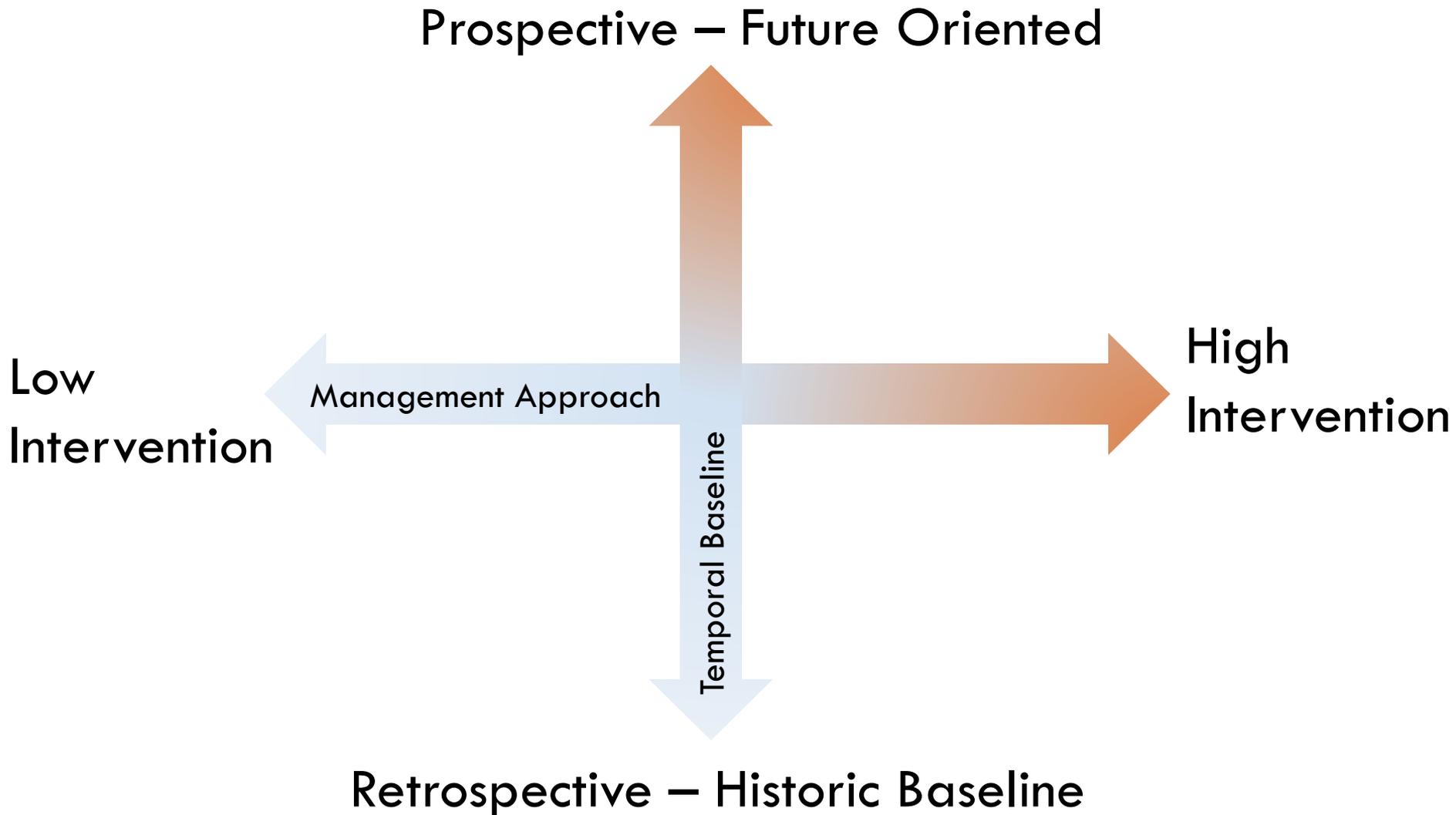


BET-HEDGING ACROSS THE
CONSERVATION NETWORK:
HOW DIVERSE ADAPTATION
STRATEGIES CAN
INCREASE REGIONAL
RESILIENCE

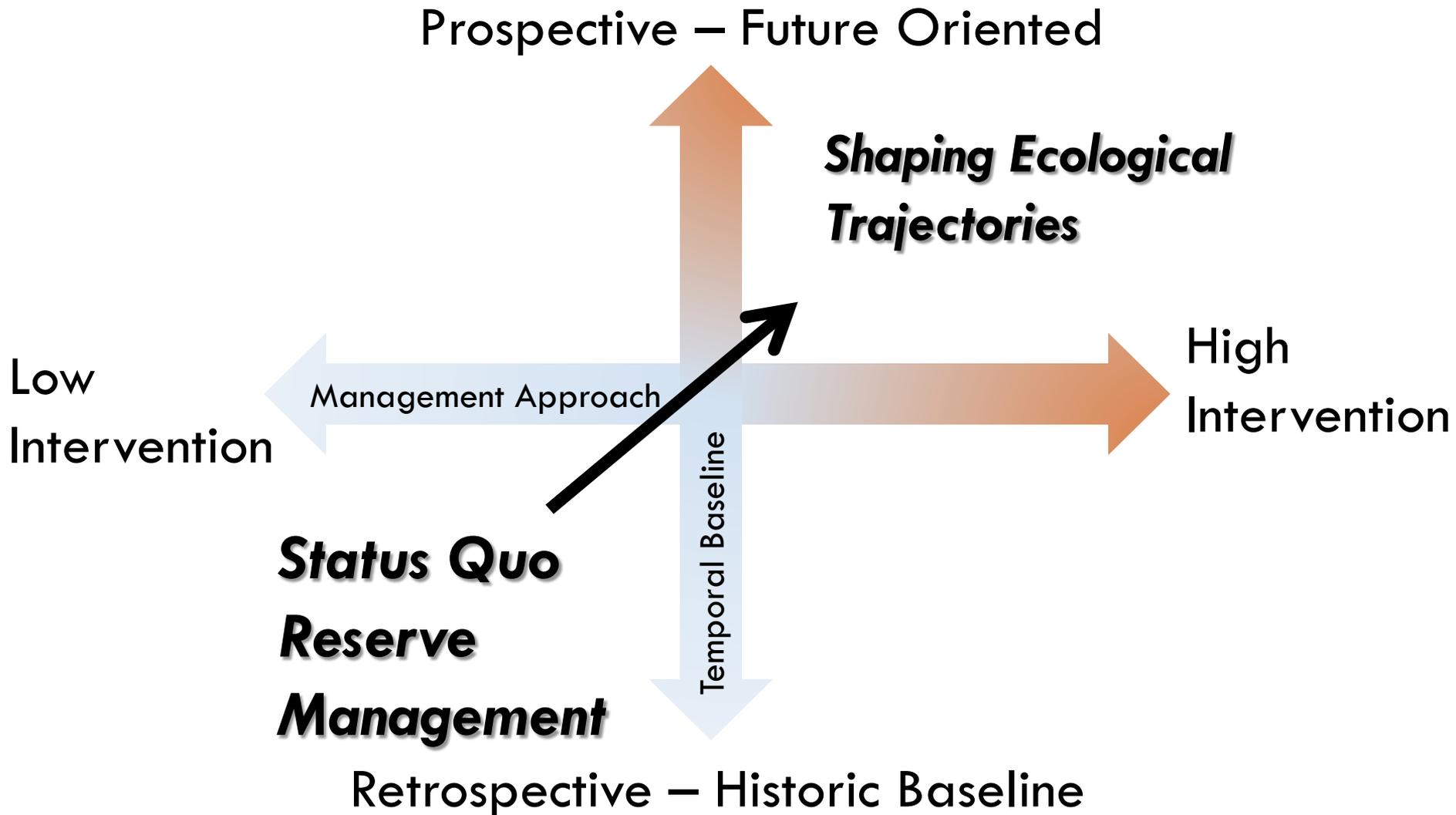


Dawn Magness and John Morton

Adaptation Actions

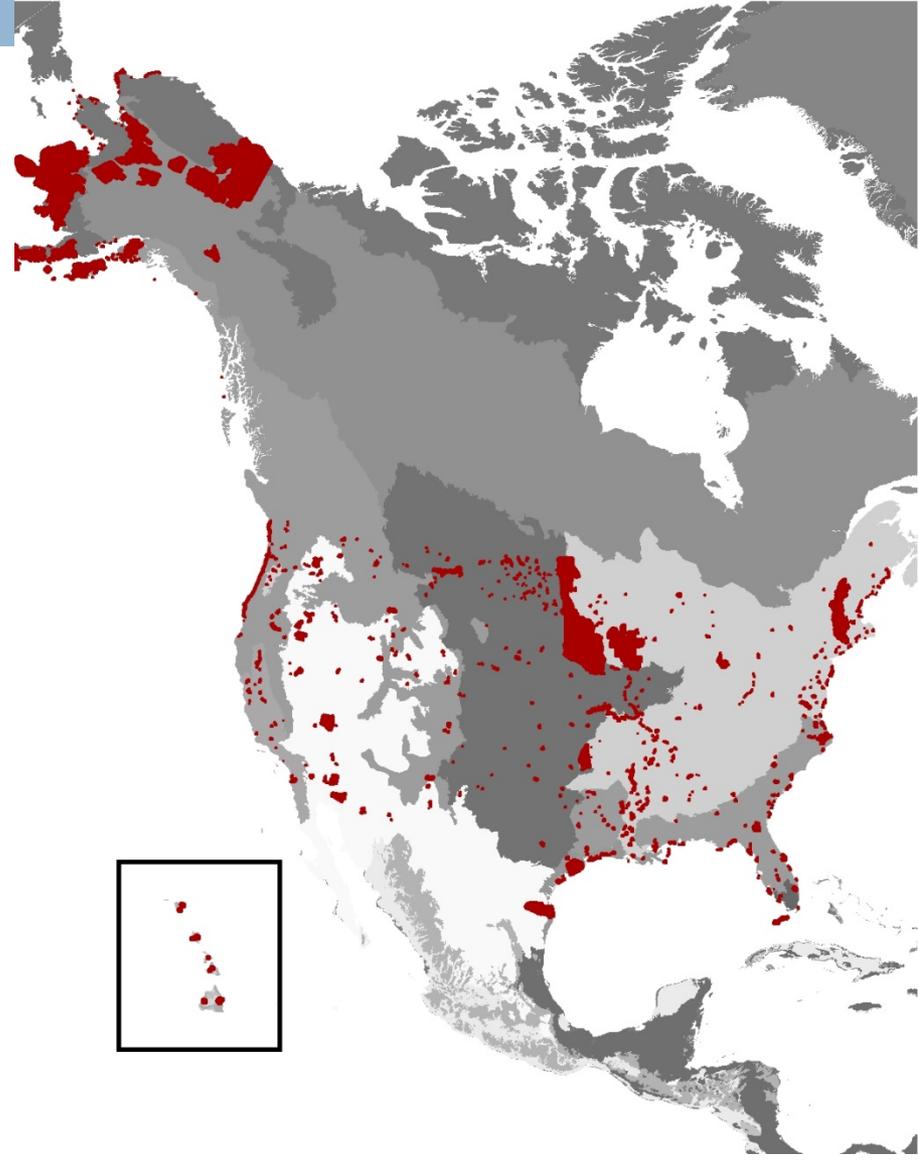


Adaptation Actions



Adaptation Actions: Where and When?

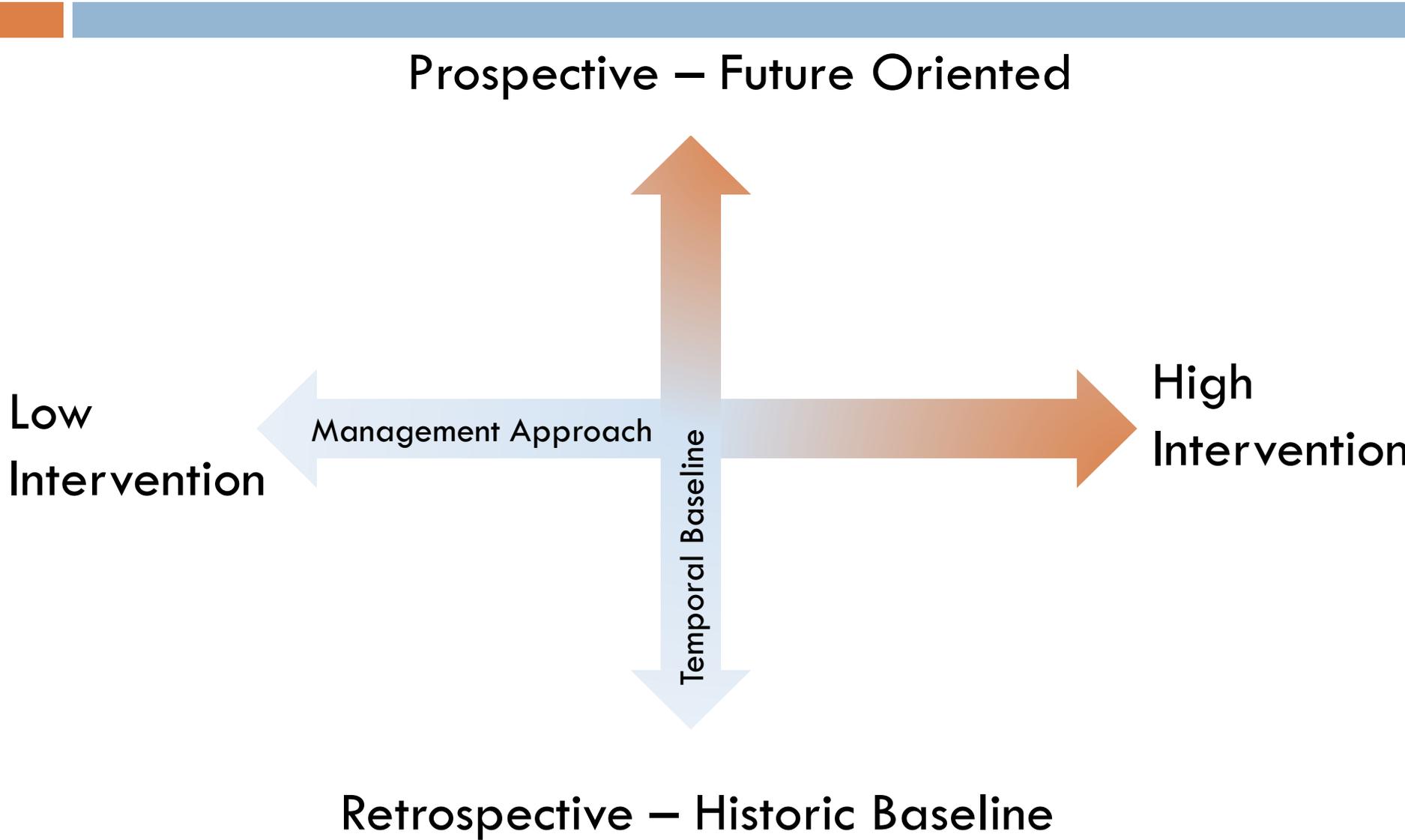
- How can adaptation actions be strategically coordinated across a conservation reserve?
- National Wildlife Refuge System Adaptation Goal
 - Minimize global species extinction



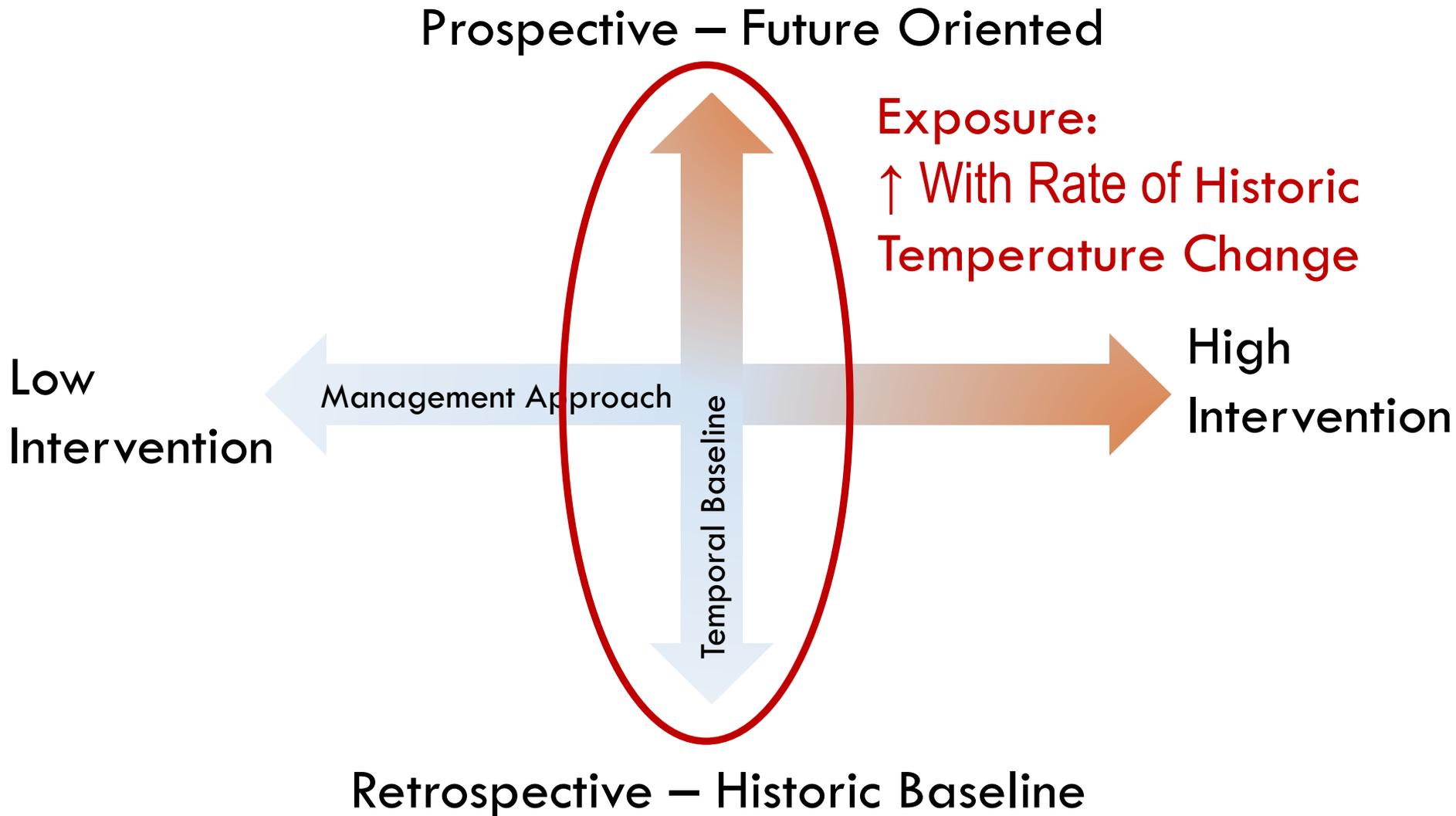
Vulnerability Assessment of NWRS

- Use the **geography of vulnerability** to think about how different refuges could contribute to a System-wide adaptation strategy
 - **Exposure:** *character (e.g. variability, extremes), magnitude, and rate of climate change*
 - **Sensitivity:** *the degree to which a system is affected, either adversely or beneficially, by climate change.*
 - **Adaptive Capacity:** *the ability of a system to adjust to climate change to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.*

Adaptation Actions



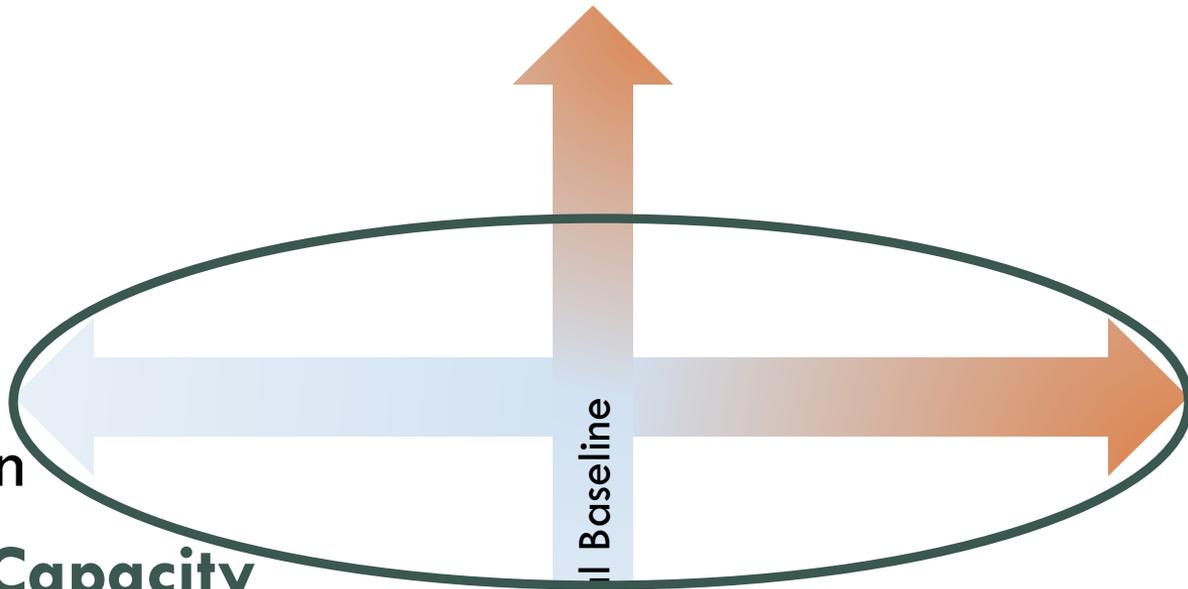
Adaptation Actions Linked to Vulnerability



Adaptation Actions Linked to Vulnerability

Prospective – Future Oriented

Low
Intervention



High
Intervention

Adaptive Capacity

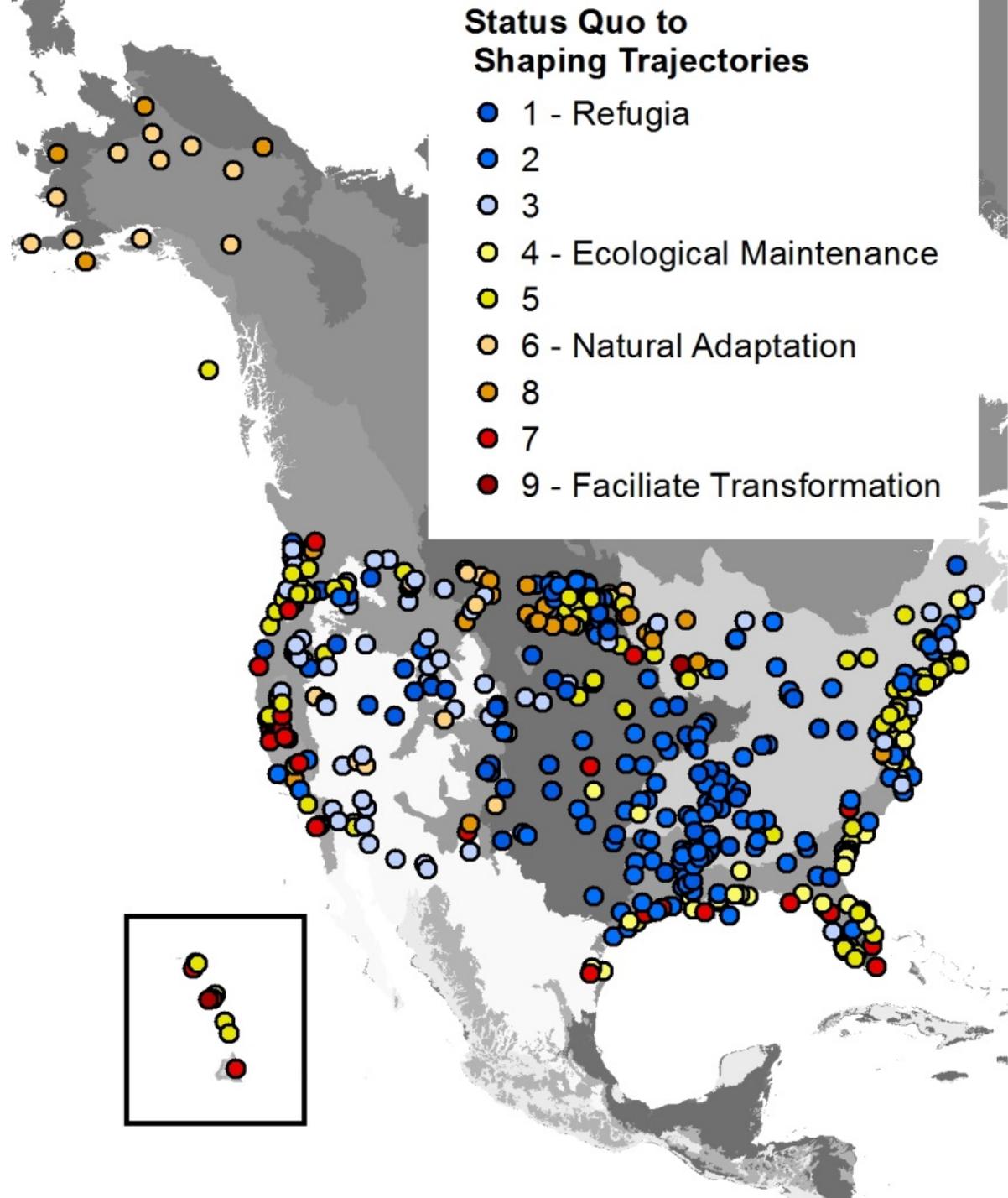
- ↑ with Landscape Connectivity
(Protected Areas; Road Density)
- ↑ With Available Climate
(Latitude, Elevation Range)

Sensitivity

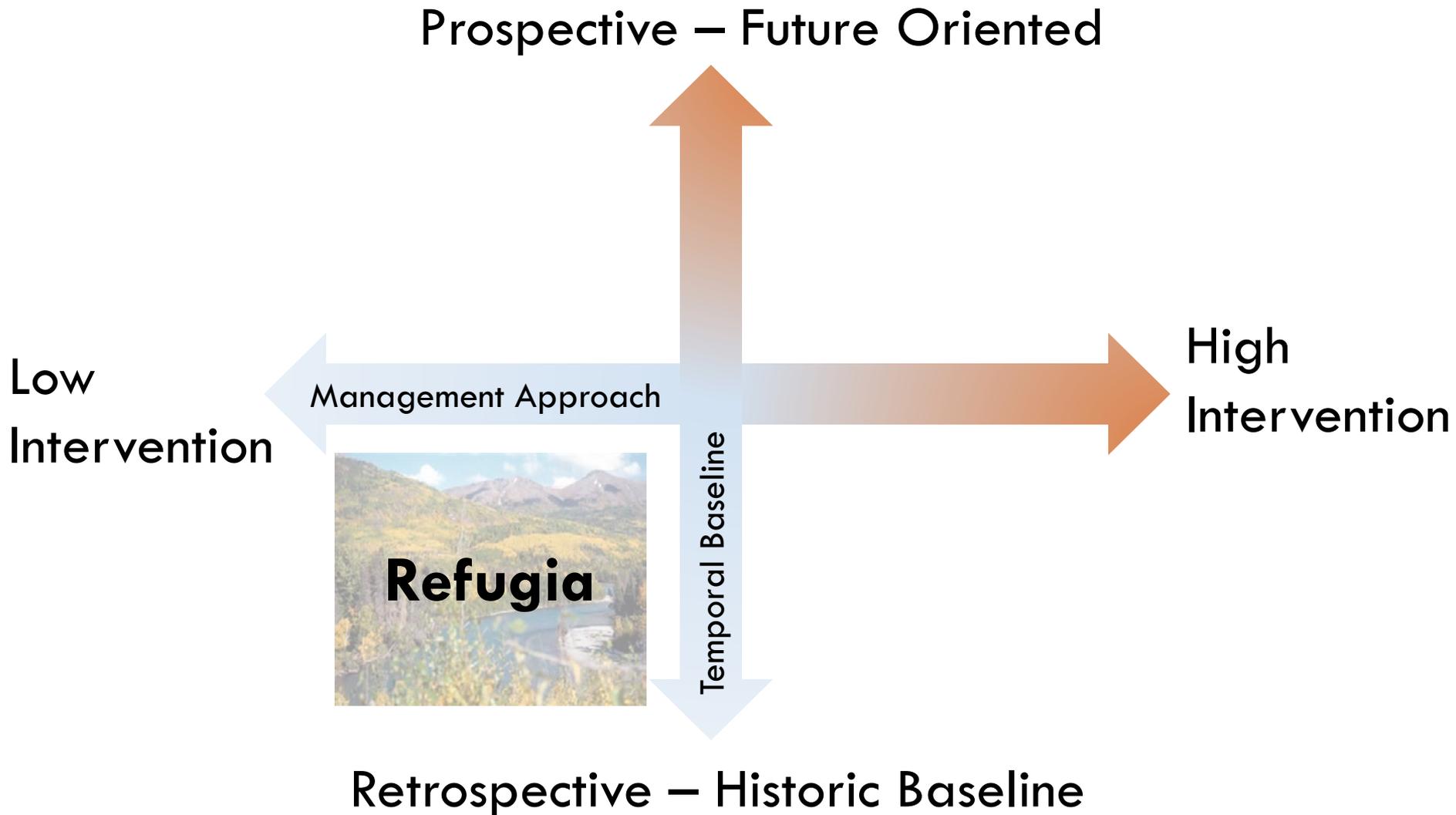
- ↑ T&E Critical Habitat
- ↑ on Biome Edges

Retrospective – Historic Baseline

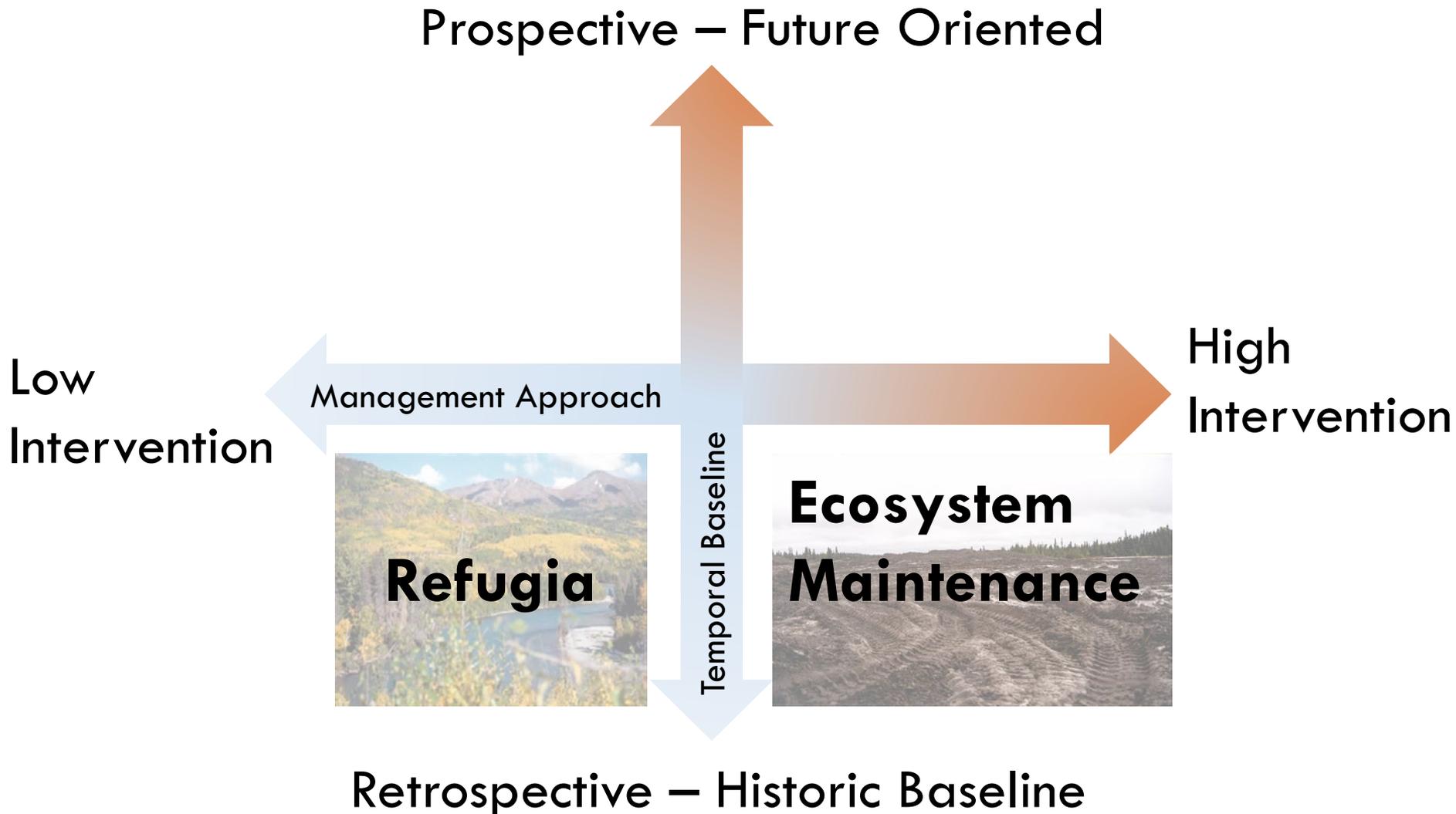
The geography of vulnerability can be used to inform adaptation strategies



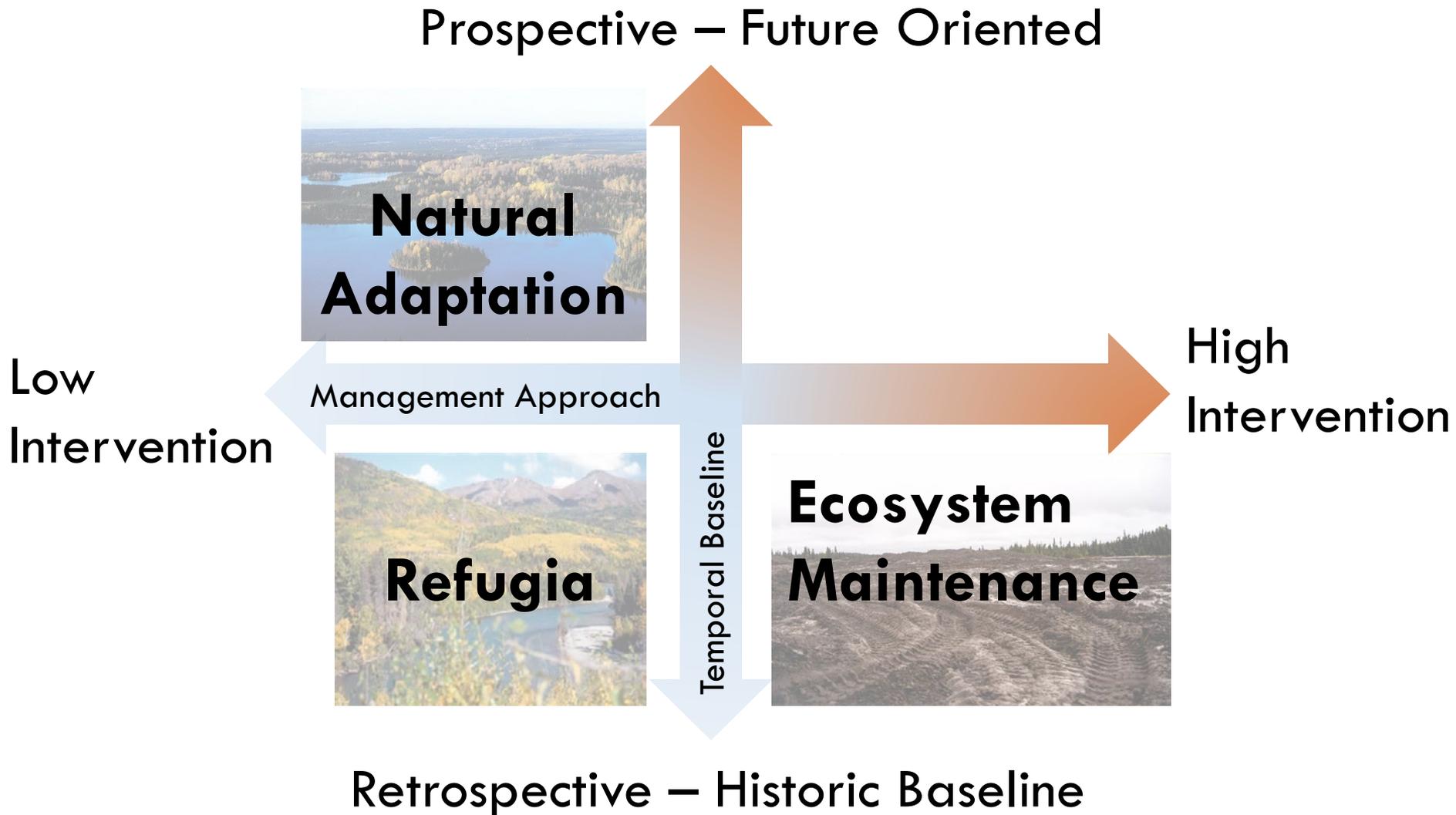
Individual Refuges Have Different Functions in Conservation Network



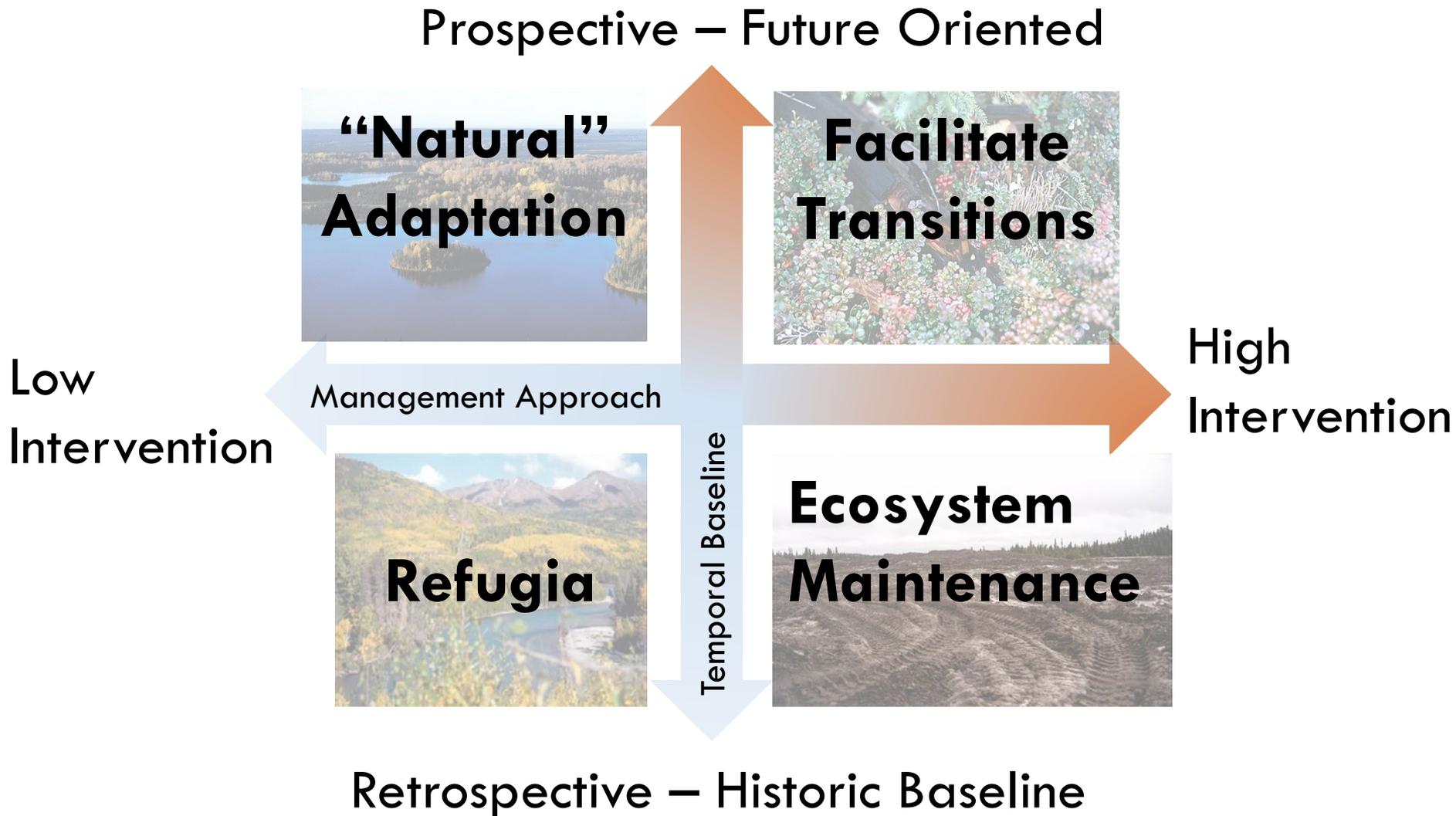
Individual Refuges Have Different Functions in Conservation Network



Individual Refuges Have Different Functions in Conservation Network

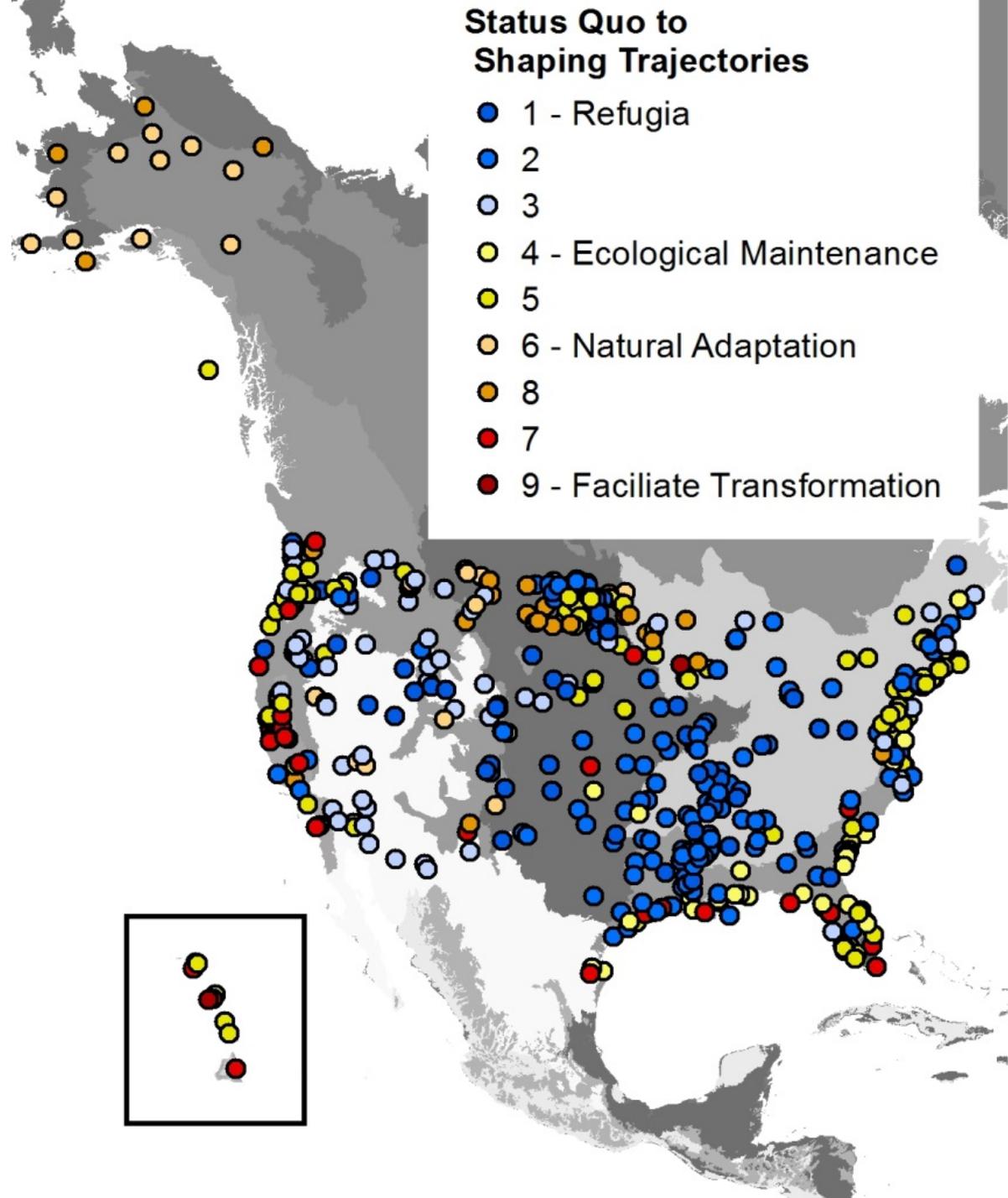


Individual Refuges Have Different Functions in Conservation Network



Different
adaptation
strategies across
a landscape
diversifies the
portfolio

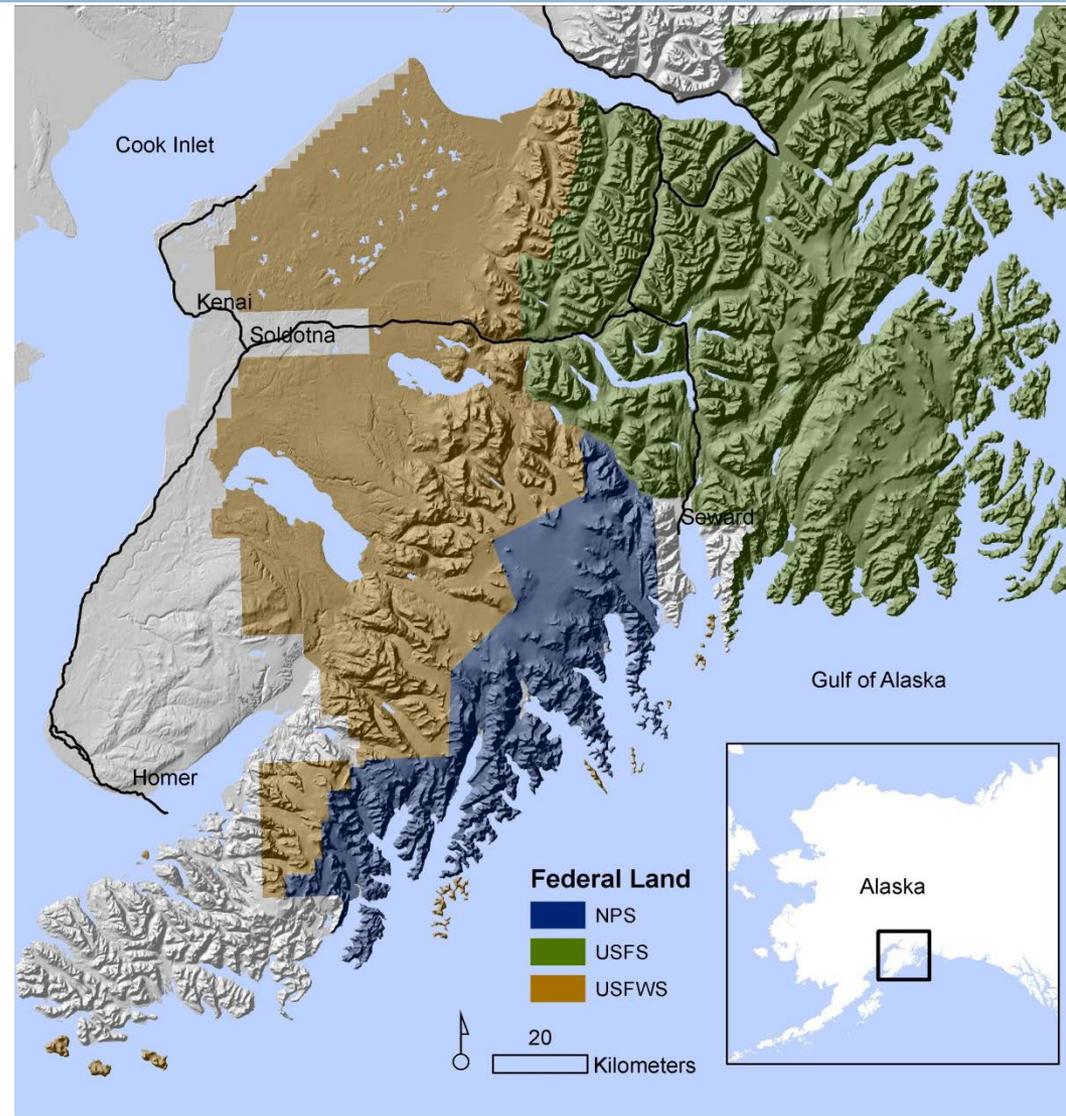
- Spreads Risk
- Maintains
Diversity
(Opportunity)



Diversity in Adaptation Strategies

Based on other factors:

- Agency mission
- Stakeholder Values
- Single Species



Thanks

Magness et al. 2011. A climate-change adaptation framework to reduce continental-scale vulnerability across conservation reserves. *Ecosphere* 2: art112

