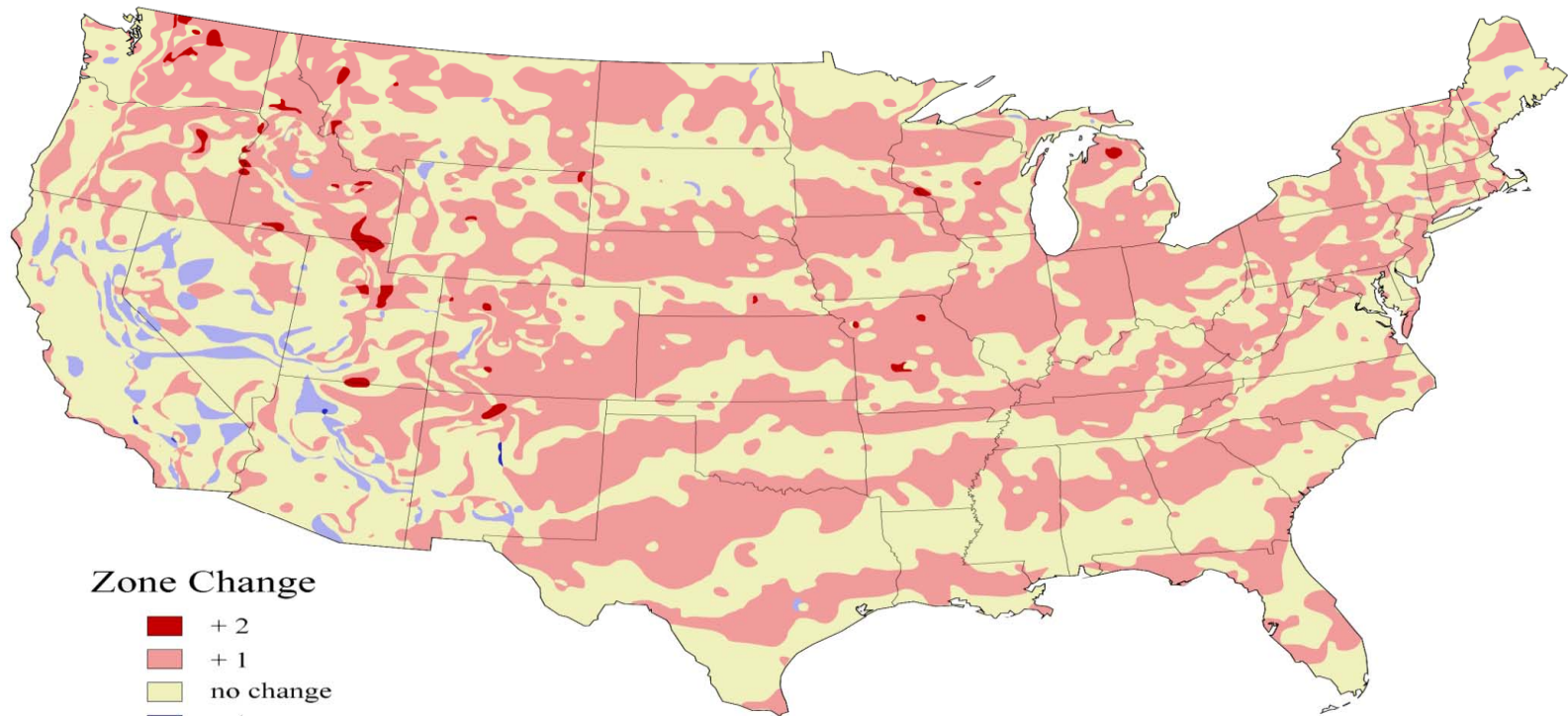


# Synthesis and Discussion: Climate Change Session



# 1. Ecosystems are already experiencing dramatic changes in climate and water balance

Differences between 1990 USDA hardiness zones and 2006 arborday.org hardiness zones reflect warmer climate

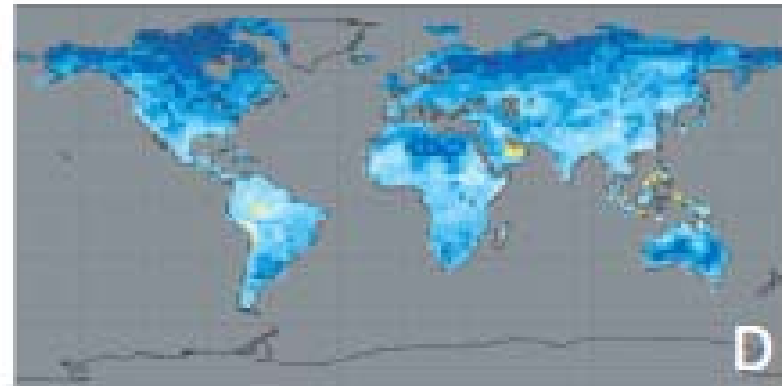
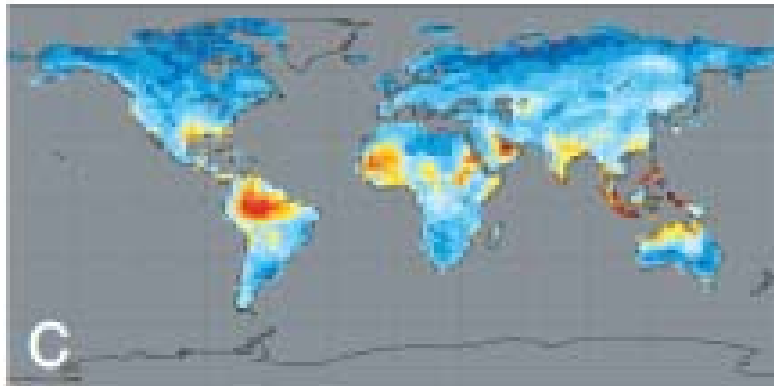


# Missoula in 2050: the new Salt Lake City?

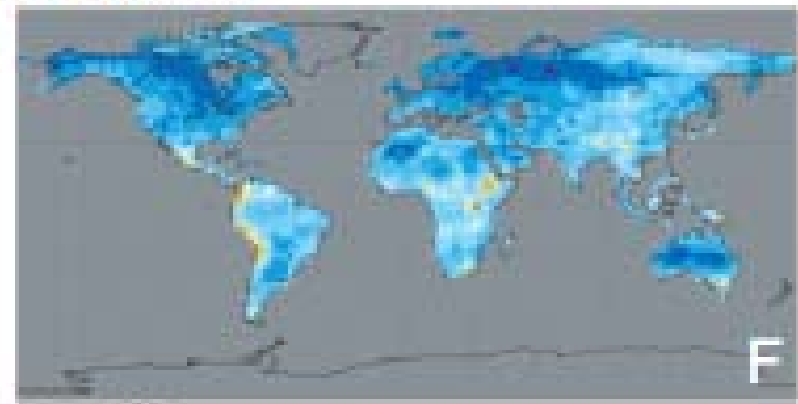
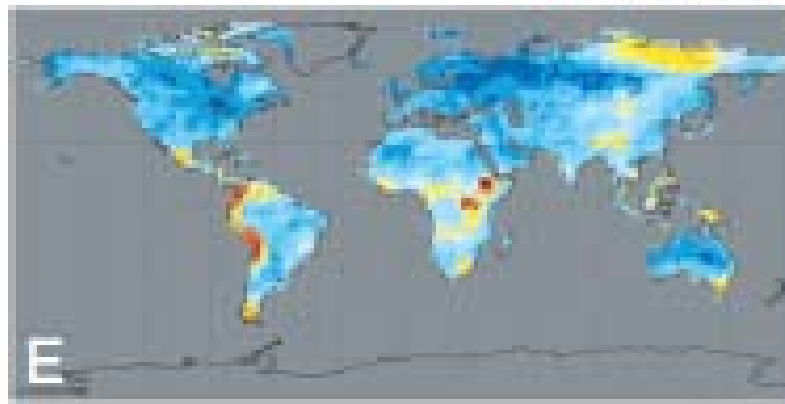


## 2. “The future is outside of our experiential box”

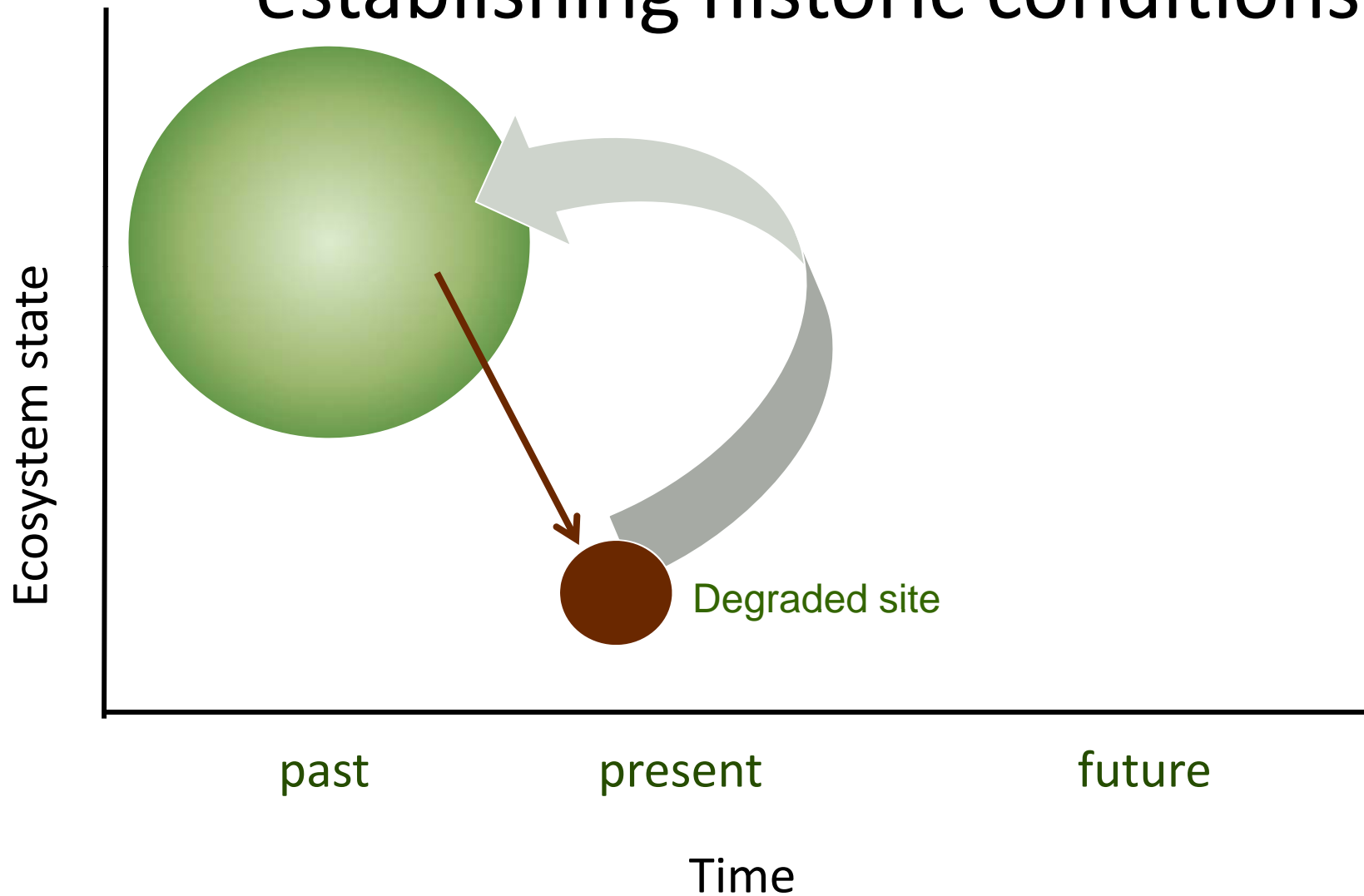
### Novel Climates



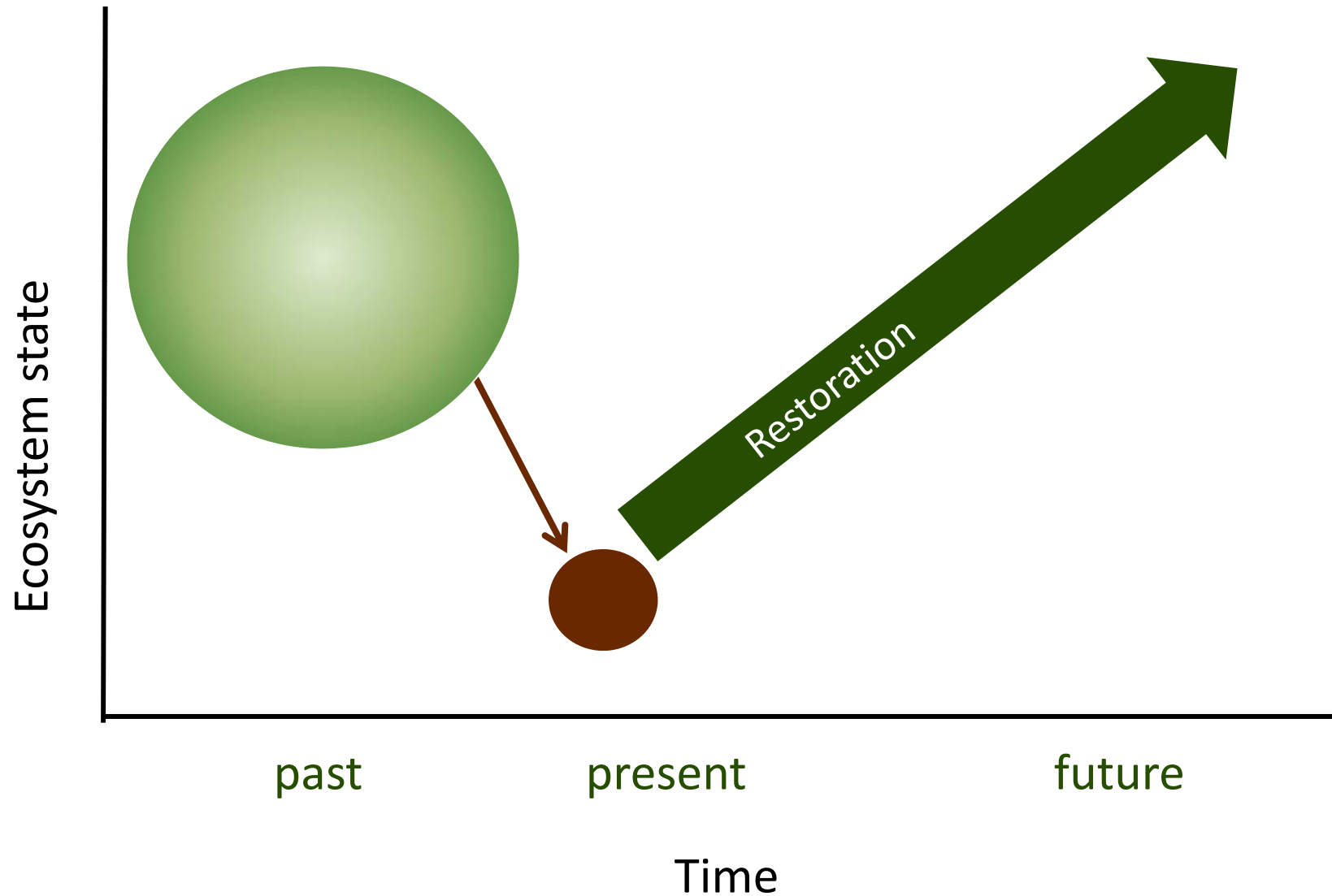
### Disappearing Climates



# Ecological restoration is not about re-establishing historic conditions



...but rather is about re-establishing ecological trajectories

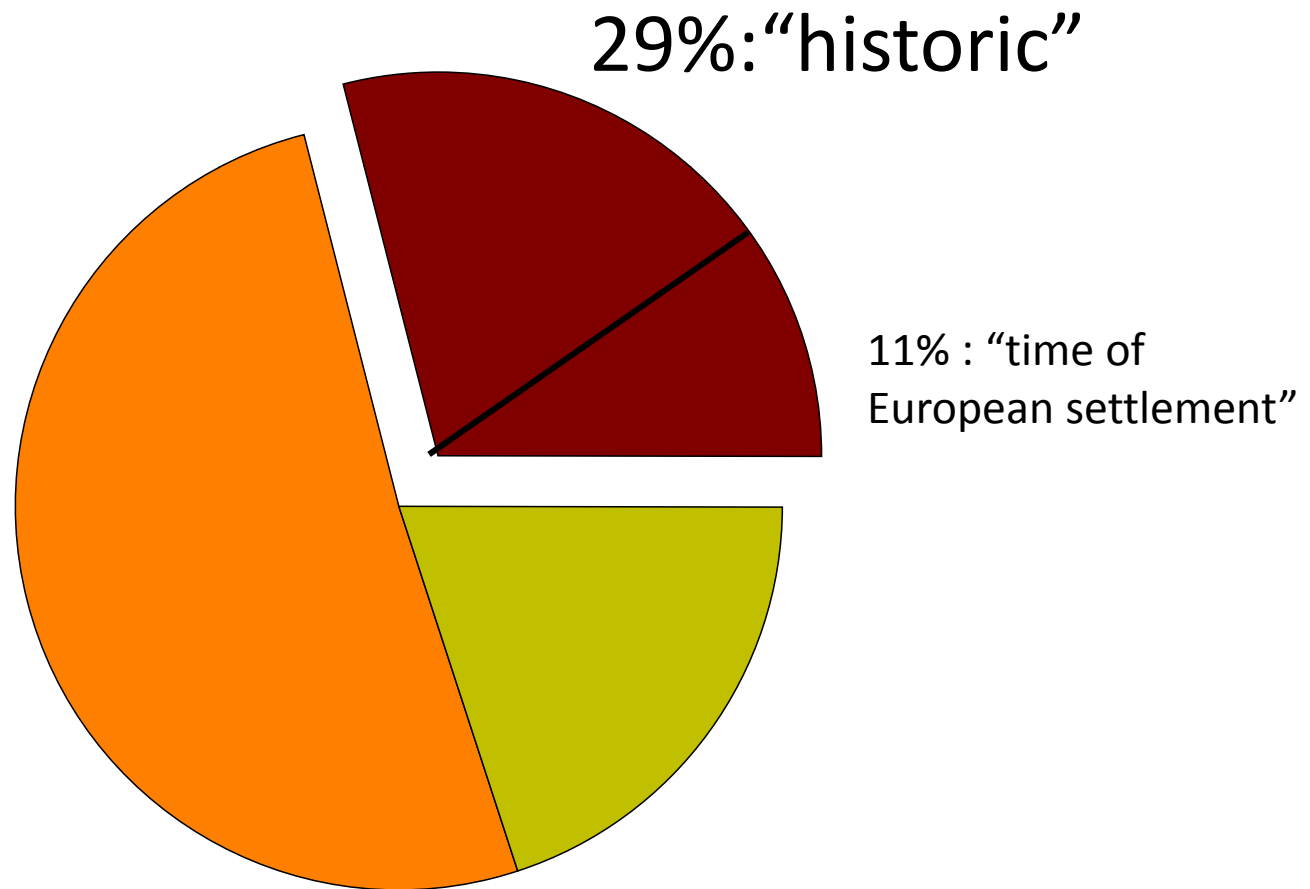


### 3. Evidence that this shift in thinking is becoming mainstream

#### Practitioners

- 75% feel restoration practices should be modified to anticipate climate change
- 65% feel matching historic conditions should not be a goal of restoration

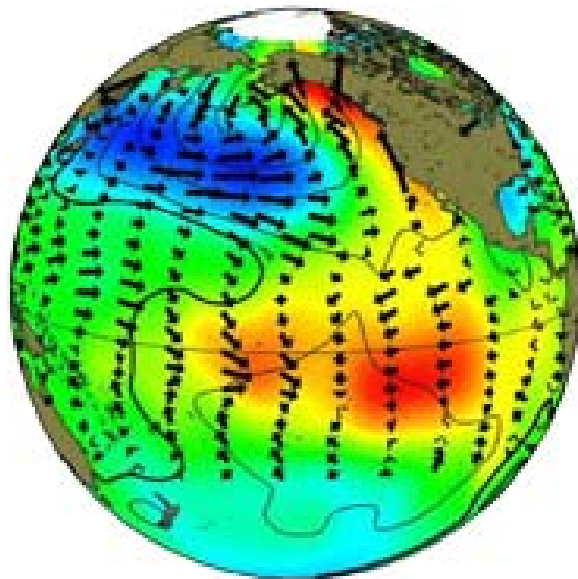
# Students also understand that restoration is not about historic endpoints



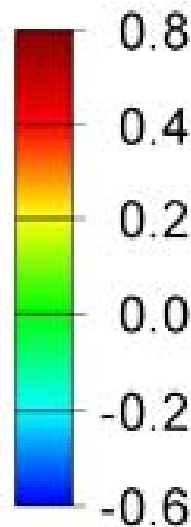
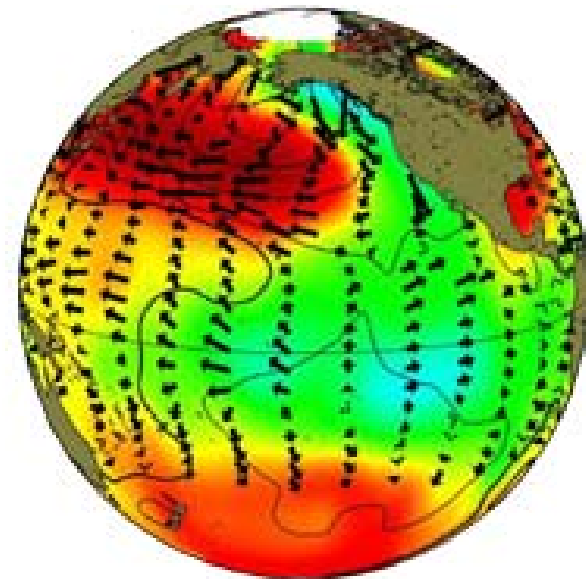
4. As we work in novel ecosystems,  
“..fine(r)-scale variations in climate  
may be key”

### Pacific Decadal Oscillation

positive phase



negative phase



# 5. Bioclimatic envelop will shift for a large numbers of species



## 6. Potential for plants to adapt to novel environments is unknown

*“Adaptive evolution is happening, but predicted to be slower than climate change”*

*“Genetic architecture is key”*



# 7. Need to develop and use tools to assess climate change vulnerability

“Vulnerability to climate change is not the same thing as conservation status”

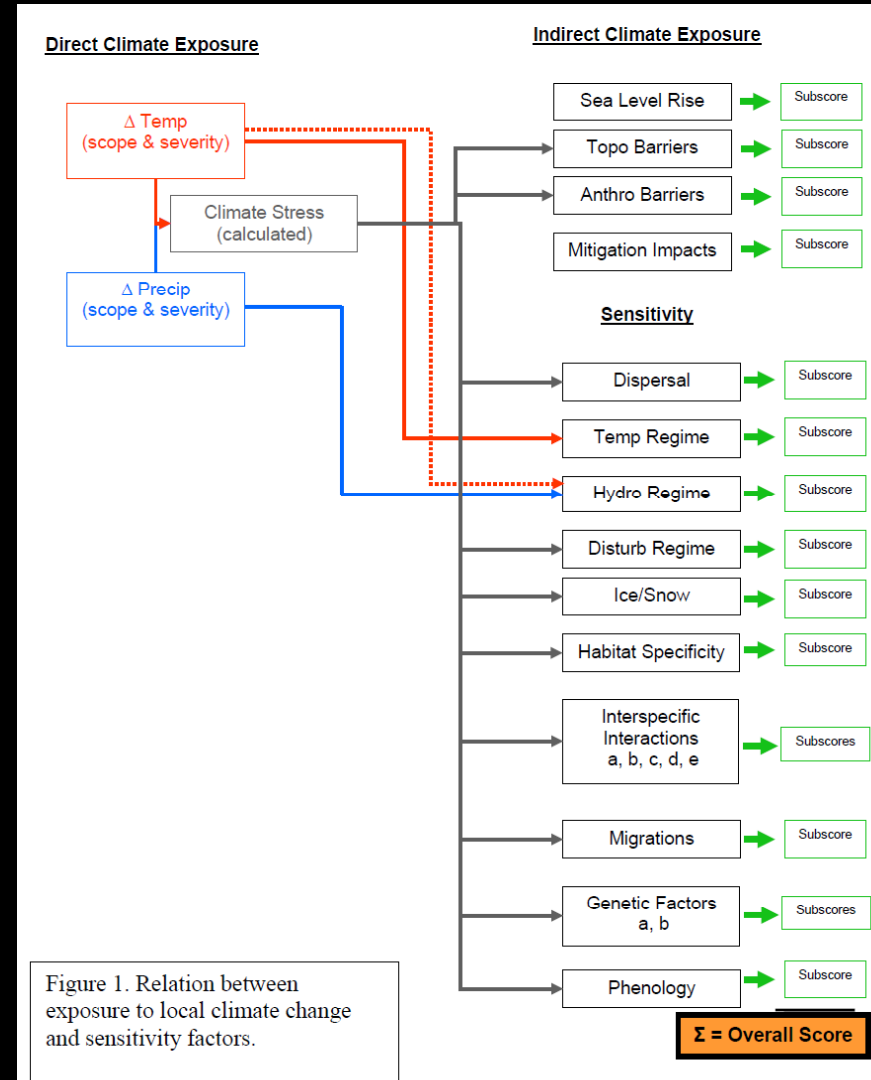


Figure 1. Relation between exposure to local climate change and sensitivity factors.

# 8. Mismatch between climate envelope and land available for plants



## 9. Different opinions about broadening our perspective beyond “local is best”

- People want locally adapted seed
- Need to maintain diverse populations
- Cost

10. There are some principles for which there is general agreement

- Strategies are not yet prescriptive

# Discussion: Revelations and Strategies

What will YOU do now?

