Department of Conservation
Division of Land Resource Protection

LAND RESOURCE PROTECTION

FROM INTEGRATED WATER MANAGEMENT TO INTEGRATED NATURAL RESOURCE MANAGEMENT

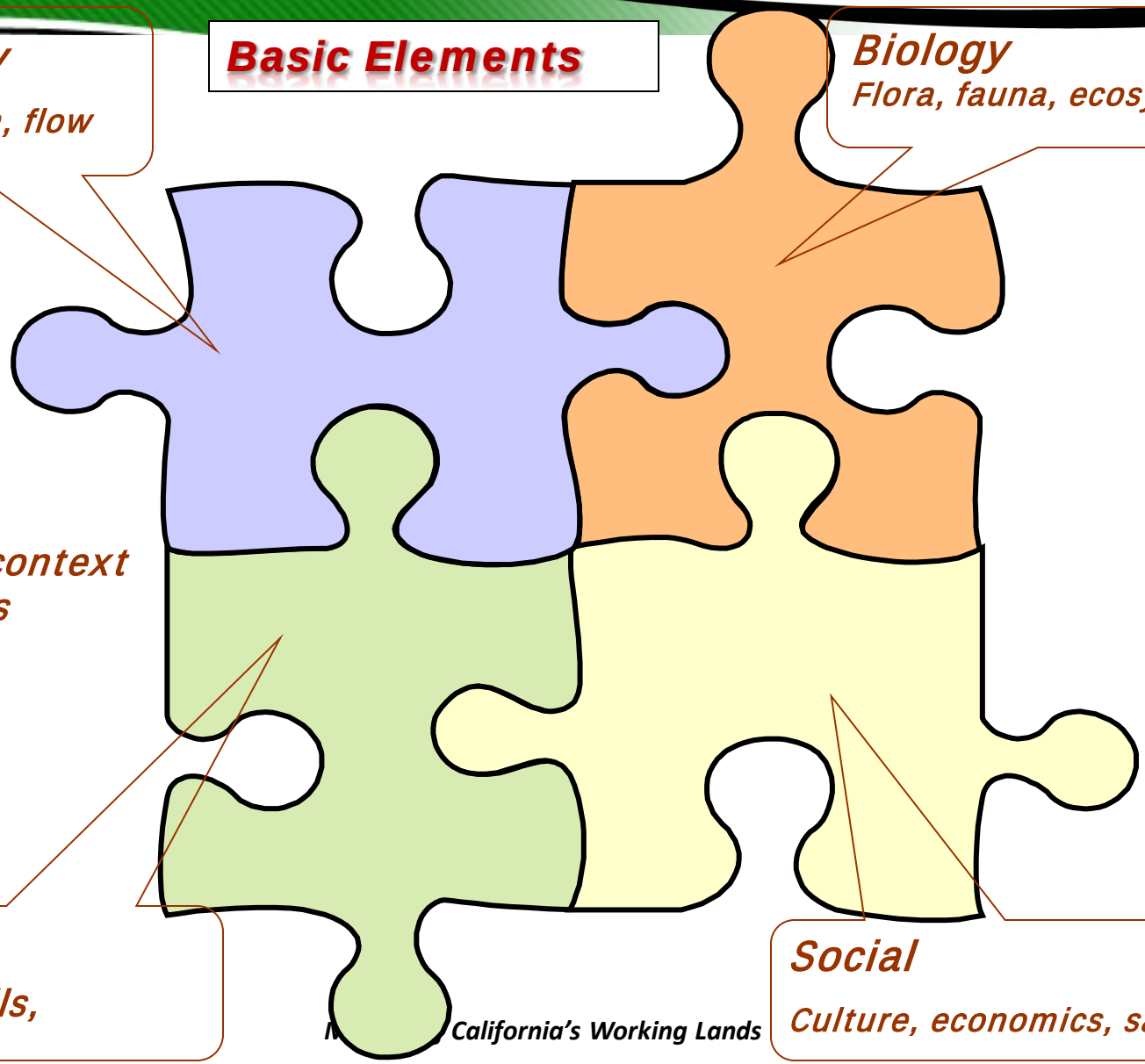
Man… despite his artistic pretensions and many accomplishments, owes his existence to a thin layer of topsoil… and the fact that it rains

Author- Unknown

TERMINOLOGY

- The Watershed= Place = interaction between components of the ecosystem
- Ecosystem Services= Management Goals and Objectives
- Management Approach
  - Recognizes importance of local and regional management
  - Organized based on physical, chemical, and biological boundaries and the human patterns within them

Basic Elements



Hydrology

Precipitation, flow

Biology

Flora, fauna, ecosystems

Each must be considered in context with the others

Geology

Landforms, soils, topography

Social

Culture, economics, safety

Ecosystem Services

- ✓ purification of air and water
- ✓ mitigation of floods and droughts
- ✓ detoxification and decomposition of wastes
- ✓ soil and soil fertility generation and renewal
- ✓ pollination of crops and natural vegetation
- ✓ control of agricultural pests
- ✓ dispersal of seeds and cycling of nutrients

Ecosystem Services

Ecosystem Services

- ✓ maintenance of biodiversity
- ✓ protection from ultraviolet rays
- ✓ stabilization of climate
- ✓ moderation of temperature extremes
- ✓ moderation of the force of floods, winds and waves
- ✓ support of diverse human cultures
- ✓ beauty and spiritual sustenance

Ecosystem Services

Ecosystem Services

- Many ecosystem services are beyond price - providing a source of *cultural identity*, of *kinship with life*, of *learning*, of *evolutionary processes*, and with the primary components of *soil, air, water, and biodiversity* make up complex systems which as yet, have no engineering substitutes.

Ecosystem Services

RESILIENCE AND CHANGE

- Systems need to be both robust and resilient to provide long term support services for human and other populations

- Change is inevitable (and necessary)

- Reactions to change are usually more important and influential than the change itself

Functional Continuity

- System complexity allows a greater range of adaptation options
- Robust range of options provides greater resilience in the face of change
- Resilience provides the opportunity for more effective adaptation
- Effective adaptation retains complexity and sustains functions

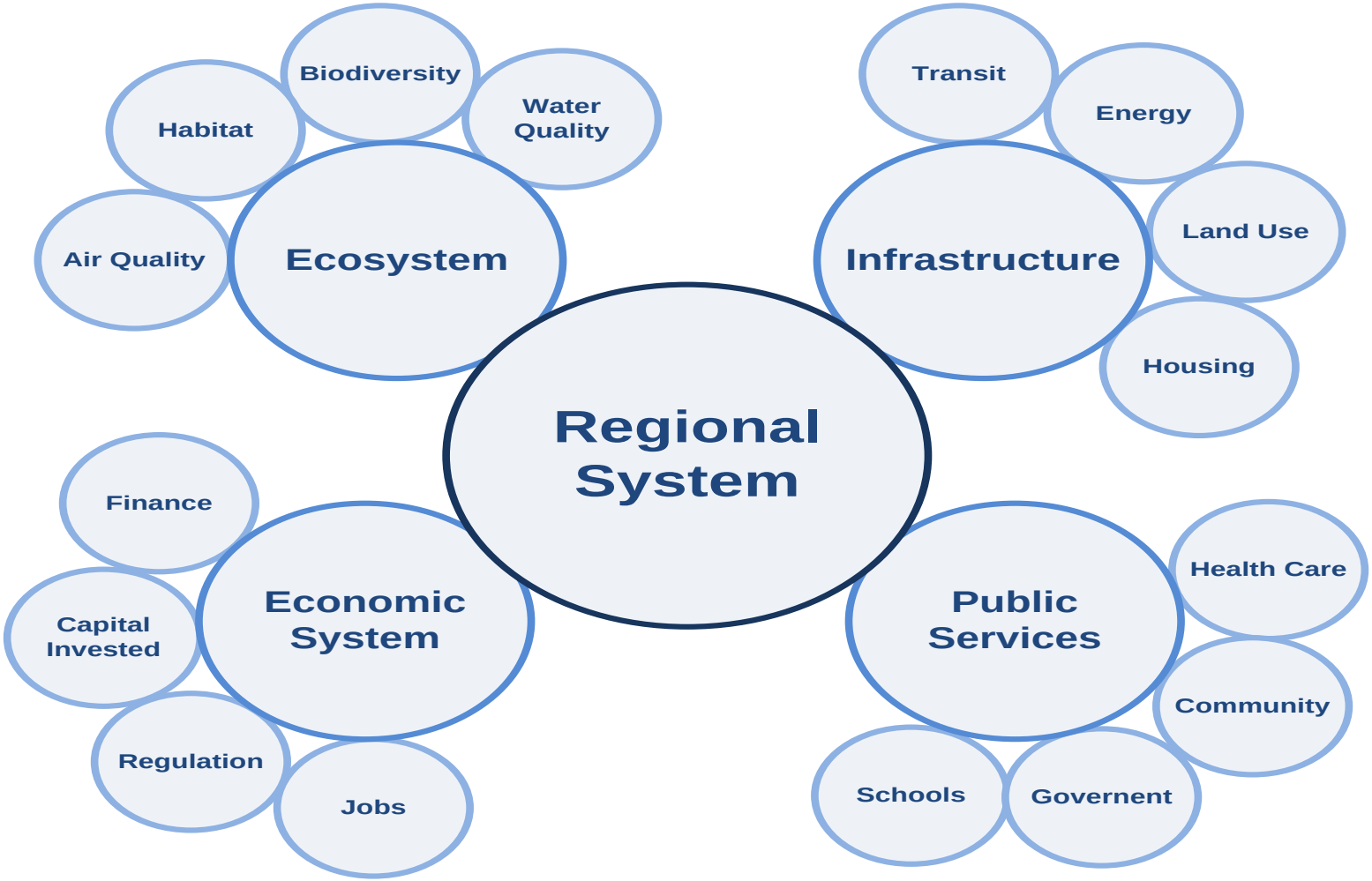
Integrated Natural Resource Management

- *Public Involvement*
- *Inclusiveness*
- *Multi- objective approach*
- *Transparency*
- *Goal- oriented*
- *Scientifically valid*
- *Performance based*
- *Integrate relevant federal, state, tribal, regional and local goals*

Integrated Natural Resource Management

- Integration of management effort will become more commonly used
  - As change occurs
  - In increments over time
  - As traditional methods fail to achieve anticipated results

Regional Planning & Management



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Managing California's Working Lands

Learn where your water comes from…