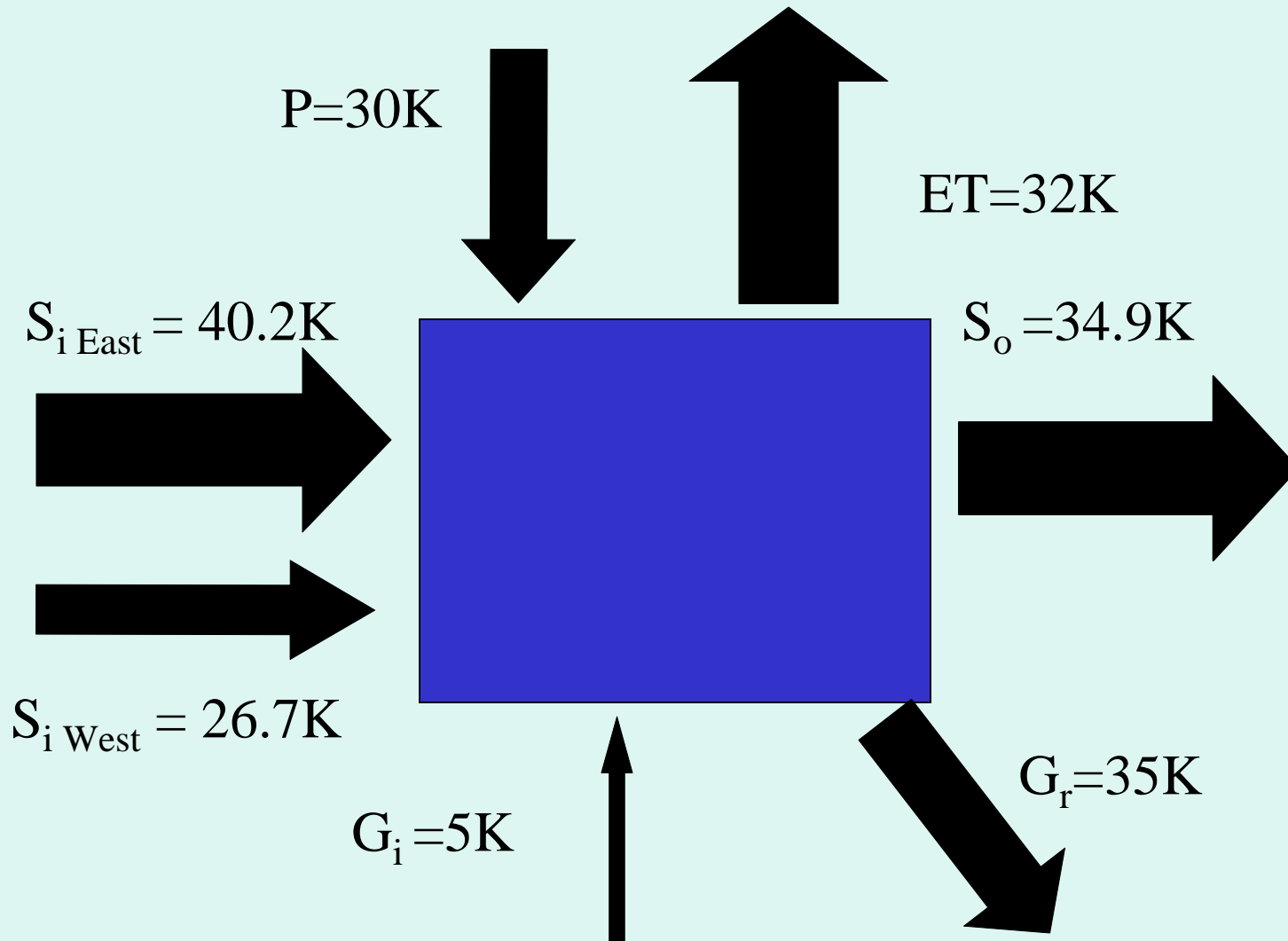
# Multi-Scale Approach

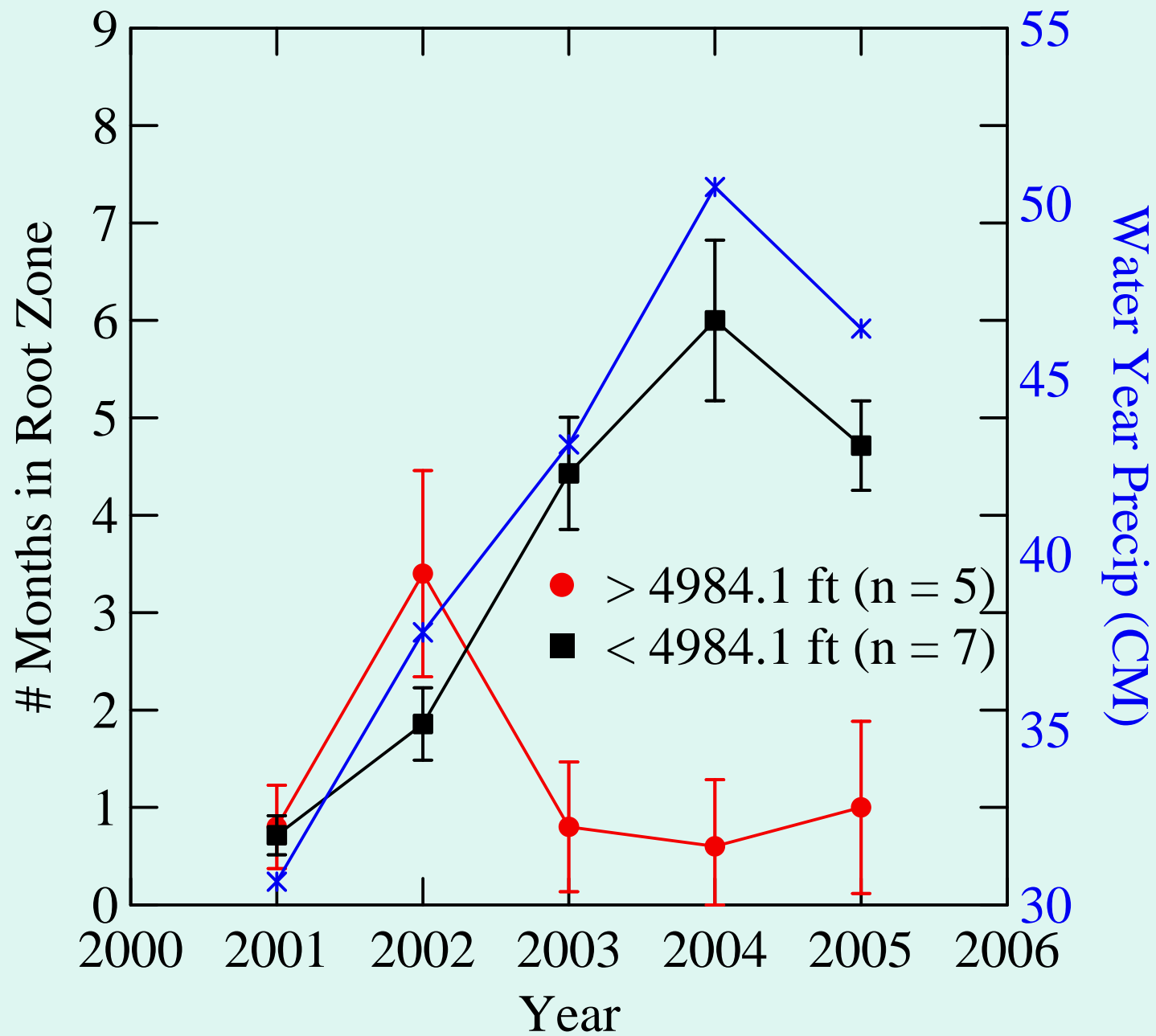


Restore species composition, spatial features, hydrologic and nutrient cycles with forest and fire management.

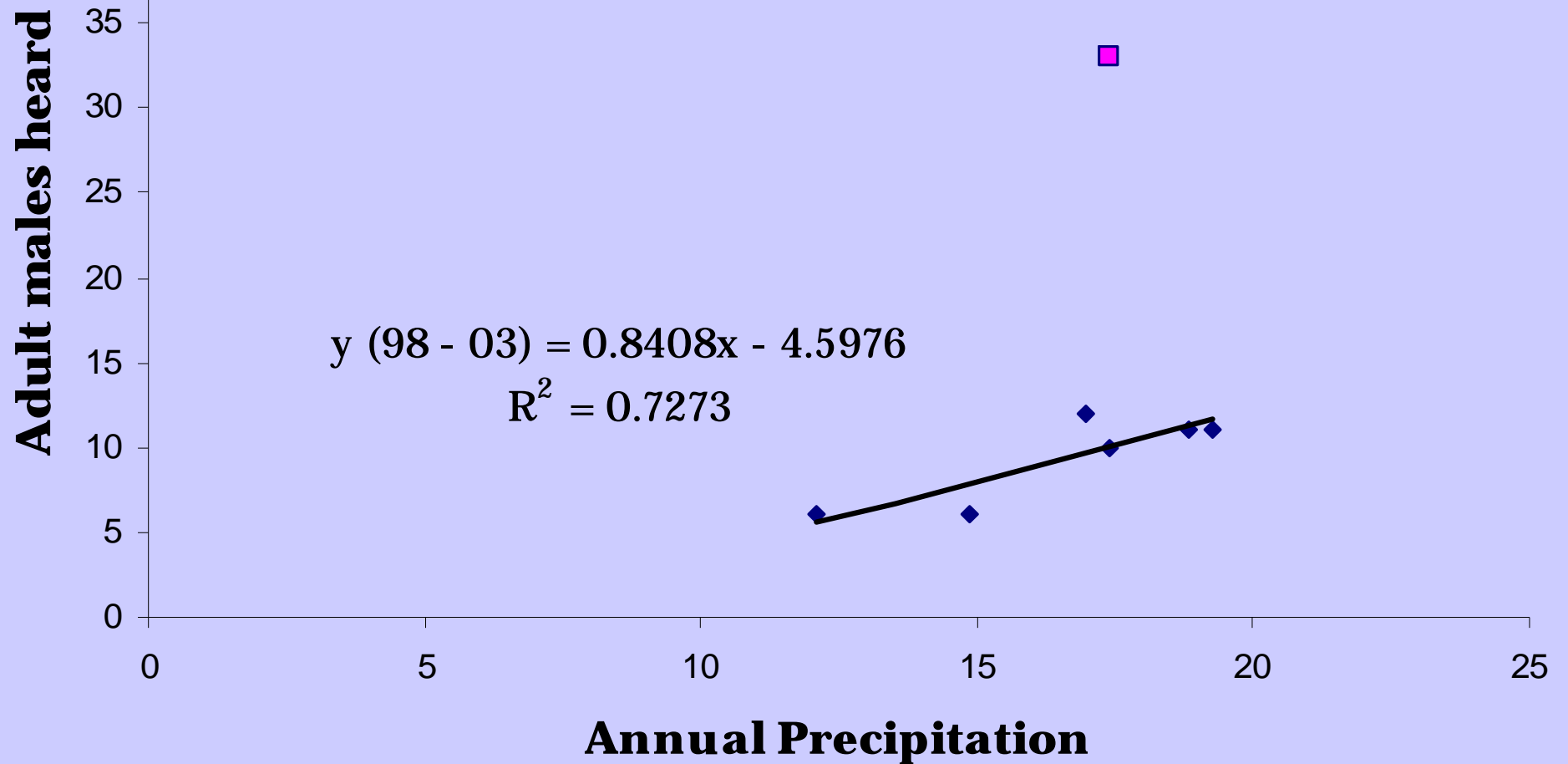


**Sycan Marsh**, surface water inflow is represented by contributions from the West and the East watersheds. In this model of an average water year, the East side watersheds contribute more inflow, which is greatest during the spring thaw. Total inflow is 101,900 acre-feet.

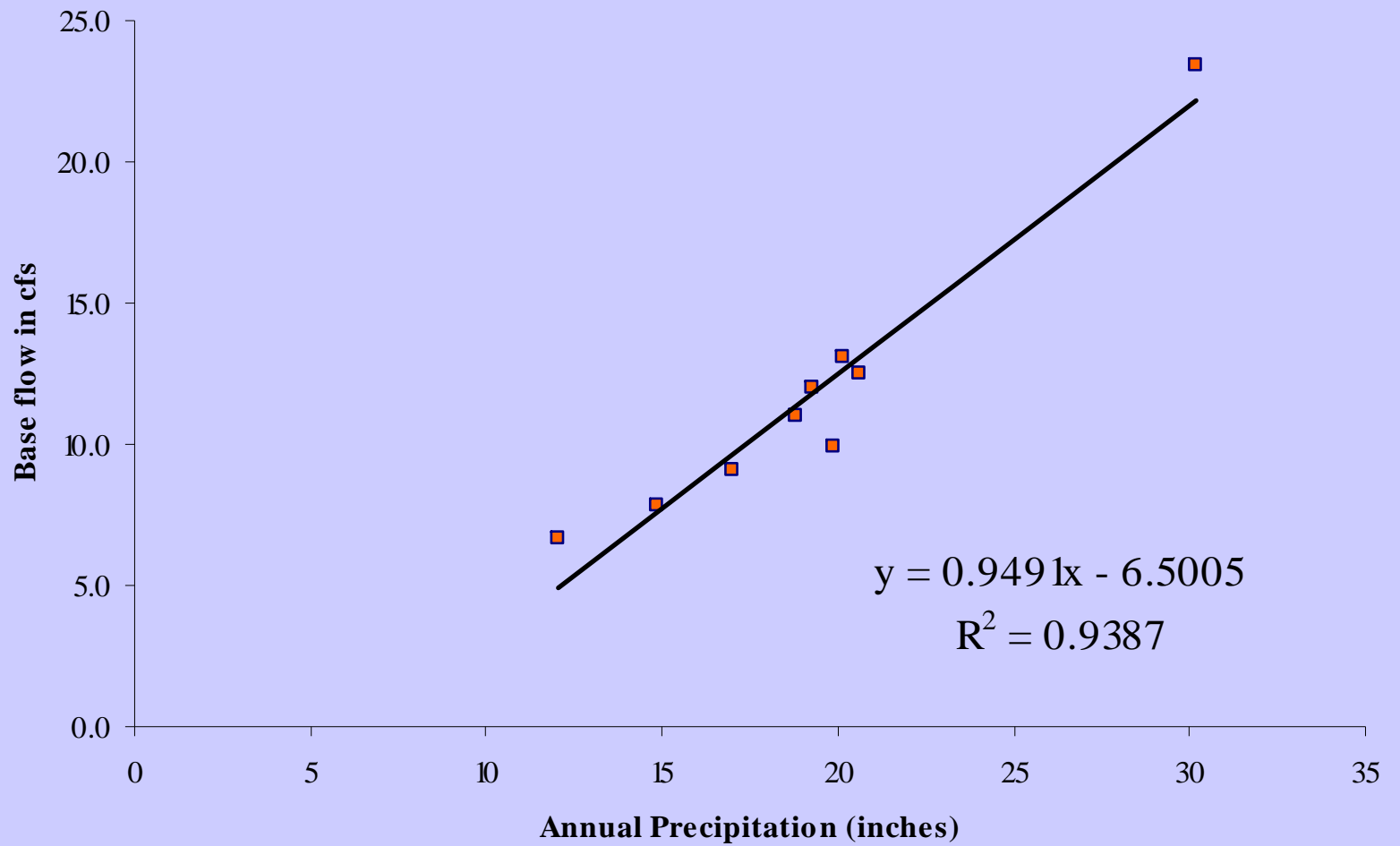




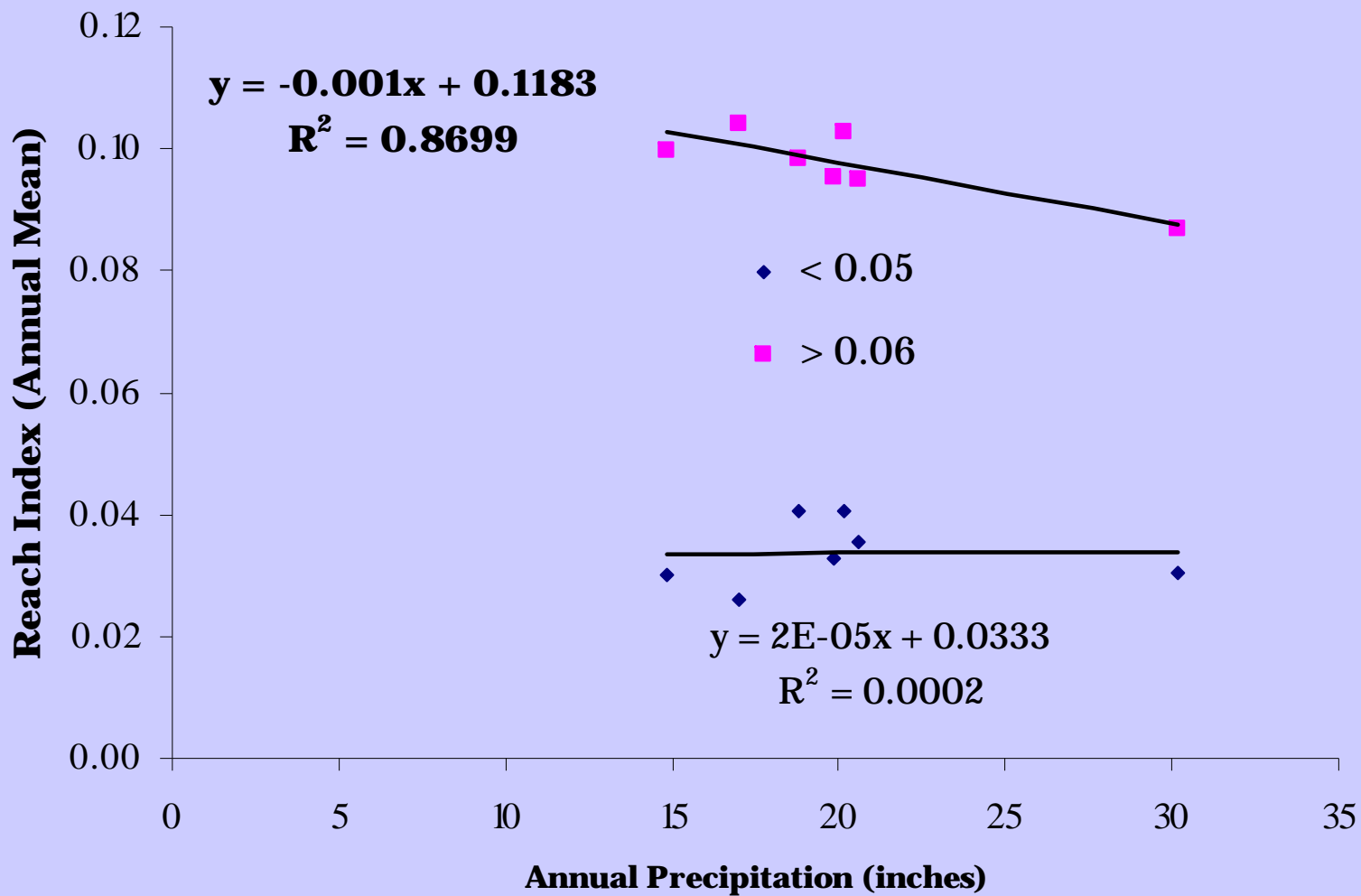
## Response of Yellow Rails to Restoration



## External Inputs



# Functional stream channels increase habitat complexity



## Redband Trout Habitat and Biomass



A hand in a dark jacket points to a map on a stone surface. A Venn diagram with five overlapping circles is overlaid on the map. The circles are: a yellow circle at the top labeled 'Culturally Appropriate', a cyan circle on the left labeled 'Ecologically Sound', an orange circle on the right labeled 'Economically Viable', a blue circle at the bottom labeled 'Socially Just', and a small pink circle in the center labeled 'Sweet'.

**Culturally  
Appropriate**

**Ecologically  
Sound**

**Sweet**

**Economically  
Viable**

**Socially  
Just**

Weather



Insects and disease



Climate change



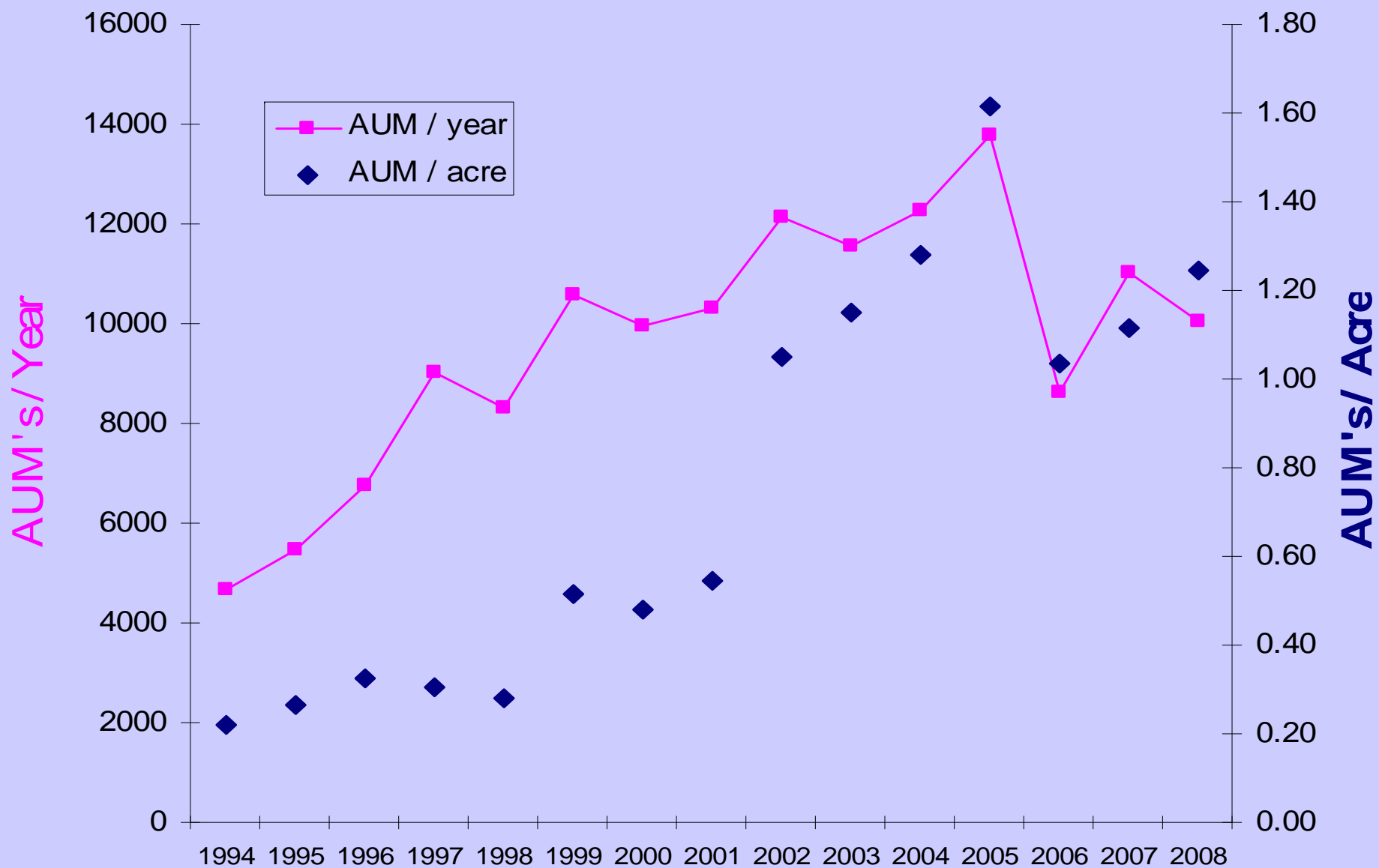
Politics and economics

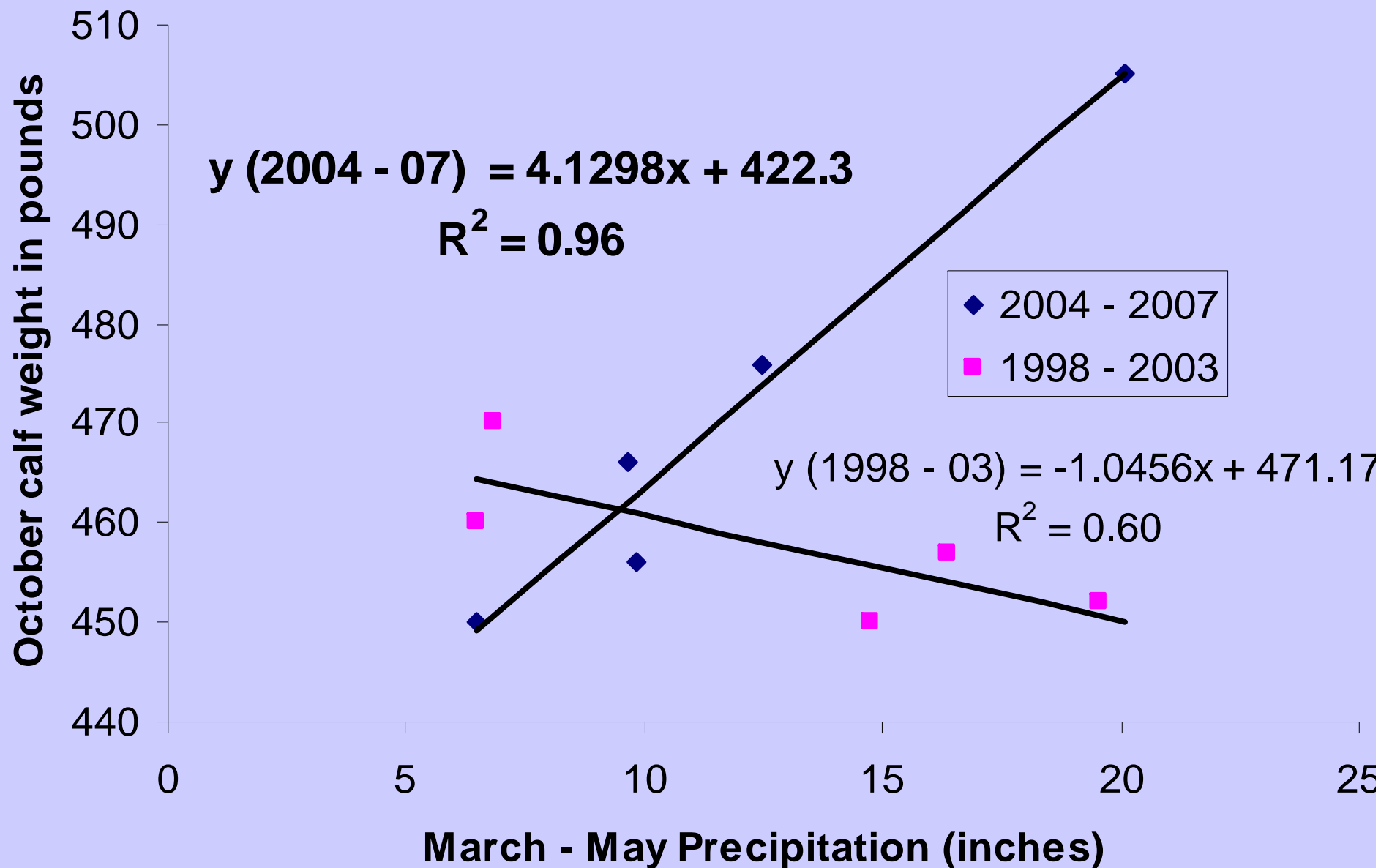


Functional landscapes increase  
management opportunities



# Annual Grazing Outputs





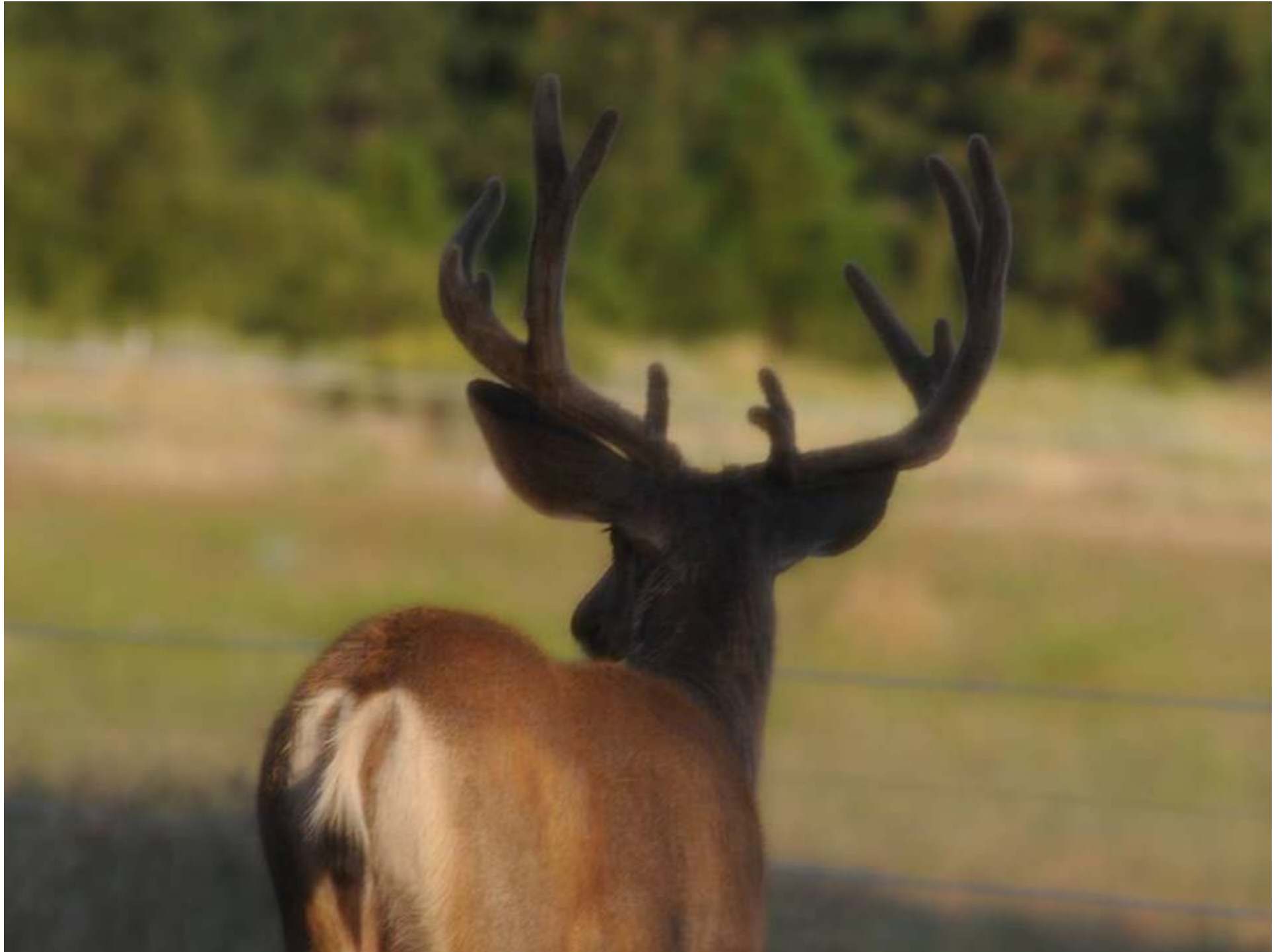
**Understand Context: implementation is a social interface – Motivation, Information and Power are explanatory in success**

**Watersheds are complex requiring expertise and capacity**

**Incorporate landscape perspectives & historic patterns and process to guide functional development.**

**Communicate, develop strategic actions, engage multiple partners, and monitor**





- What is the specific ecological restoration need that your case study addresses?
- How do cattle impact or affect those ecological needs/processes?
- What is the rural community social and economic context in which this restoration need presents itself? What are the issues your restoration approach must address to achieve "integrated" ecological, social and economic benefits.
- Describe your approach. How does it work, what are its elements, when is it applied?
- Describe the restoration outcomes. Describe the social and economic outcomes of application of the tool/approach.
- What broader generalizations can be made from each of your cases to the broader needs at the Western scale?