Archaeological Contributions to Contemporary Socioecological Issues

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The main point:
Archaeologists can provide insights into contemporary socioecological issues by selecting research questions with contemporary relevance and examining these questions with long-term archaeological data sets.

Why archaeologists should contribute to contemporary issues:
Current environmental research pays inadequate attention to the long time span and slow-moving processes that often underlie environmental problems (van der Leeuw and Redman 2002).

Long-term perspectives and data are critical for understanding the dynamics that underlie current socioecological problems.

How archaeologists contribute:
By providing the public, the scientific community, and policy makers with an understanding of:

• the relationship between key variables affecting social and ecological change through time
• current conditions as a product of the long-term interactions of key variables
• context to stimulate a more complete understanding of a problem
• the range of possible future socioecological conditions (experiments and scenarios)

Not prediction

Insights come from the long-view
The short view
The long view

Proposed model of engagement using a climate change example:

CURRENT - FUTURE SOCIOECOLOGICAL PROBLEMS

(from the climate change example)

• Climatic variability
• Extreme events
• Precipitation up/down
• Temperature up
• Vegetation change

FROM THE ARCHAEOLOGICAL RECORD
Examine past paleo-environmental records for analogous events; examine social adjustments and responses to climate events in the past

FOR THE PRESENT
Report results to peers, the public, and policy makers. Provides context for future decision making.

Research questions come from the present; See also Fisher and Feinman 2005 for desiccation example.

Research questions for archaeologists involving contemporary socioecological issues:

Climate Change:
What factors influence the capacity of human societies to respond to climate change?

Why at some places and at some times are societies resilient to climate change and sometimes not?

What human behaviors, attitudes, beliefs, economic strategies, and forms of governance are associated with periods of stable/unstable climate? (Coombs 2001b)

What is the relationship between human actions and biodiversity loss?

In what places and for what reasons has biodiversity loss occurred in the past?

Biodiversity:
What are the factors that influence the capacity of human populations to respond to climate change?

What is the relationship between population growth and biodiversity loss?

Sustainability:
What social and ecological conditions precede small and broad scale periods of social stability and transformation?

What social and ecological conditions enhance/reduce resilience of societies to ecological perturbations?

Resilience:
Which characteristics of societies seem to be the most relevant to the sustainability of those societies?

Theoretical frameworks and research domains:

Examples of archaeological research contributing to contemporary issues at ASU:

Human Dimensions of Global Change (NSF) Studies complex systems, urbanization, aggregation, migration, and land-use change. Past insights can be applied to the present.


NSF Biocomplexity grant (Archaeology, Ecology, Modeling) Considers the conditions that foster periods of stability and transformation in socioecological systems. Will use a resilience theory perspective. Regional scale study area (U.S. Southwest and Northern Mexico).

Legacies project (Archaeology and Ecology). Examining contemporary landscapes as the result of past land uses and agricultural ways.

PAP, LTER, NSF DEB Urban Ecology: Archaeologists study complex systems, urbanization, aggregation, migration, and land-use change. Past insights can be applied to the present.

References and Resources:


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