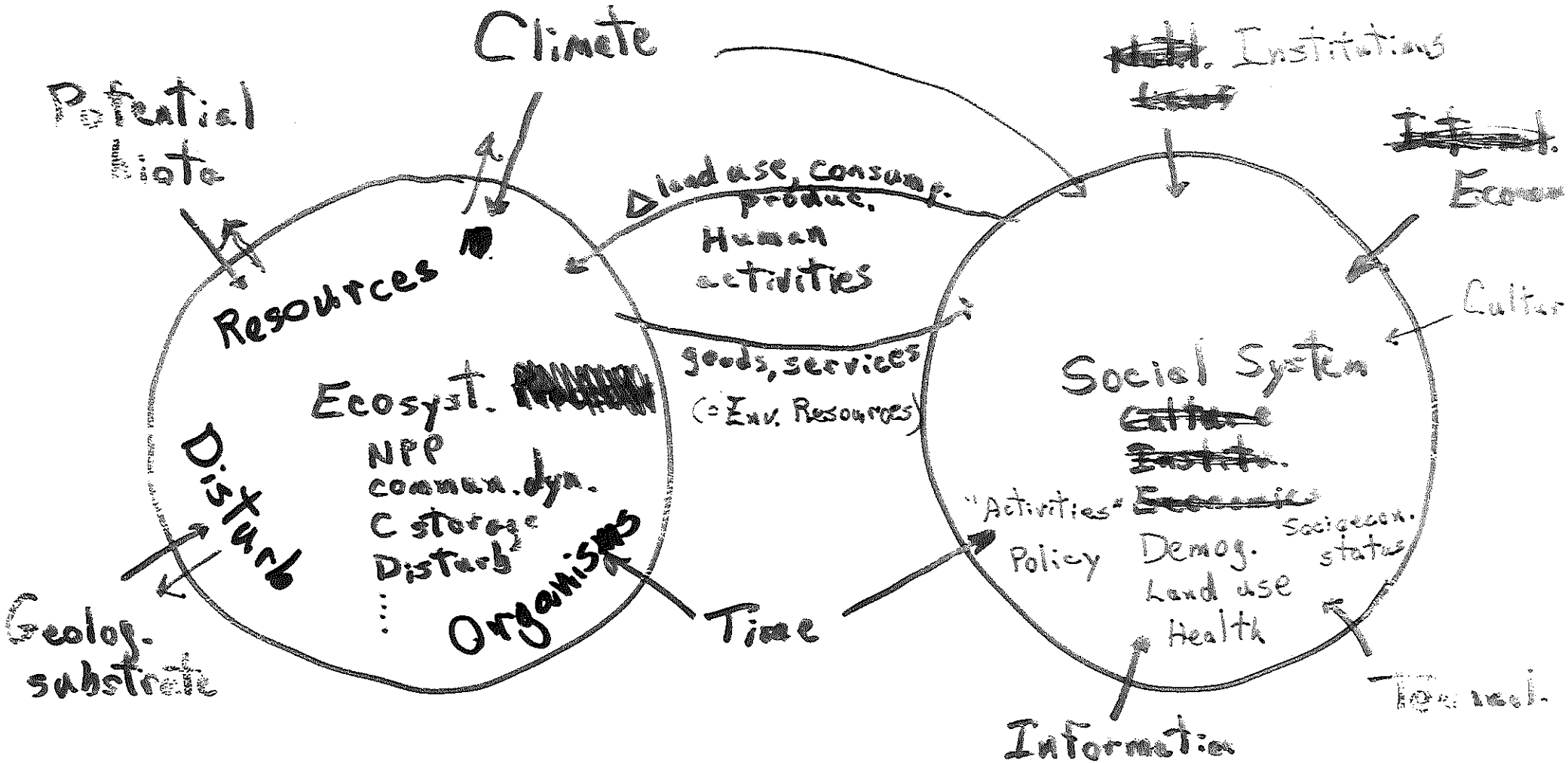
2000

Social Science Committee Documents, 2000

Long Term Ecological Research Network

Regional system

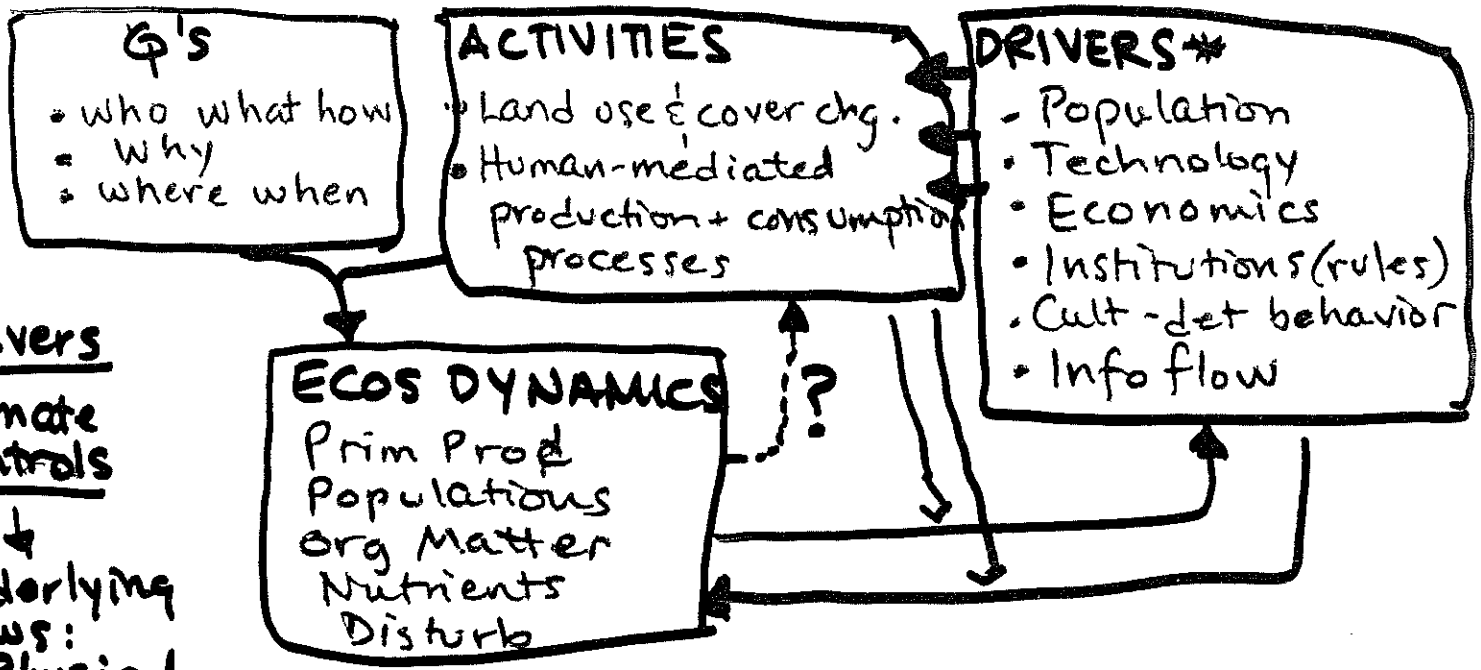


I. WHY HAVE CORE AREAS?

- Eco cores are central processes for ecology; want parallels for social sciences
- Bookkeeping/guidelines: what can & should be measured for LT SS variables

II. THREE-BOX APPROACH

- Added a 4th box - eco cores areas / ecos dynamics
- Modified production, consumption to "human-mediated prod & consumption processes"



* Drivers

Ultimate controls

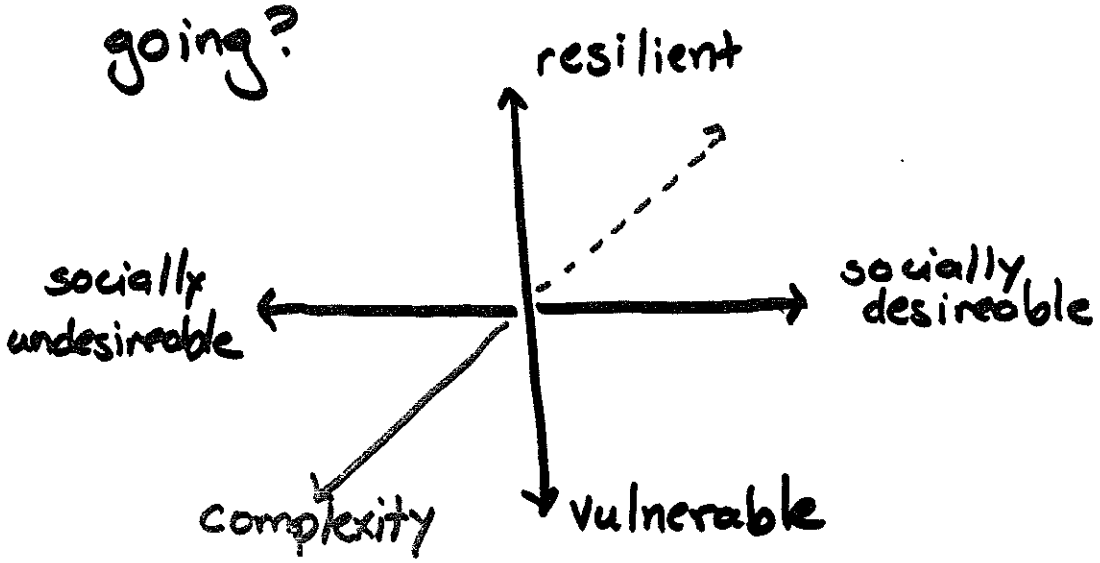
↓

underlying laws:
- Physical
- Evolutionary
- Behavioral

III. EXAMPLES OF SPECIFICS

DRIVER	ACTIVITY	ECOS DYN	FEEDBACK TO DRIVER
Pop↑ techno	→ P+C processes	→ CO_2↑ warming shift WHERE of PP	→ econ, instit, techno, pop, cult-det beh.
INSTIT	→ LUCC + mgmt	→ Plant pops + herb. comm. str. Afr. a-Masai	→ shift in cult-d behavior
pop, instit, etc.	→ LUCC (urbanizn) ↑ imperv. surf.	→ Nutrient tport Disturb regime	→ instit: flood contr

- How did your socionatural system get to be the way it is (co-organize), and where is it going?



- stability landscape
- resource use
- rate of change

- How have the characteristics of natural & ecological systems in your region influenced the power hierarchies that have emerged?
- How have these power hierarchies influenced the use & management of ecological & natural resources?

- How are these interactions changing over time, & what does this mean for the state of the socionatural system?
  - shift to new sector
  - big effects from small causes

power hierarchies
economic systems
demographic systems
technologies
attitudes & beliefs
(values & culture)
information (& its flow)

ecological/natural

carbon
biodiversity
nutrients
climate regimes
regeneration rates
resource variability

influence

land use
production regimes
consumption

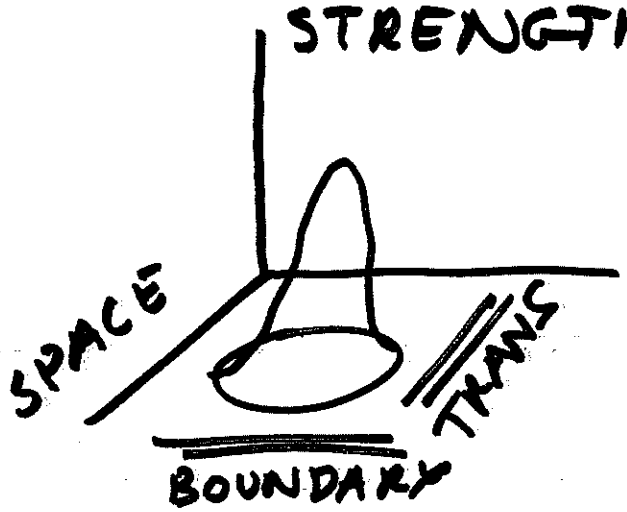
Next steps

- 1-day workshop at ASM designed for all LTER + targeted social scientists
- Double AAAS session → to book

INTEGRATED FRAMEWORK

SOCIAL/ECOL SYST
QUANT DESCRIP
SPACE-TIME VARIATION

KEY PROCESSES
ORGANIZATION
TRANSFORMATION
LINK → CRITICAL FEEDBACK RATIOS



E.G. SOCIAL 1) INTEREST RATES 2) NEIGHBOR ORGANIZATION
ECOL 2) POINT SOURCE

STRUCTURE OF FEEDBACKS
NETWORK/WEB MODELS
NO. LINKS
STICKING POINTS / CUSPS OF Δ
SPATIAL TEMPLATE

REC: CONTINUE BROAD-BASED DISC

PURPOSE: DEVELOP THE KEY FEATURES OF A MULTIPLE-SCALE FRAMEWORK FOR SOCIAL AND ECOLOGICAL ANALYSIS.

1. PHENOMENA:
   - DEDUCE KEY SOCIAL/ECOLOGICAL PROCESSES THAT DEFINE SCALE.
   - IDENTIFY PROCESSES THAT OCCUR ACROSS MULTIPLE SCALES
   - ACKNOWLEDGE THAT ECOLOGICAL AND SOCIAL PROCESSES NEED NOT OPERATE AT SAME SCALE.
   - INTEGRATE SOCIAL AND ECOLOGICAL PHEN.
2. METHODOLOGY: (COMPATIBLE WITH MODELS)
   - HOW SPATIAL CHARACTERISTICS AFFECT PROCESS.
   - DESIGN TO CAPTURE TIME LAGS NON-LINEAR AND DEFINING EVENTS
   - METADATA (UNITS, INTERVALS, STATISTICS)
   - SPECIFY BOUNDARY CONDITIONS RELATIVE TO SPACE AND TIME.
   - OPTIMAL RESOLUTION RE SELECTED QUESTION/PHENOMENA
3. SAMPLING STRATEGY:
   - MULTIPLE SCALES (3)
   - TRANSECTS (SORRY NANCY) TO DISCOVER BOUNDARIES

RECOMMENDATION:

CONVENE AT NCEAS TO CONDUCT WORKSHOP WITH REPRESENTATIVES FROM LTER, NSF AND SELECTED EXPERTS

Figure 1

Framework for Ecosystem and Human System Linkages