
Approaches to
Biodiversity Conservation
Planning
NatureServe
A Network Connecting Science With Conservation
Pat Comer
Patrick Crist

Transportation Planning: paradigm shifts

"… the avoidance, minimization, and mitigation efforts used may not always provide the greatest environmental benefit, or may do very little to promote ecosystem sustainability."

Eco-Logical: An Ecosystem Approach to Infrastructure Projects

Biodiversity Conservation Planning: paradigm shifts

"… we protect the last of the least, and the best of the rest."

Often heard adage among staff of The Nature Conservancy throughout the 1980s and early 1990s

Systematic Biodiversity Conservation Planning

Seems like everyone is doing it!

- The Nature Conservancy - Ecoregional Conservation Plans & Conservation Action Plans
- State Comprehensive Wildlife Conservation Strategies
- Bird Conservation Region and Joint Venture plans
- GAP Analysis Projects
- Forest Products Industry
- National Wildlife Refuges
- And many, many others

The process and products need to be…

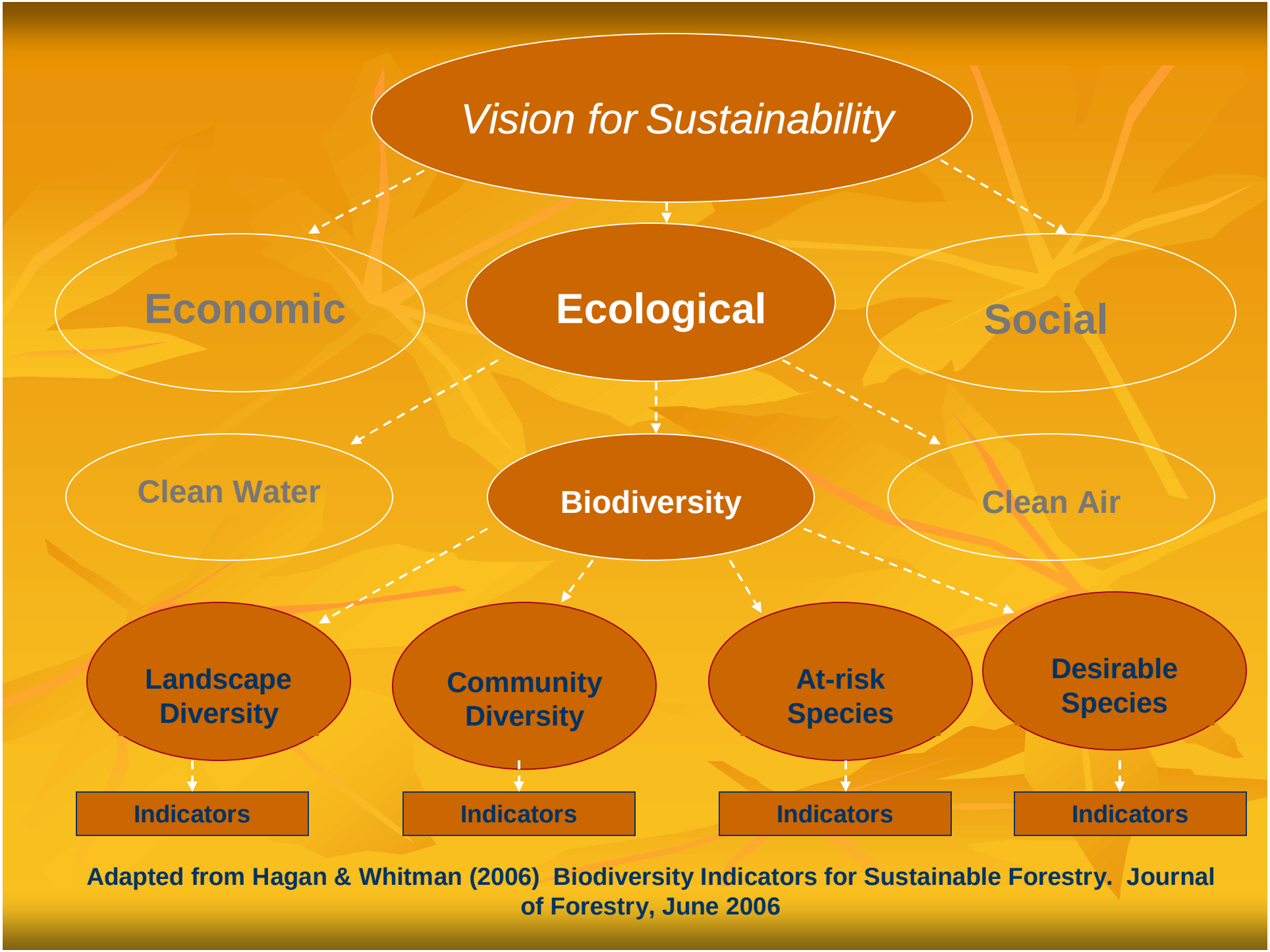
- Transparent
- Measurable
- Actionable
- 'Bulletproof'
  - Scientific Literature
  - Expert Knowledge
  - Partner Consensus

Government

Industry

Conservation NGOs

Adaptive Conservation



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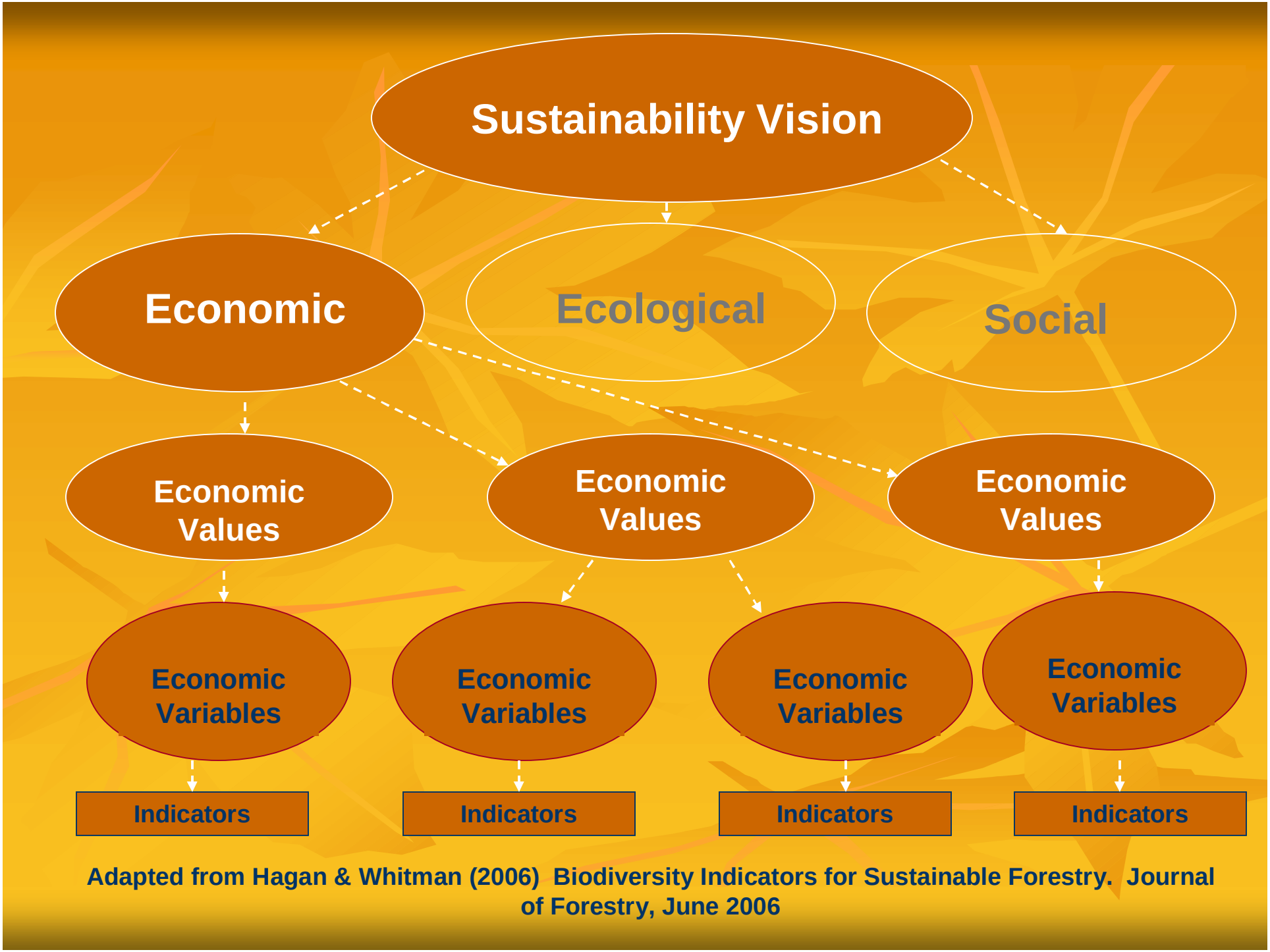

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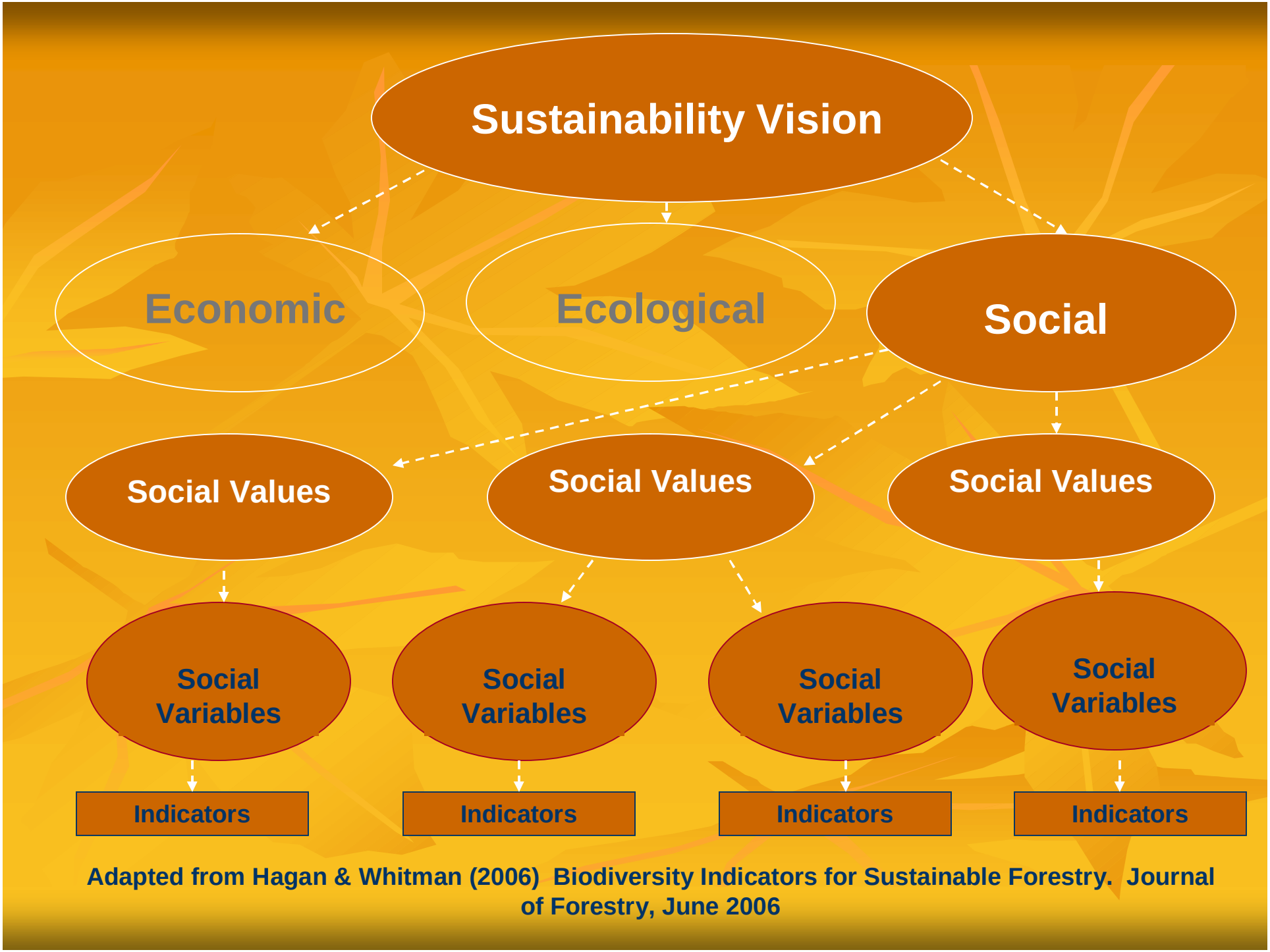

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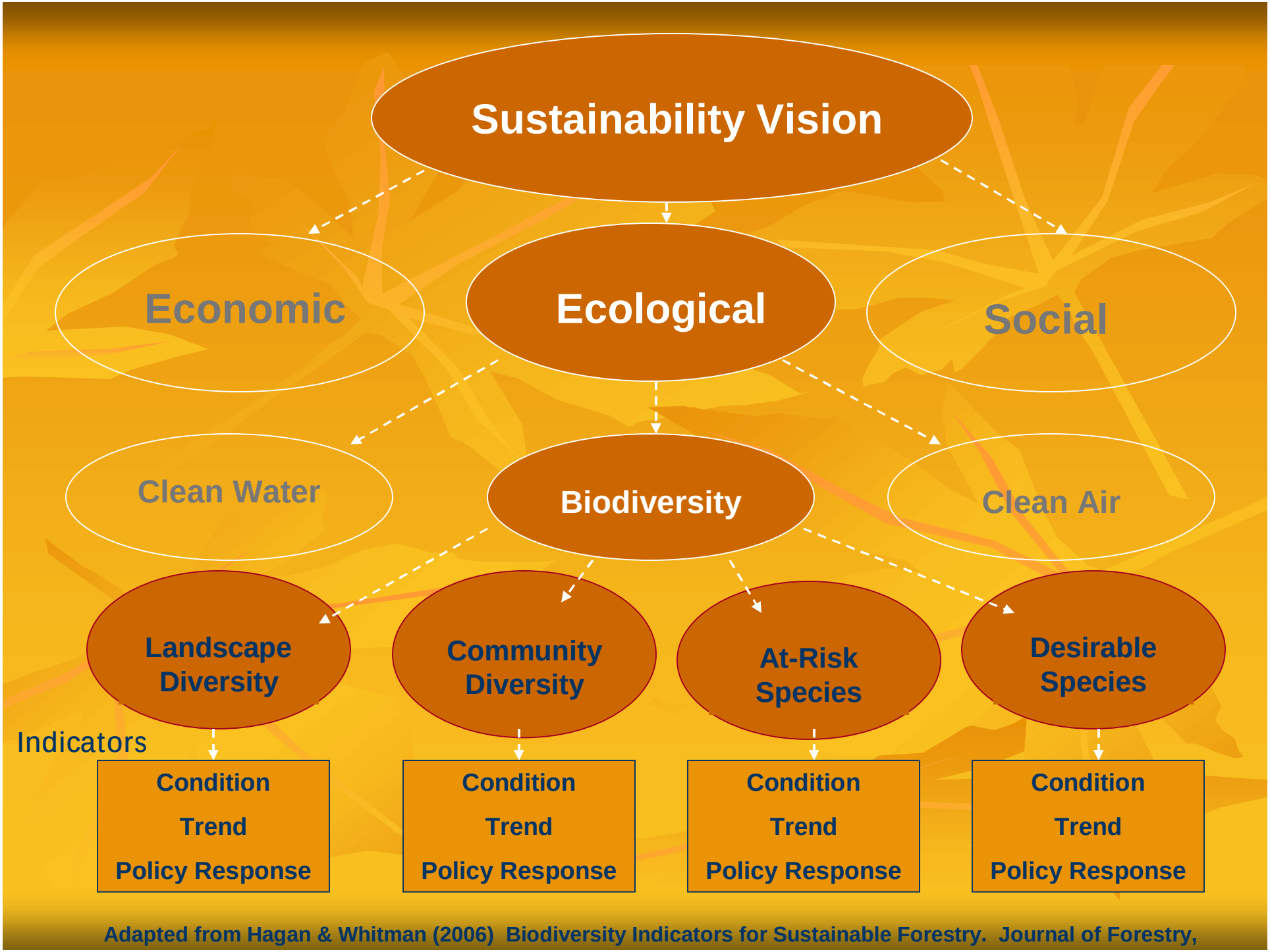

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Analysis at Multiple Spatial Scales

- Regional-scale (e.g., habitat representation throughout the Colorado Plateau ecoregion)
- Public/Private Land Planning Unit (e.g., management emphasis on the Gila National Forest)
- Local Landscape (e.g., multiple habitat patches within a proposed project area)
- Individual Habitat Patch (e.g., one wetland or species habitat patch of conservation concern)

10 Common Steps in Planning

- WHAT IS THE PLANNING AREA?
- WHAT ECOSYSTEMS AND SPECIES REQUIRE CONSIDERATION?
- WHERE ARE THEY?

- WHAT ARE REFERENCE CONDITIONS?
- WHAT ARE CURRENT CONDITIONS?
- WHAT ARE THE TRENDS AMONG THOSE CONDITIONS?
- WHAT ARE DESIRED CONDITIONS?

- WHAT STRATEGIES WILL MOVE US TOWARD DESIRED CONDITIONS?
- WHAT ARE EXPECTED OUTCOMES FROM IMPLEMENTING STRATEGIES?
- HOW WILL WE MONITOR AND EVALUATE OUR IMPLEMENTATION?

Ecoregions of the Southwest

Conservation Elements

Providing Focus for Ecological Sustainability

- **Species Diversity**

  Species of Concern
  - ESA proposed, candidates, petitioned
  - G1-G3 (T1-T3) NatureServe status
  - May include distinct populations

  Species of Interest
  - S1-S2 NatureServe status
  - Other T/E not captured above
  - UAFWS birds of concern
  - Regional/local concern
  - Other public interest requiring plan components





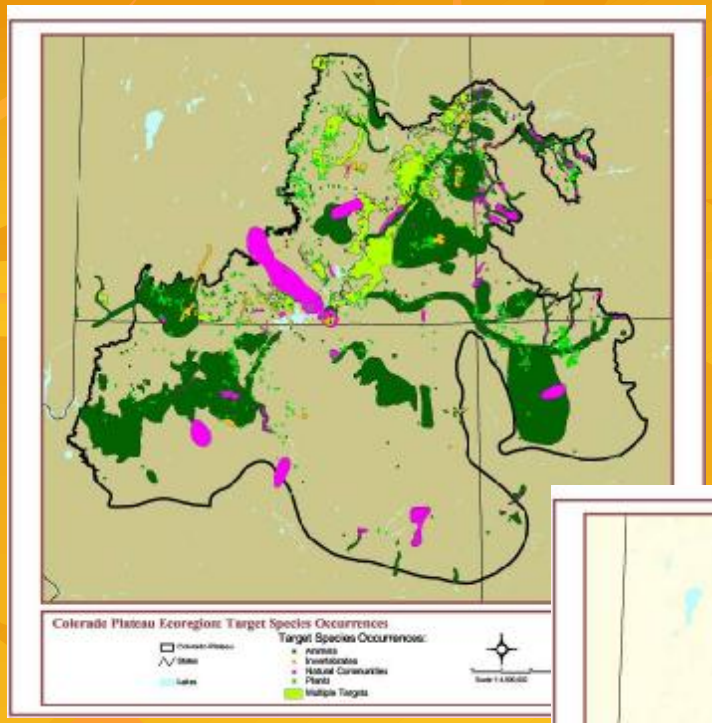


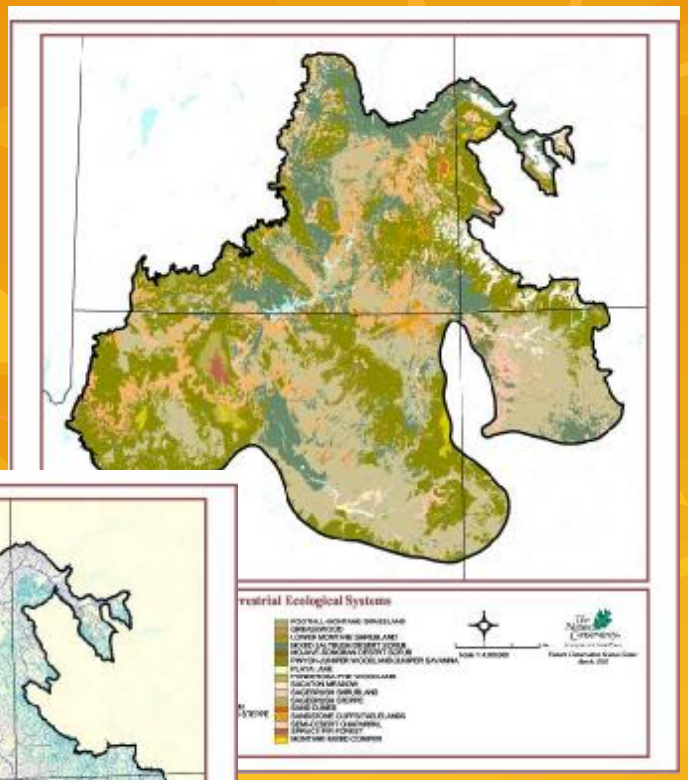
- **Ecosystem Diversity**

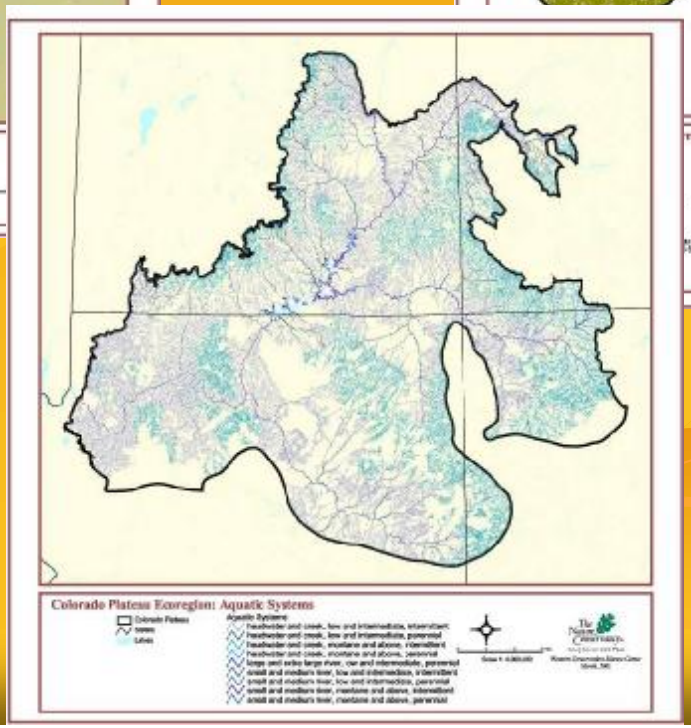
  Representative ecosystem types

  Vegetation types and structural stages

Mapping Biodiversity







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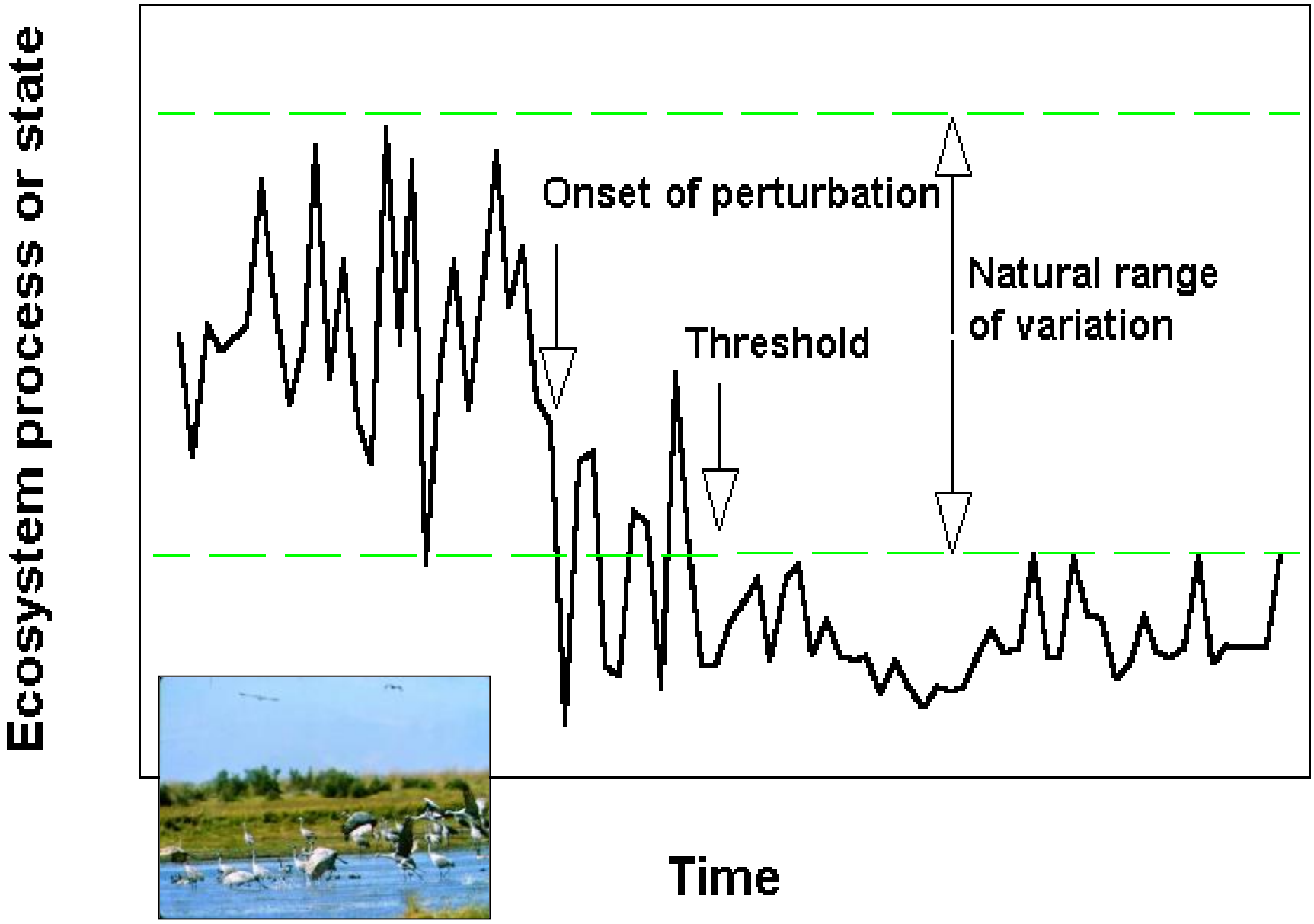
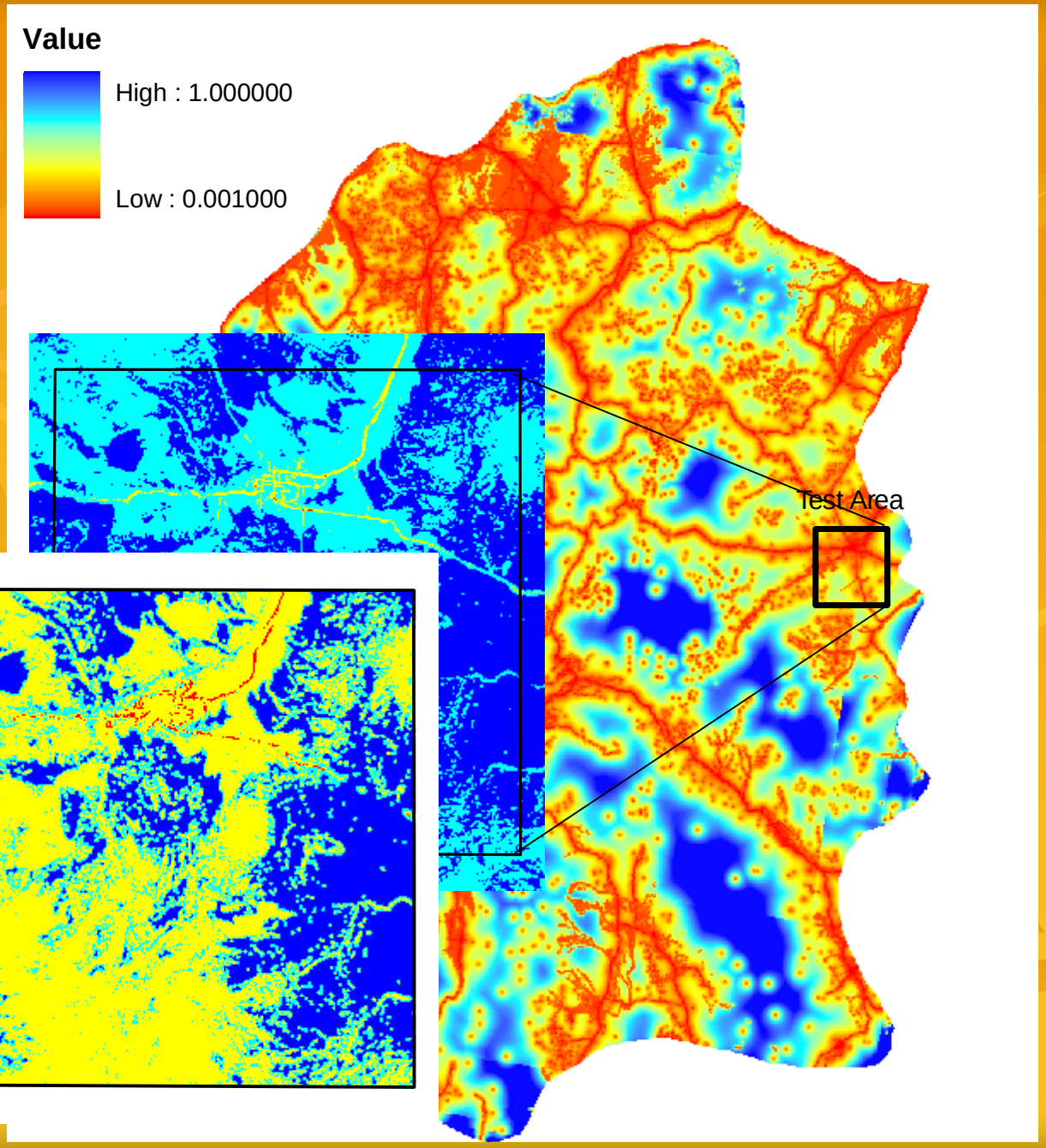
Variability in Nature



Modeling Landscape Condition for Wildlife



Stating Desired Conditions

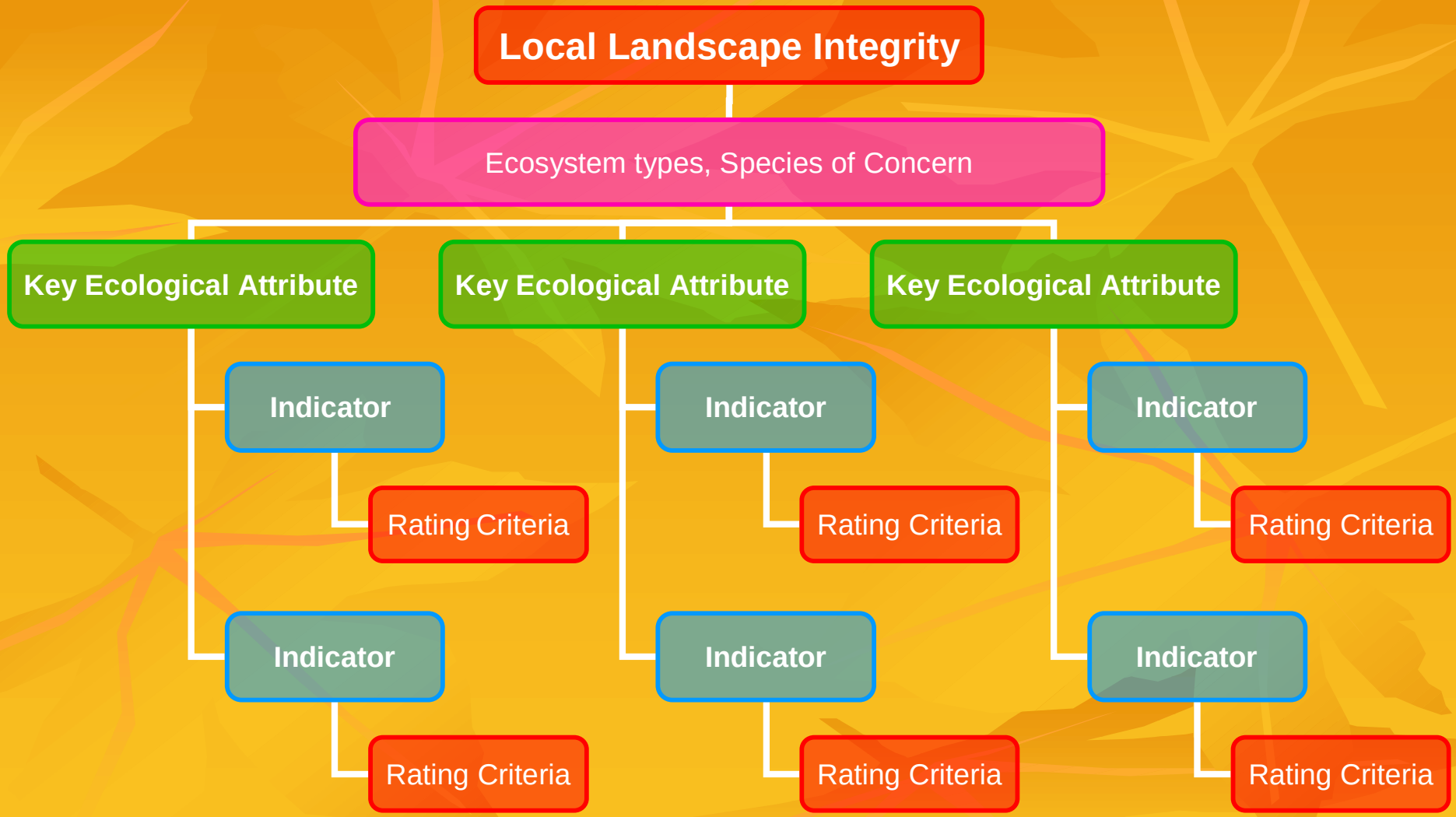
"Avoid High Value Places"

"No Net Loss"

Representation Goals as measurable expressions of societal values.

(e.g., "secure 25 discrete sub-populations of size j for species X, distributed across the ecoregions A, B, and C...")

Conditions at a Local Scales



Key Ecological Attribute	Indicator	Indicator Description	Rating Criteria						
			Poor	Fair	Good	Very Good	Current Value	Current Rank	Desired Condtiions
Fire Regime	Fire Frequency	Average percent of ecosystem acreage burned within last 7 years.	<25	25-50	51-75	>75	44	Fair	Objective: Burn at least 50% of oak woodland acreage on no more than 7 yr return interval. Design Criteria: Allow at least 2 years between burns in oak woodland.
	Fire Season/ Intensity	Percent of burned areas burned during either March/April or Aug/Sept	<25	25-50	51-75	>75	71	Good	Objective: Burn at least 50% of oak woodland burned acreage during the growing season.
Undestory Develop-ment	Native Herba-ceous Cover	Percent of ecosystem acreage with > 70% ground cover in native grass/forbs	<25	25-50	51-75	>75	20	Poor	DC: "Ground cover in oak woodlands is dominated by native grasses and forbs; the woody component of ground cover is scattered and subordinate."
Vegetation Structure	Canopy Closure	Percent of ecosystem acreage with canopy closure of 10-60%	<25	25-50	51-75	>75	83	Very Good	DC: "Oak woodlands have canopy closure ranging from 10-60 percent.

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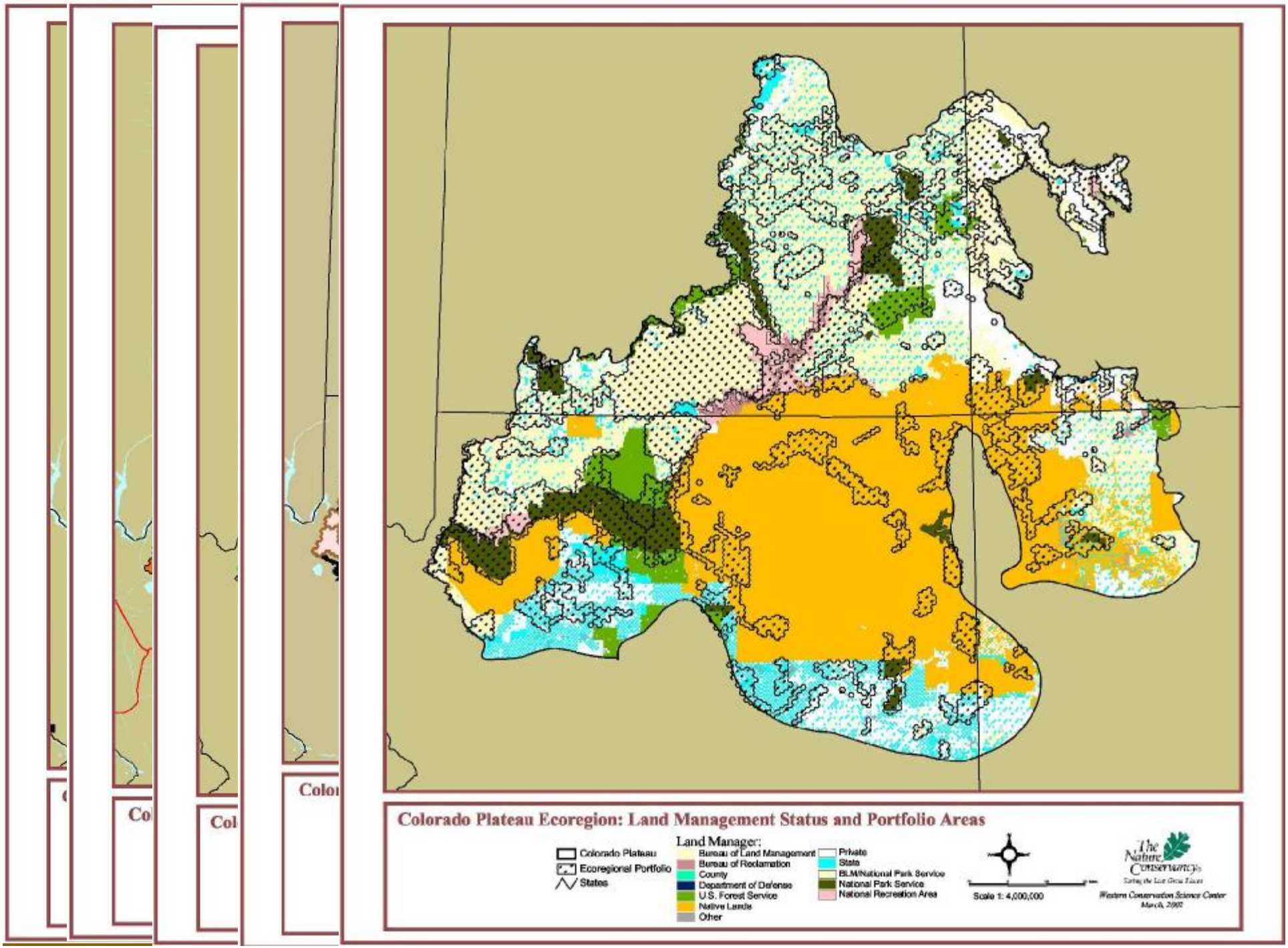

Colorado Plateau Ecoregion: Land Management Status and Portfolio Areas
Land Manager:
Colorado Plateau
Ecoregional Portfolio
States
Bureau of Land Management
Bureau of Reclamation
County
Department of Defense
U.S. Forest Service
Native Lands
Other
Private
State
BLM/National Park Service
National Park Service
National Recreation Area
Scale 1: 4,000,000
The Nature Conservancy
Western Conservation Science Center
March, 2002

NatureServe

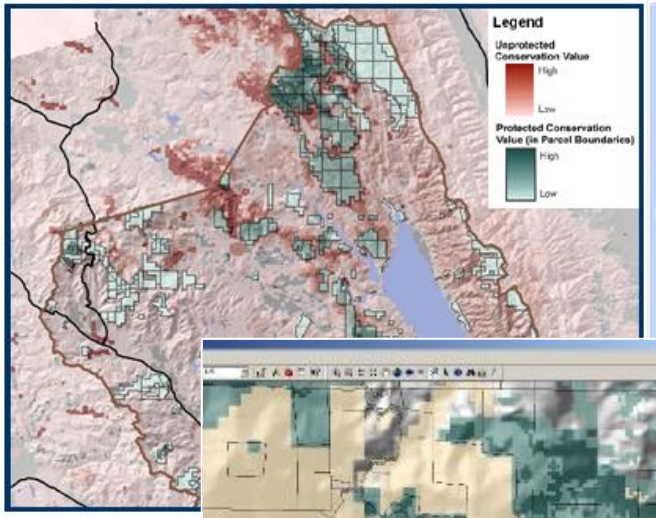
A Network Connecting Science With Conservation

NatureServe

VISTA

Analysis:

Existing Protected Areas Evaluation



Settings

Scenario	Existing Protected Areas
Goals	Default
Filter	Community-defined Elements

Results:

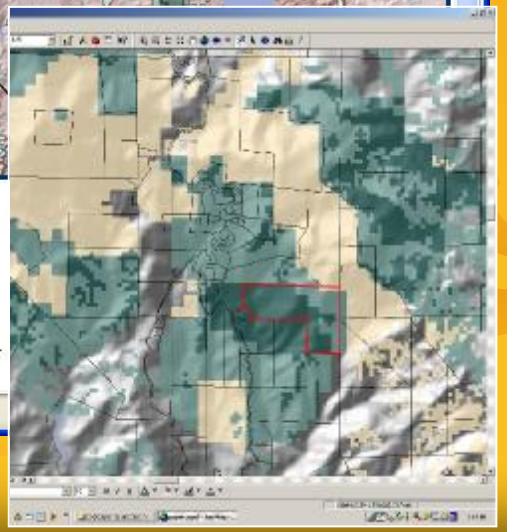
Summary

Scenario meets 4 of 21 element conservation goals

Details:

Element	Existing	Protection Goal
Jepson's linanthus	2 occ. in 21.3 acres	90% of all occ.
Calistoga ceanothus	5 occ. in 63.8 acres	80% of all occ.
Soft bird's-beak	16 occ. in 31 acres	70 % of all occ.
Sonoma ceanothus	23 occ. in 21.3 acres	40% of all occ.

Done




What Are We Aiming For?
•Common Planning Framework
•Common Library
•Standard Tools