Connecticut River Watershed Initiative

Connecticut River Watershed Initiative

- How it came about
- What is the concept?
- What is the near-term process?

How it came about

- 1992-2002 University of Oregon 'CLAMS'
- 1998 UMass proposal to NSF 'Biocomplexity'
- 2001 Chip Groat visits UMass
- 2002 - Oct: Nicholson, McComb develop Prospectus
- 2002 - Dec: Mabee, Rideout, UMass team – USGS/UMASS
- 2003 - Jan USGS Coastal Ecosystems Workshop
- 2003 - Mar: Congressman Olver request
- 2003 - Mar: USGS Integrated science proposal
- 2003 - May USGS/FWS Watershed Assessment JV

No shortage of good initiatives

- FWS Conte Refuge Plan
- Pioneer Valley Planning Commission CT R Strategic Plan
- Center for Economic Development
- CT River Joint Commission
- Connecticut River Watershed Council
- Long Isl. Sound Stewardship System
- LTHO (NSF)
- Airshed-Watershed Consortium
- CT Valley Urban Areas Project
- CT River Ecological Study

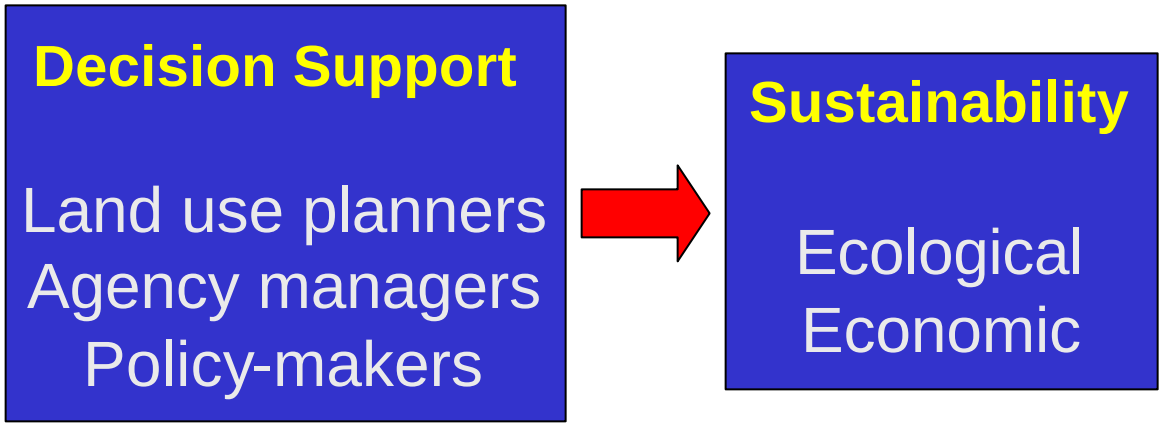
But generally short on coordination…
And integrated scientifically based DSS

A gradually emerging vision

- Understand holistically the consequences of land planning decisions and ecological management actions
- Seek to plan *Proactively* vs. *Reactively*
  - Future scenarios:
    - expected outcomes?
    - desired state? success in moving toward it?
  - Sustainability of the watershed system
    - social,
    - ecological,
    - hydrological,
    - geochemical

A gradually emerging vision

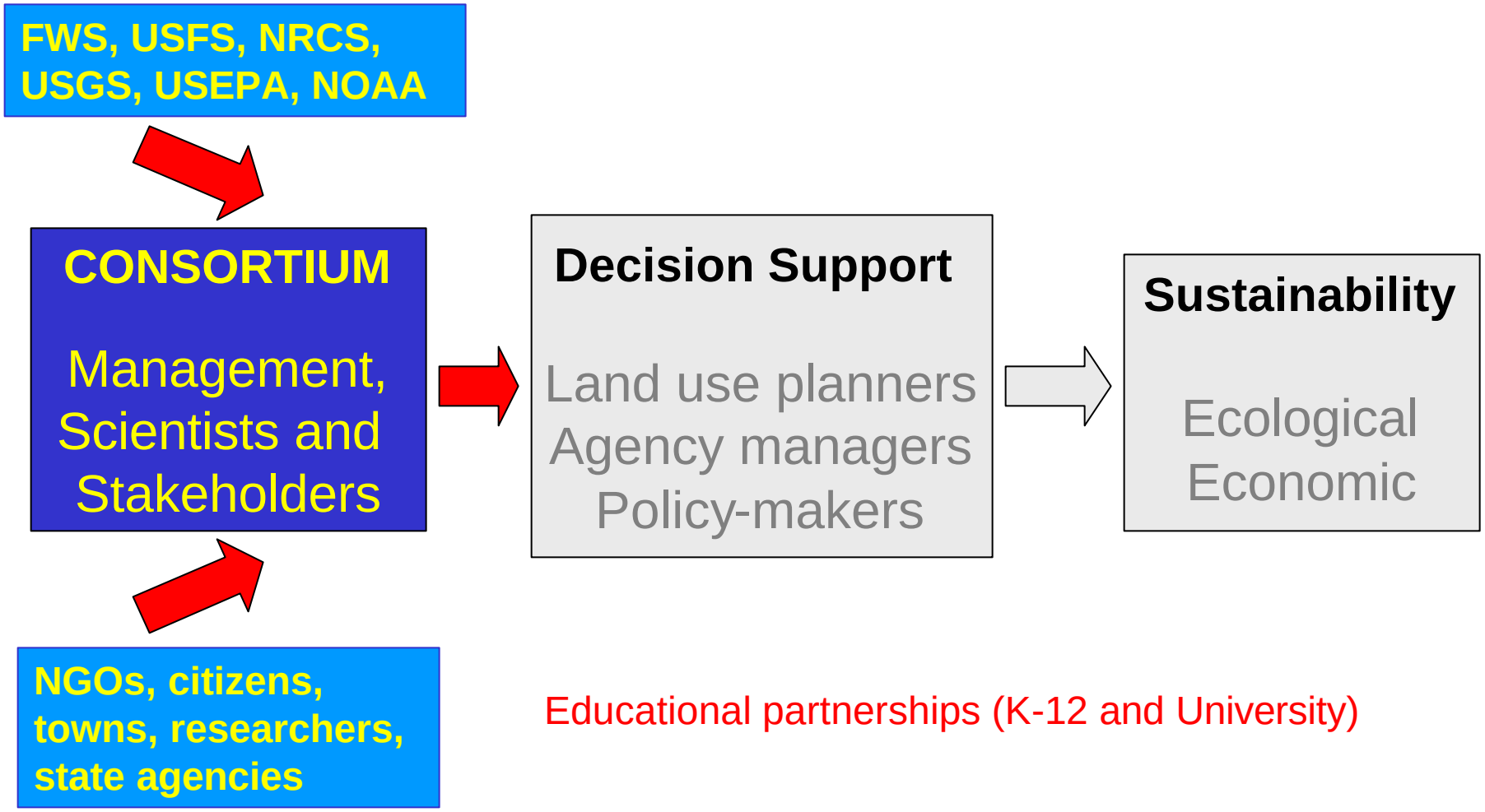
- Sustainability won't happen without good scientifically informed support to decision-makers



A gradually emerging vision

- And it can only be achieved with a broad consortium of well-integrated partnerships

A gradually emerging vision



Educational partnerships (K-12 and University)

How might this process work?

1. Characterize status and trends in the watershed

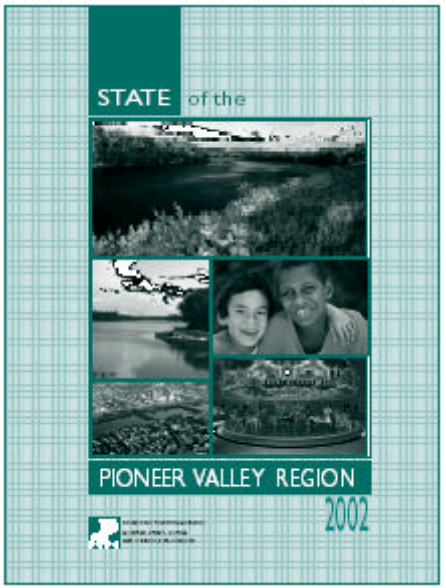
2. Identify and understand the critical processes
3. Assess alternative futures for the valley

1. Characterize watershed status and trends

a. Indicators
b. Existing datasets
c. Management options
d. Stakeholder involvement

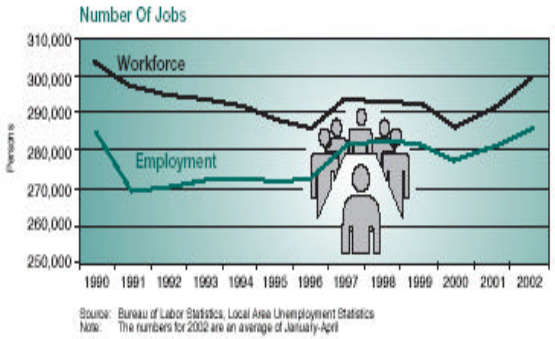
1a. Indicators

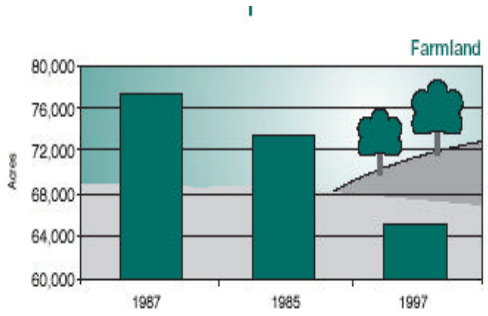
- Pioneer Valley Planning Commission
- Periodic “State of the Region” report
- Holistic list of more than 40 indicators



http://www.pvpc.org/docs/info/sor2002.pdf

Two examples: Jobs, and Acres of Farmland





1a. Indicators cont'd

- Paul Pajak (FWS Northeast Region Office)
- Framework for selecting sustainability indicators:
  - Environment
  - People
  - Institutions

See: Pajak, P (2000). Sustainability, Ecosystem Management, and Indicators: Thinking Globally and Acting Locally in the 21st Century. *Fisheries* 25(12):16-30

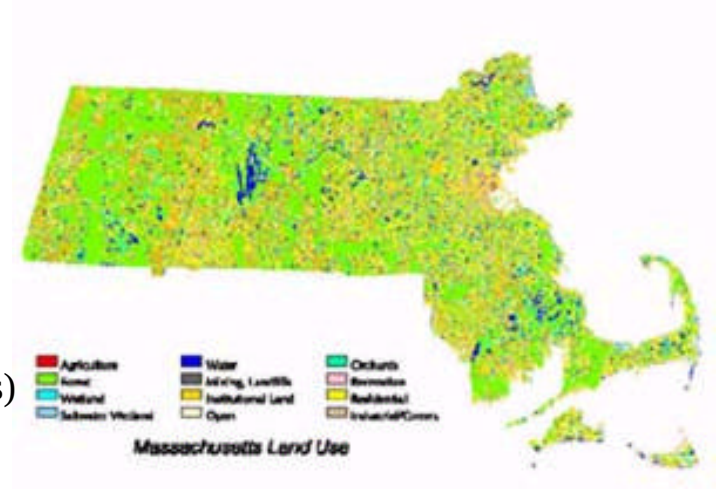
1b. Existing datasets

- Examples:
  - MassGIS Digitized Landuse/Land Cover (1970, 1985, 1999)
  - USGS Streamflow gauging
  - PVPC Socio-economic data and census analysis
  - CRASC Status of Anadromous Fish runs

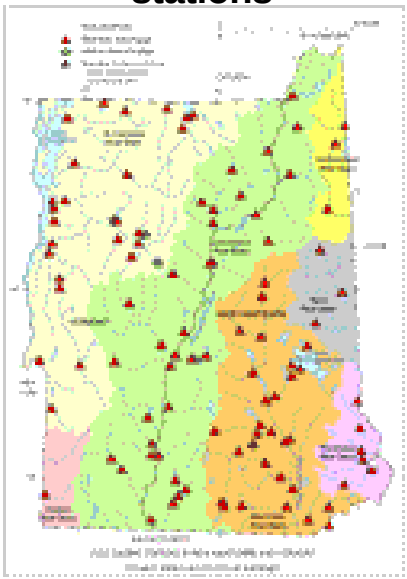
Land use categories

1 cropland
2 forest
3 nonforested freshwater wetland
4 open land
5 recreation - participation
6 recreation - water
7 multi-unit residential
8 dense residential (<1/4 acre lots)
9 medium residential (.25 - .5 acre lots)
10 light residential (> 1/2 acre lots)
11 salt wetland
12 commercial
13 industrial

Massachusetts Land Use: 1999

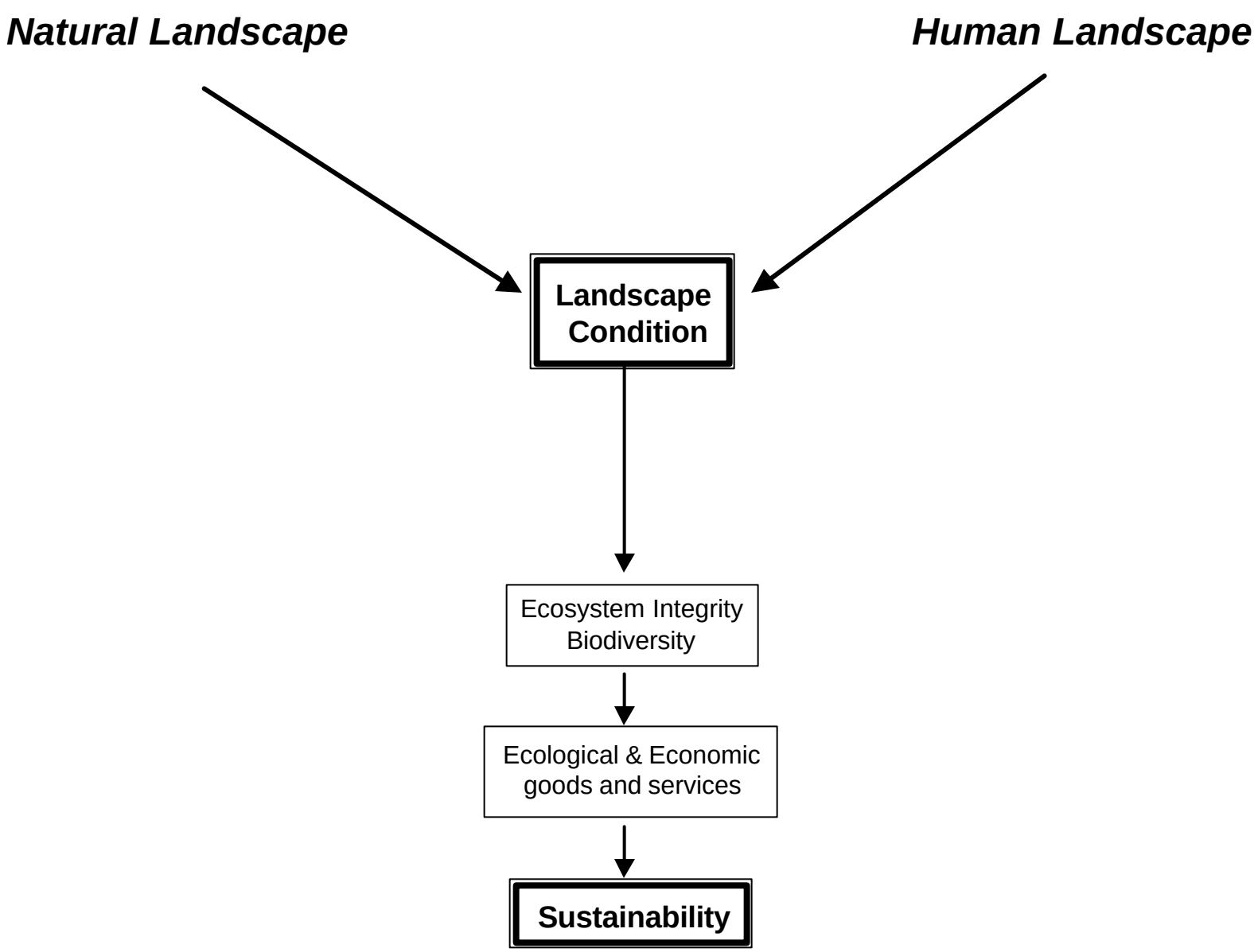


USGS Streamflow stations



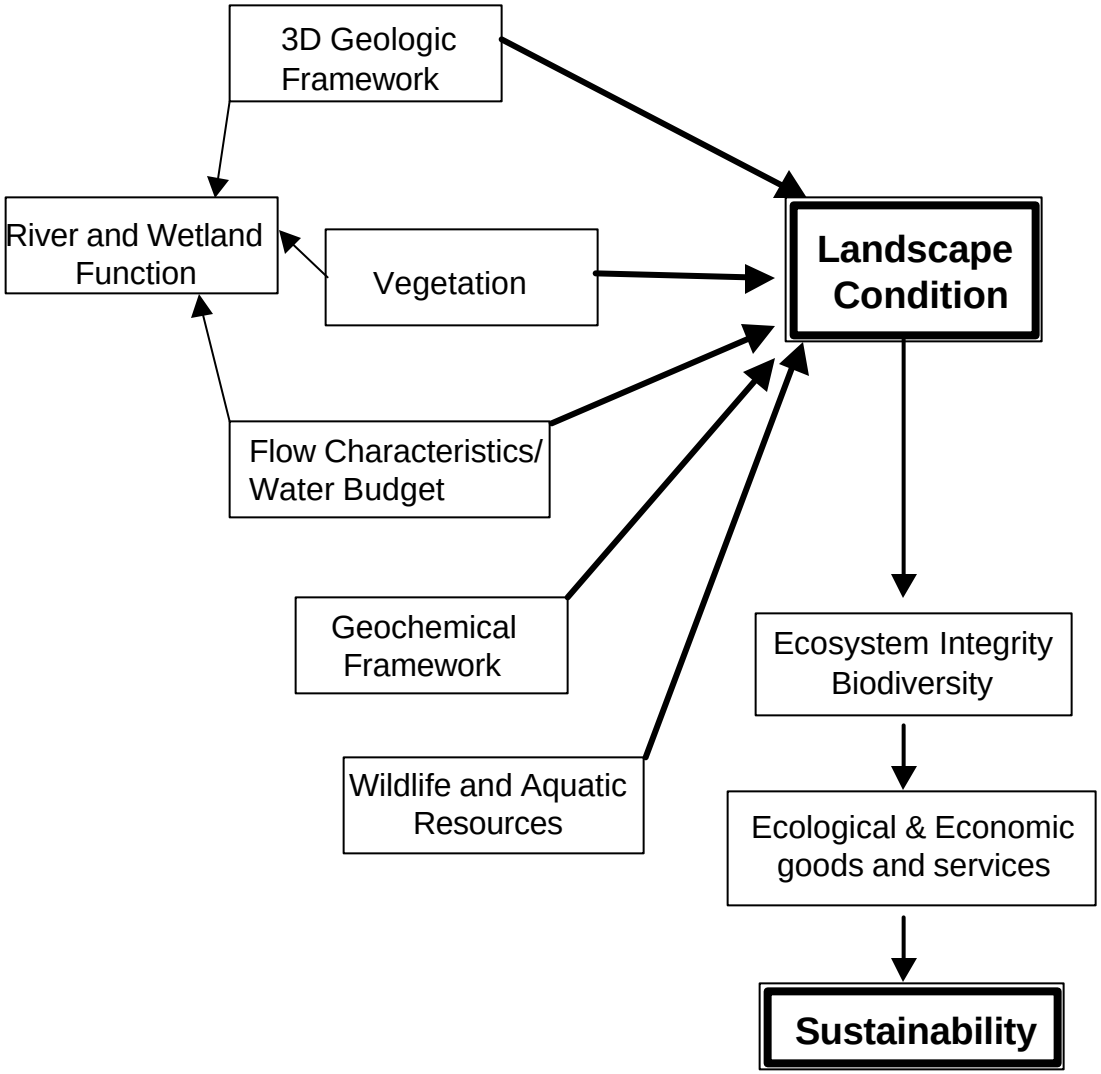
2. Understand watershed processes

a. Ecological / Environmental
b. Socio-economic
c. Measurable, related to indicators
d. Visualization ‘toolbox’


Natural Landscape
Human Landscape
Landscape Condition
Ecosystem Integrity
Biodiversity
Ecological & Economic goods and services
Sustainability

Natural Landscape Includes…

Human Landscape



Natural Landscape

3D Geologic Framework

River and Wetland Function

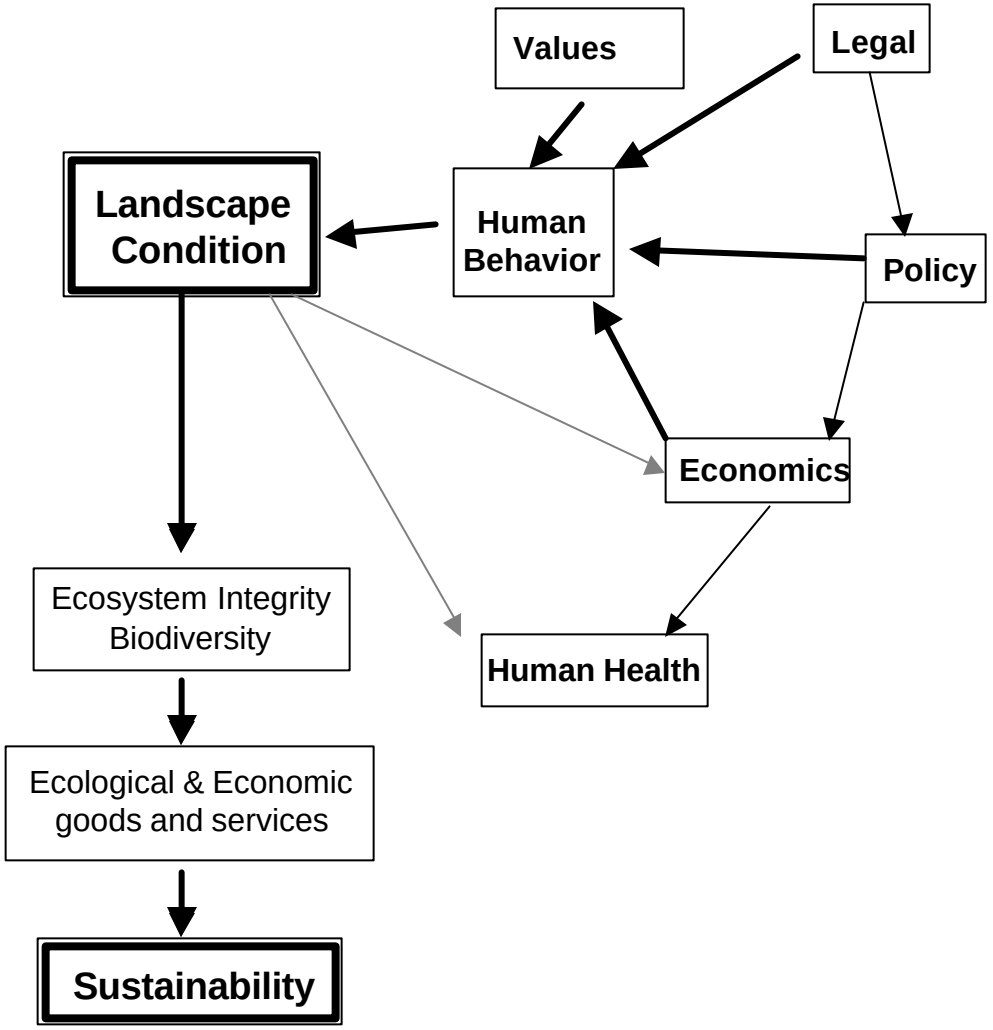
Vegetation

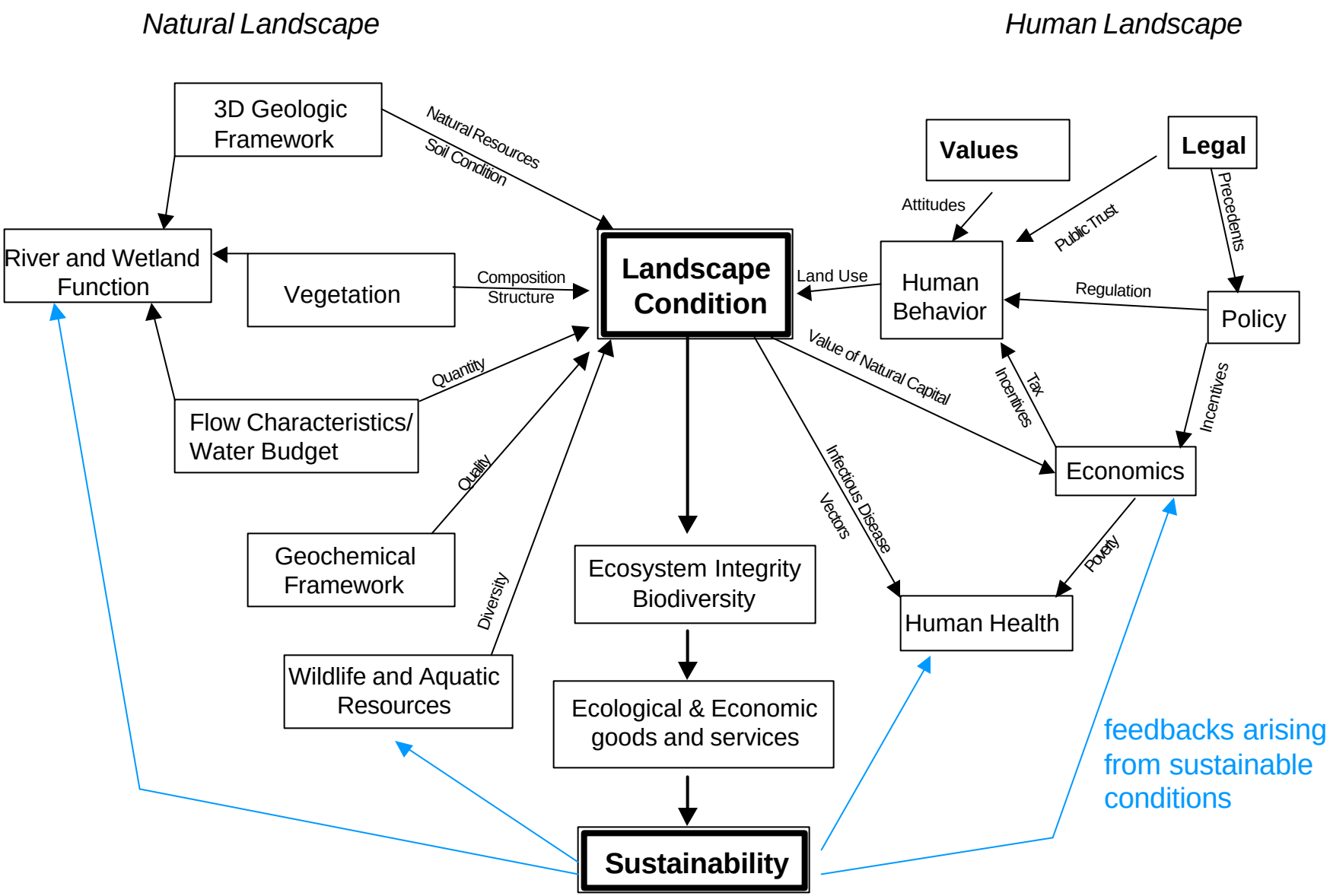
Flow Characteristics/ Water Budget

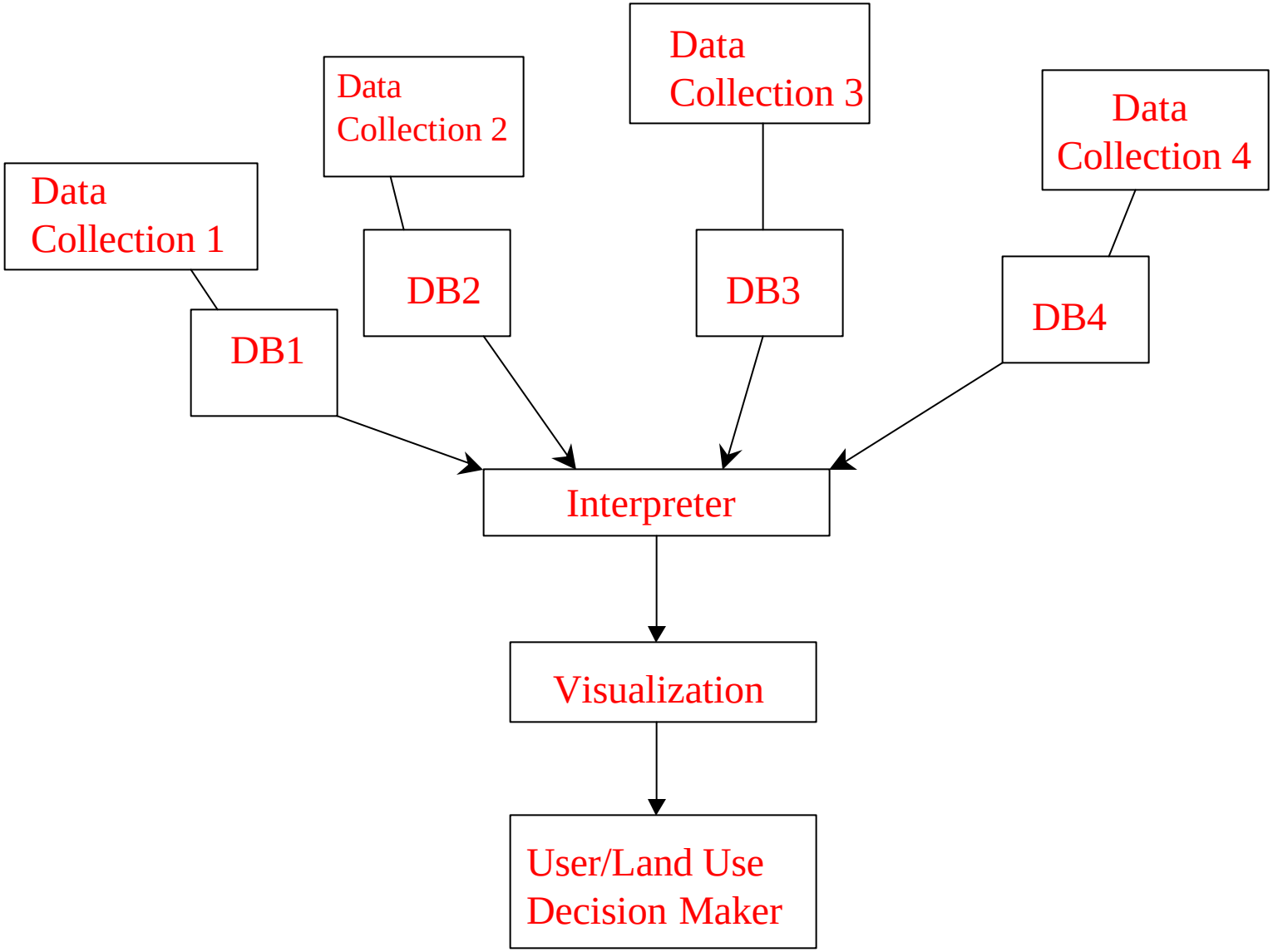
Geochemical Framework

Wildlife and Aquatic Resources

Human Landscape Includes…



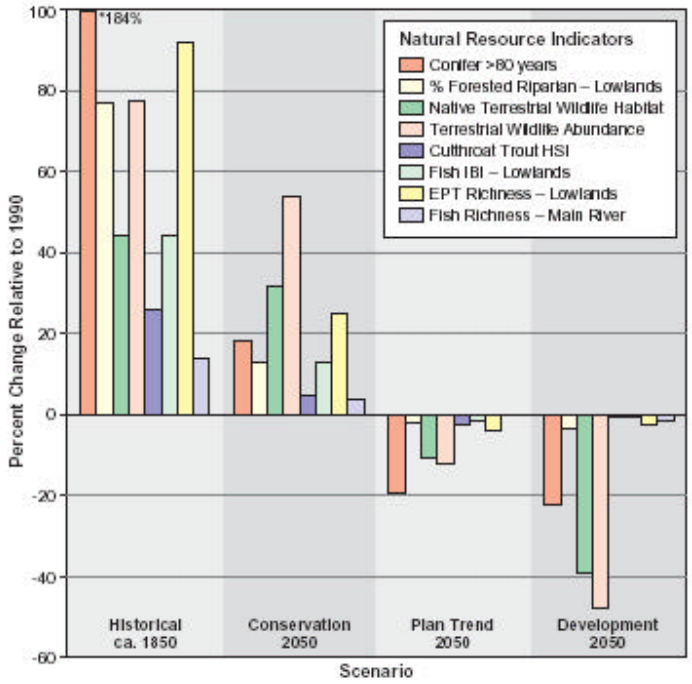

Natural Landscape
Human Landscape
3D Geologic Framework
Natural Resources
Soil Condition
Values
Legal
Attitudes
Public Trust
Precedents
River and Wetland Function
Vegetation
Composition
Structure
Landscape Condition
Land Use
Human Behavior
Regulation
Policy
Value of Natural Capital
Quantity
Tax Incentives
Incentives
Flow Characteristics/ Water Budget
Quality
Economics
Infectious Disease
Vectors
Poverty
Geochemical Framework
Diversity
Ecosystem Integrity Biodiversity
Human Health
Wildlife and Aquatic Resources
Ecological & Economic goods and services
feedbacks arising from sustainable conditions
Sustainability

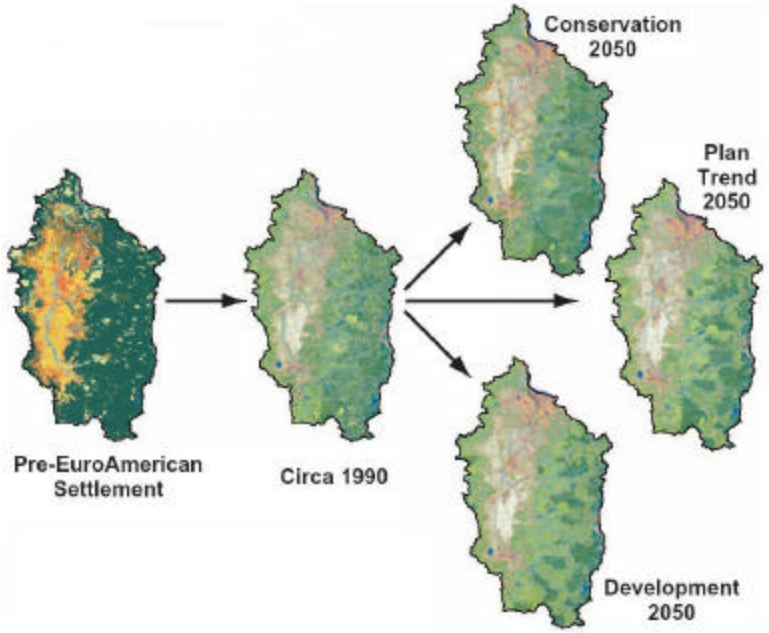

Data Collection 1
Data Collection 2
Data Collection 3
Data Collection 4
DB1
DB2
DB3
DB4
Interpreter
Visualization
User/Land Use Decision Maker

3. Assess alternative futures

a. Effect on various aspects of sustainability

b. Uncertainties, Management options





Near-Term Process

- USGS/UMASS/FWS Steering Committee formed to plan and hold Science Needs Workshop
- Two Focus Group Sessions scheduled for mid January
- Larger Two-Day Workshop planned for early Spring
- Science Plan Developed late 2004

Not a New Idea