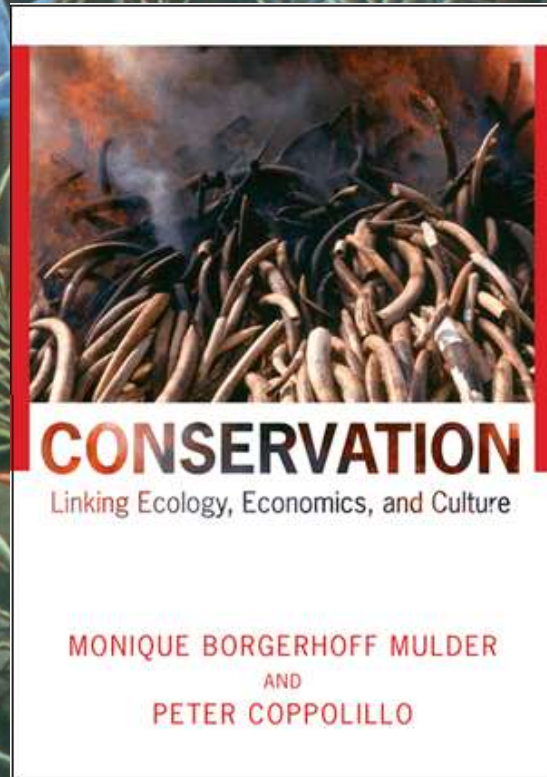
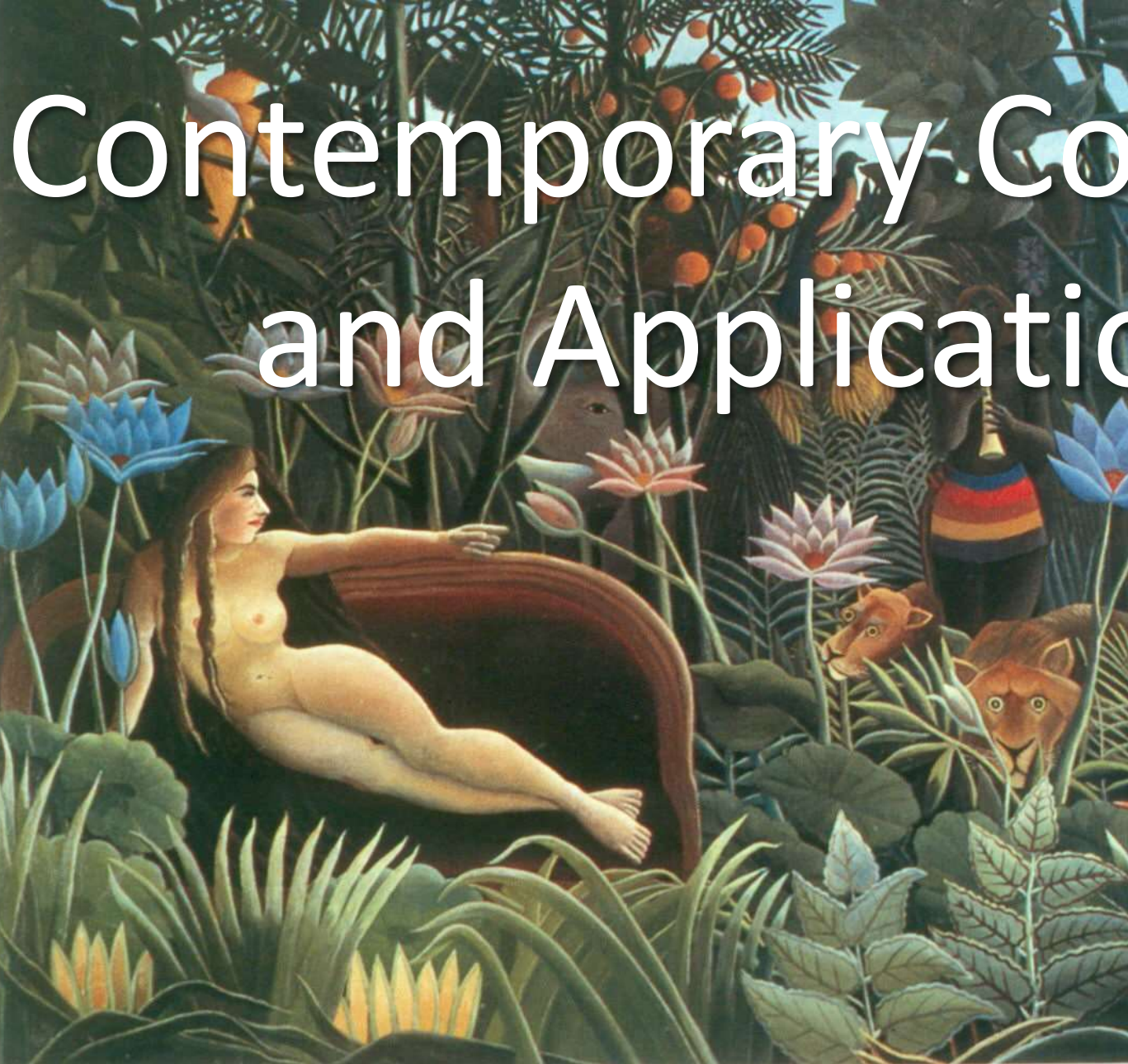


# Contemporary Concepts and Applications



Monique Borgerhoff Mulder UC Davis

**Biodiversity**

**Protected  
areas**

**Tragedy of  
the  
Commons**

**IPAT**

**Citizen  
science**

**Environment  
-ally noble  
savage**

**Cultural  
and  
biological  
diversity**

**Monitoring  
and  
evaluation**

**Traditional  
ecological  
knowledge**

Actor	Focal feature of BIODIVERSITY	Rationale
Conservation biologists	Species richness, endemism, rarity	Protect species and ecosystems
Plant breeders	Crop germplasm	Ensure crops against disease
Ethnobotanists/anthropologists	Diverse traditional ecological knowledge (TEK)	Sustain complex stable agrosystems and plant uses
Pharmaceutical Companies	Genetic resources (“option values”)	Discover new products and cures (and/or make money)
Indigenous peoples (and anthropologists)	Cultural diversity	Stress role of indigenous people as guardians of biodiversity
Human rights activists/ anthropologists	Powerless constituencies	Stress role of cultural diversity in protecting biodiversity
Food industry	Forest products (shade-grown cocoa, organic coffee, etc.)	Establish (or promote selves for) sustainable production
Rock stars, media figures	Image (wild, social responsibility, etc)	Stimulate tourism (and/or enhance marketability)
Tourist companies	Unspoiled nature	Sell holidays
National governments	Remote undeveloped wildernesses	Sell concessions/credits
Agencies / NGOs / bilateral organisations	Human welfare	Link economic development to ecosystem services

**Use at your peril!**

**Sustainability?**

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Henri Rousseau "The Dream" 1910

## **ECOLOGICALLY NOBLE SAVAGE – SELECTED QUOTATIONS (BOX 4.5)**

“The land belonged to all, just like the sun and water. Mine and thine, the seeds of all evils, do not exist for those people ... They live in a golden age ... in open gardens, without laws or books, without judges, and they naturally follow goodness ... So in harmony with their surroundings...” (*16<sup>th</sup> C. Spanish chroniclers cited in Redford 1992*)

“The point is that for centuries many societies had evolved some kind of accounting system whereby the number of people in their group and their age structure were thought of in relation to available natural resources.” (*Arizpe and Velasquez 1994:33*)

“The Once and Future Resource Managers” (*WWF 1998*)

“We Africans long ago developed wildlife conservation customs compatible with sustained production, embracing soils, plants, water and animals...” (*Simbotwe, 1993: 15-16, a consultant in resource management in southern Africa*)

“I don’t believe that you can say that indigenous peoples are conservationists as defined by ecologists. We aren’t nature lovers. At no time have indigenous groups included the concepts of conservation and ecology in the traditional vocabulary.” (*Gonzalez, 1992:45, leader of PEMASKY, Panama*)

“Why do you white people expect us Indians to agree on how to use our forests? You don’t agree among yourselves about how to protect your environment.” (*Terena 1990 cited in Low 1996:372, President of the Union of Indigenous Nations, Belem, Brazil*)



**Chapin M. (1992). Indigenous people and the environment in Central America. National Geographic Research & Exploration 8:232-240**

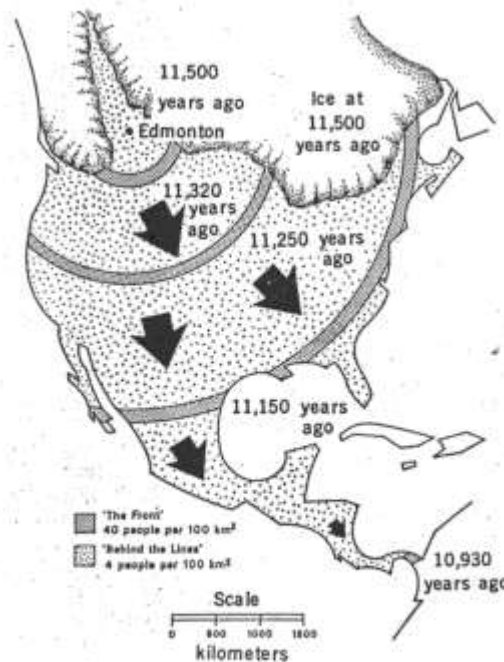
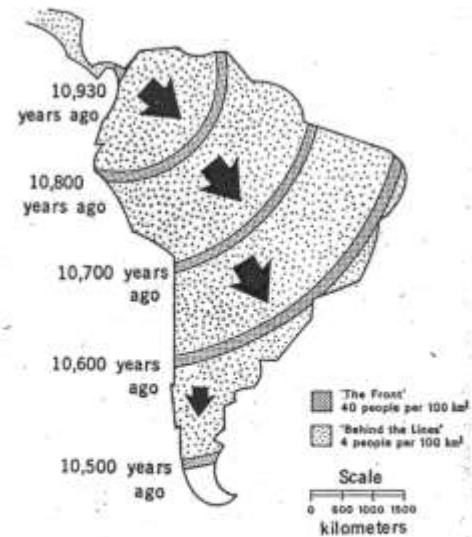


Fig. 2 (left). Sweep of the front through North America. As local extinction occurs, the hunter moves on. Fig. 3 (right). Sweep of the front through South America. Local extinction accompanies passage of the front. (Figures 2 and 3 are not drawn to scale.)



Mammoth among the men — new evidence found in the early nineteenth century greatly strengthened the case for the coexistence of man and extinct animals.

**73% large mammal species in North America, 80% in South America**

**Mosimann JE, and Martin PS (1975) Simulating overkill by Paleoindians. American Scientist**

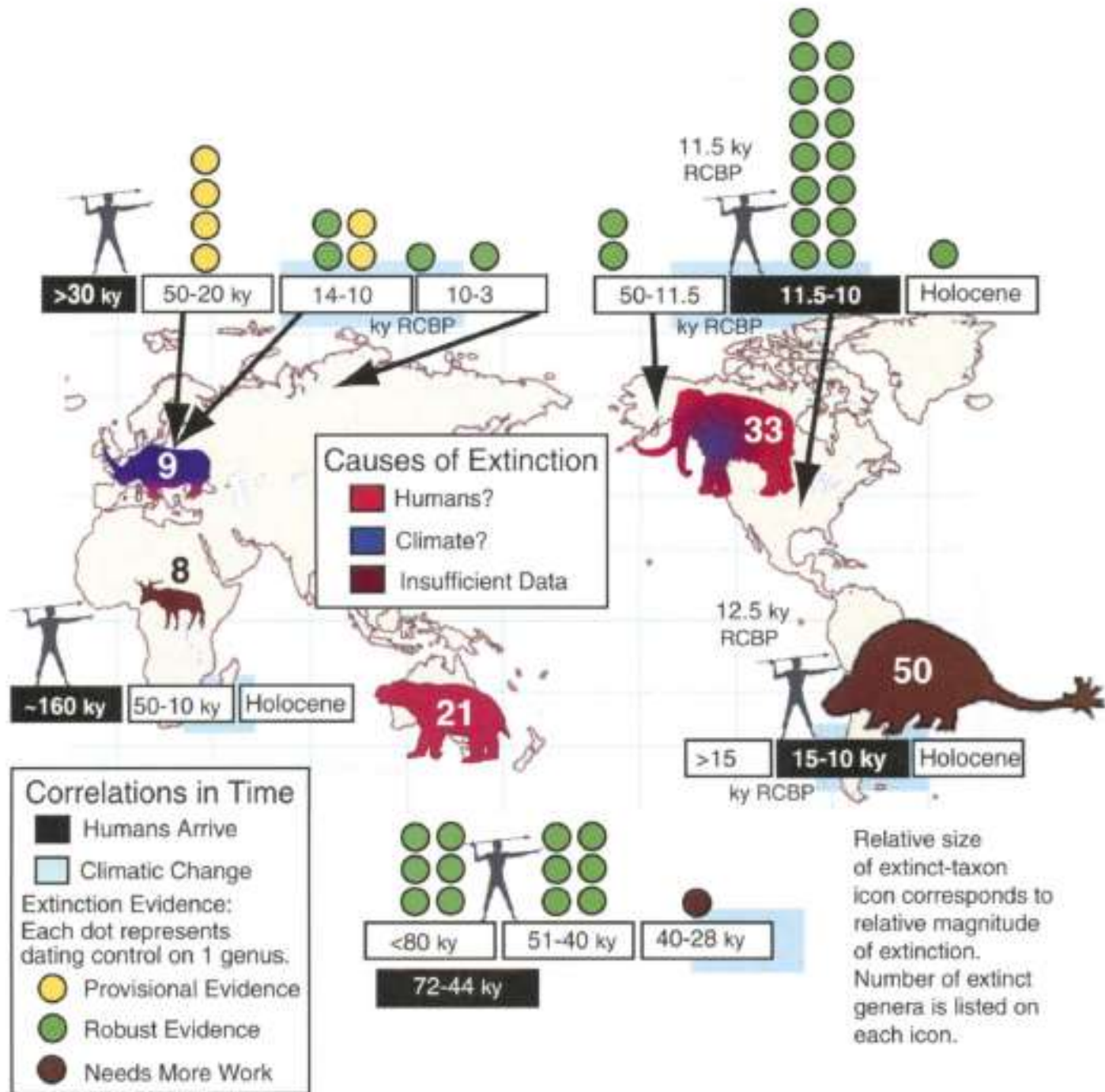


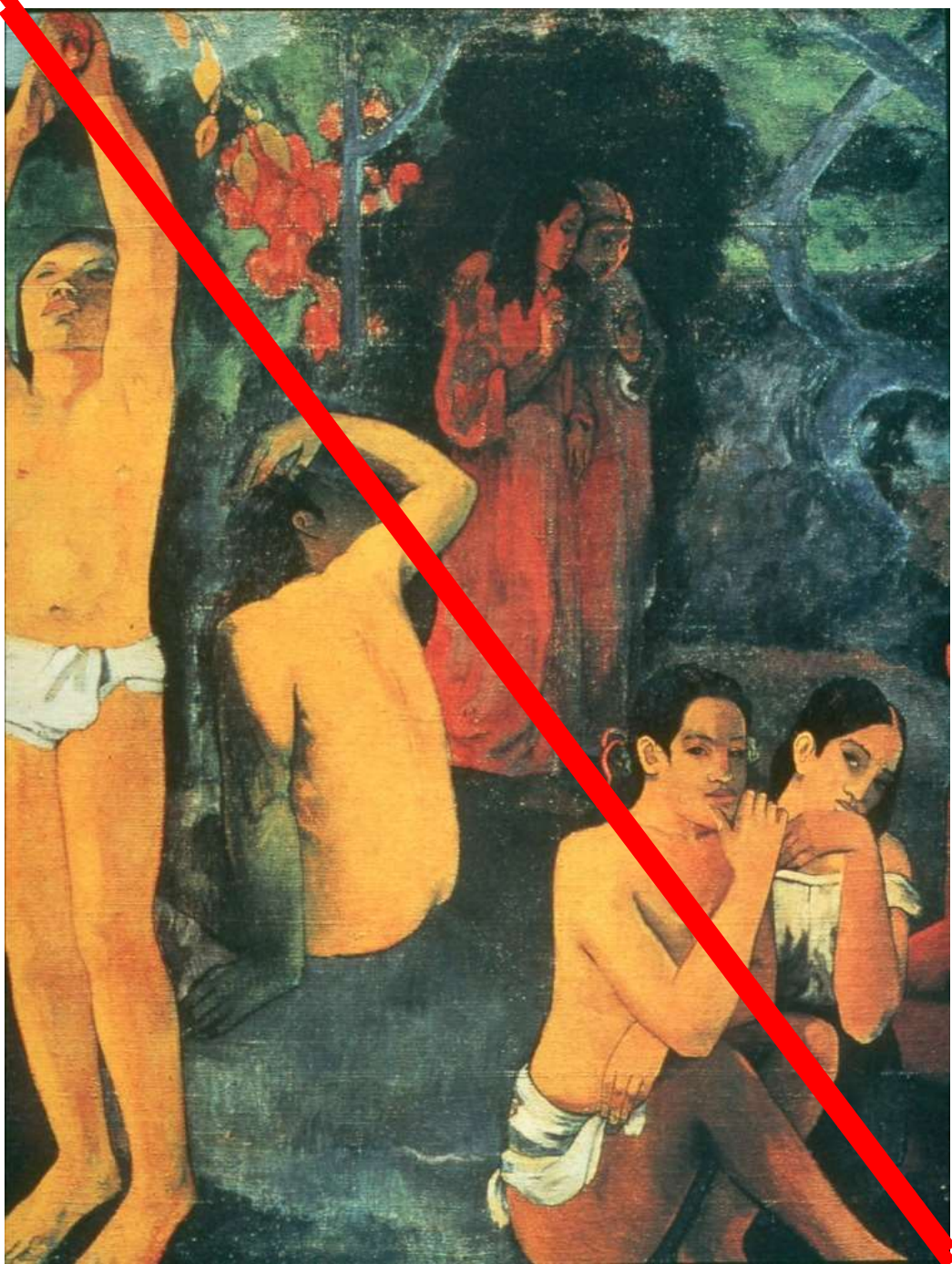
Stearman AM. 1994. "Only slaves climb trees": Revisiting the myth of the ecologically noble savage in Amazonia. *Hum. Nat.* 5:339–57



Barnosky, A.D.  
 et al (2004,  
 Science)

Humans “a  
 key  
 ingredient in  
 a  
 complicated  
 and fatal  
 recipe for  
 mass  
 extinction”  
 (Burney,  
 1993)





## Effects of humans on biodiversity

- vary over time and space
- are not an inherent trait of a population
- are strongly affected by circumstance (ecology, history, politics, markets, etc.)

Failure to live up to ENS stereotype is never grounds to justify relocation/exclusion/loss of lands

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### Deforestation in Central America



**T**he rapid loss of forest in Central America is a major environmental problem. The region has lost an estimated 50 percent of its forest cover since 1980. This loss is primarily due to agricultural expansion, logging, and urban development. The loss of forest has led to soil erosion, loss of biodiversity, and increased vulnerability to natural disasters. The loss of forest has also led to the loss of traditional knowledge and culture. The loss of forest is a major threat to the future of Central America.

### Deforestación en Centroamérica



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## THE COEXISTENCE OF INDIGENOUS PEOPLES AND THE NATURAL ENVIRONMENT IN CENTRAL AMERICA

Research & Exploration  
Scientific Publications of the National Geographic Society

### Indigenous Populations / Poblaciones Indígenas

**T**he indigenous populations of Central America are a diverse group of people with a rich cultural heritage. They have lived in the region for thousands of years and have developed a unique way of life. The indigenous populations are a vital part of the natural environment of Central America. They have a deep knowledge of the land and its resources, and they have a strong sense of community. The indigenous populations are a treasure that must be protected and preserved for future generations.

### Pre-Hispanic Forests / Bosques Prehistóricos

**T**he pre-Hispanic forests of Central America were a lush and diverse ecosystem. They were home to a wide variety of plants and animals, and they played a vital role in the lives of the indigenous populations. The pre-Hispanic forests were a source of food, shelter, and medicine for the indigenous populations. They were also a source of inspiration and knowledge. The pre-Hispanic forests are a legacy that must be protected and preserved for future generations.



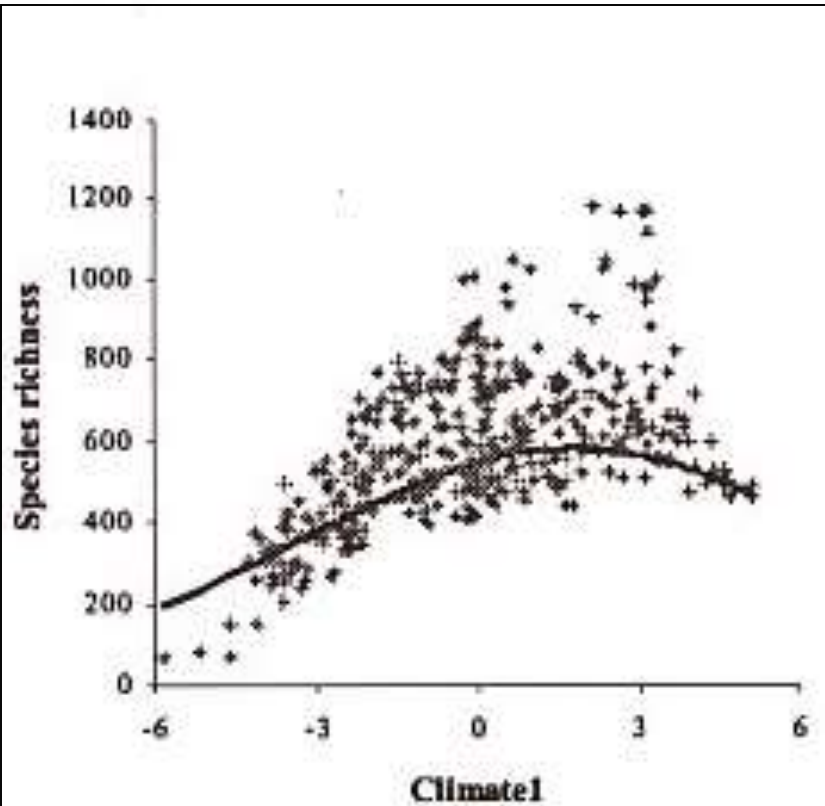
Legend for the map showing forest cover and cleared areas.

Additional text at the bottom right of the page, likely a continuation of the article or a sidebar.

# **Three hypotheses for the relationship between cultural and biological diversity**

- 1. Cultural diversity enhances biological diversity**
- 2. Biological diversity enhances cultural diversity**
- 3. Both biological and cultural diversity are enhanced/depressed) by some additional determinants**

Smith EA (2001) On the coevolution of cultural, linguistic and biological diversity. In L Maffi (ed.): On Biocultural Diversity: Linking Language, Knowledge and the Environment.

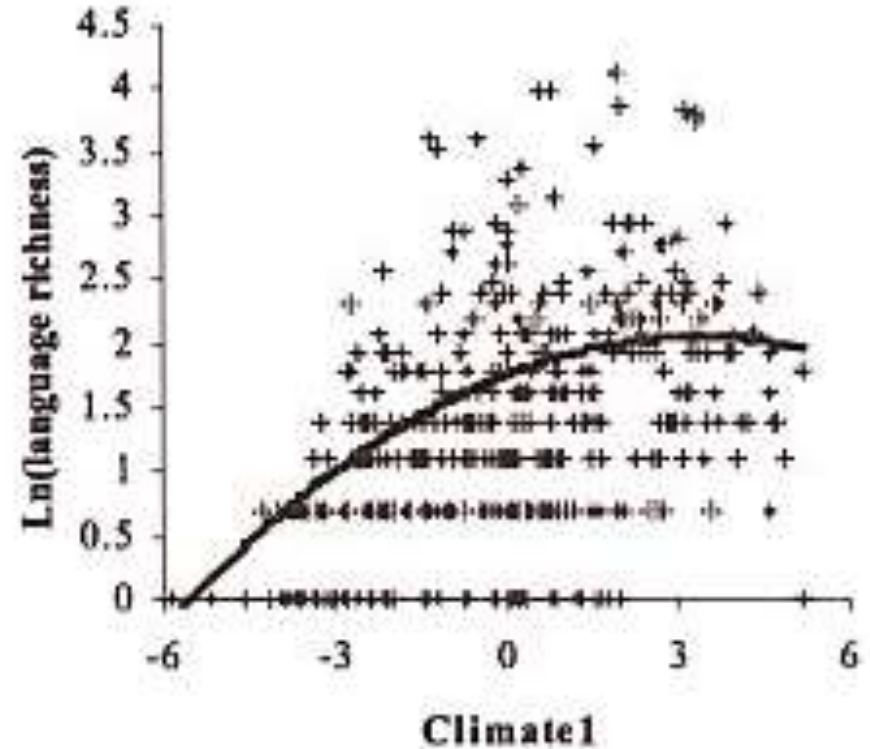


Full model:

Climate: 71% (in contrast to language which explains 24%)

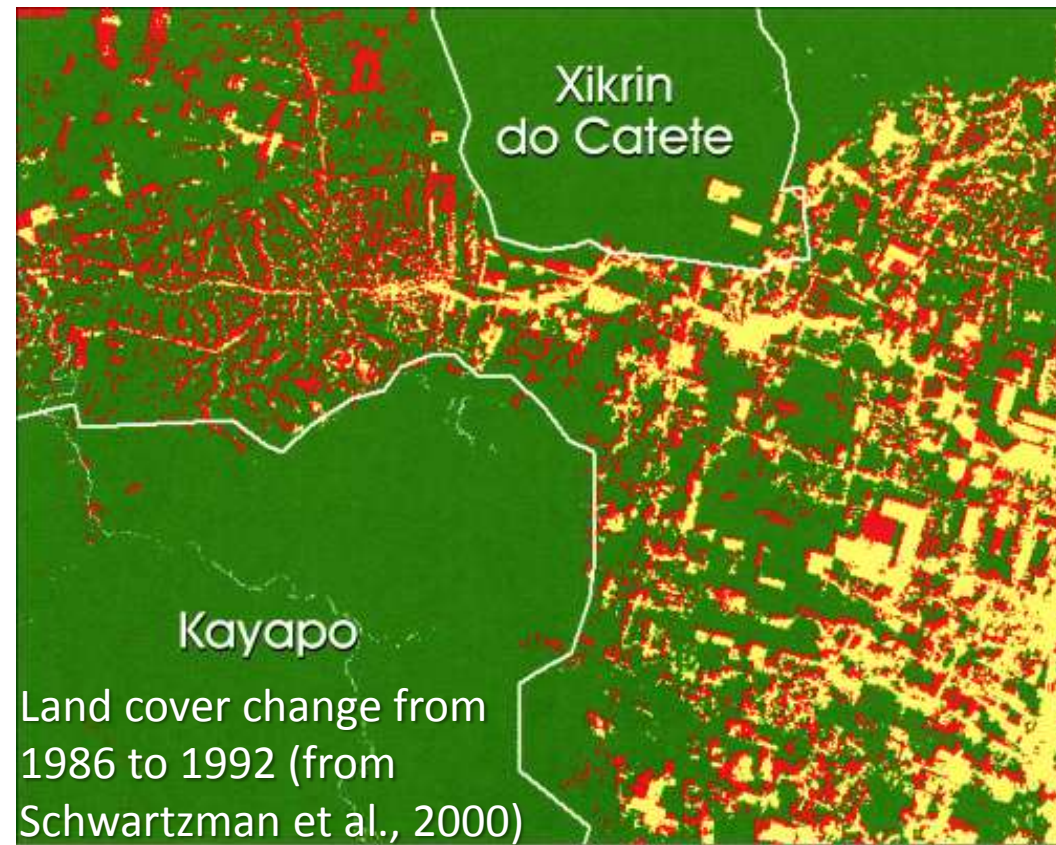
Full model:

Climate: 36% (in contrast to species which explains 20%)

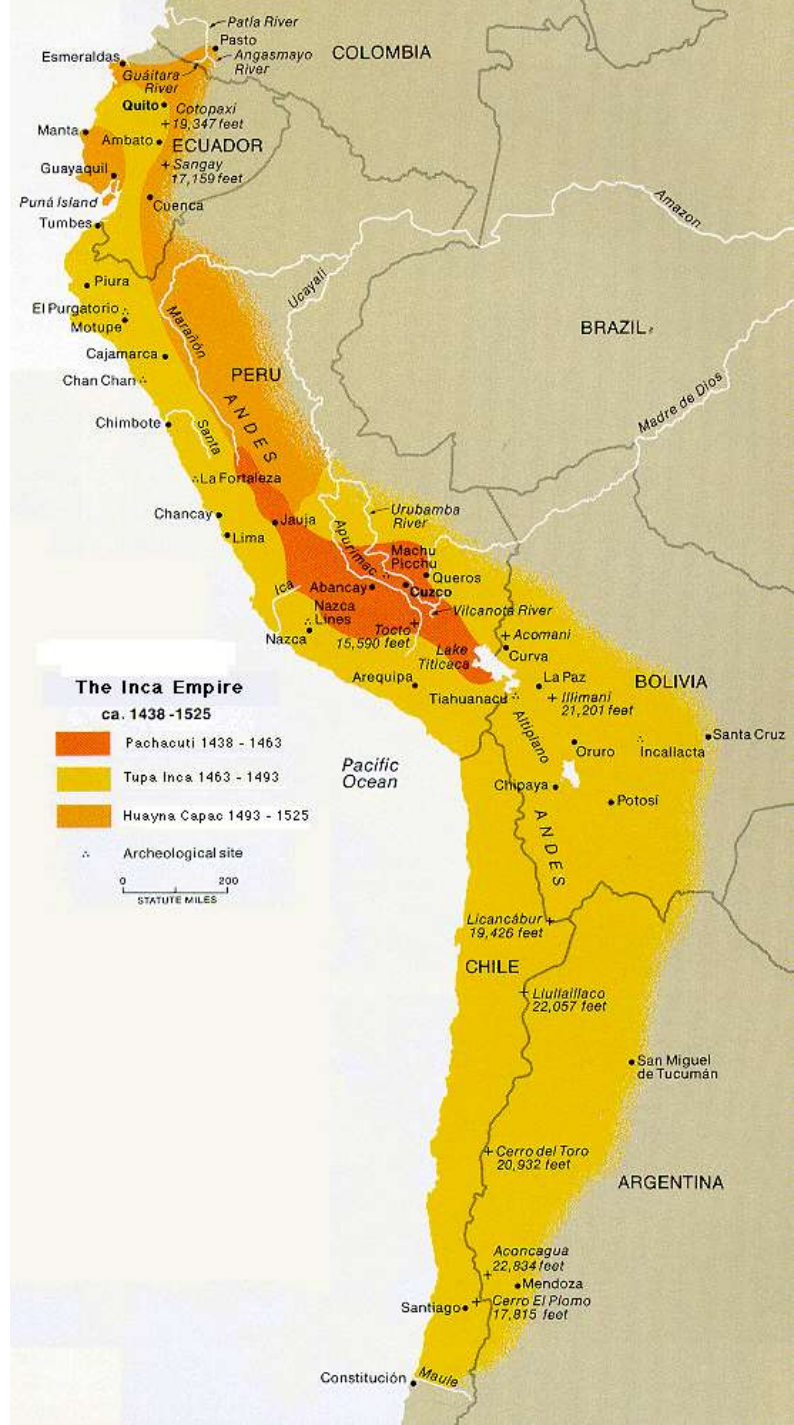


Data are based on 2 degree by 2 degree cells across sub-Saharan Africa, onto which species and language distributions are plotted

# Three hypotheses for the relationship between cultural and biological diversity



- Forest & Savanna
- Water
- Deforestation as of 1986
- New deforestation (1986-92)



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**Assure food**  
**Control pests**  
**Propitiate spirits**

A garden in Highland New Guinea

TABLE 7. Class distribution of avoided and threatened species.

Measure	Plants	Molluscs	Fishes	Reptiles	Birds	Mammals	Total
Number of species avoided in each class	5	1	11	8	11	34	70
Number of species listed as threatened by IUCN	0	0	0	5	1	15	21
Proportion avoided and threatened (%)	0	0	0	62	9	44	30



# Traditional ecological knowledge

- Not static
- Scale-specific
- Intergratable with scientific knowledge?

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# Tragedy of the Commons (Hardin 1968, Science) (Box 6.1)

## Anthropologists object?

Open Access  $\neq$  Communal  
Ownership

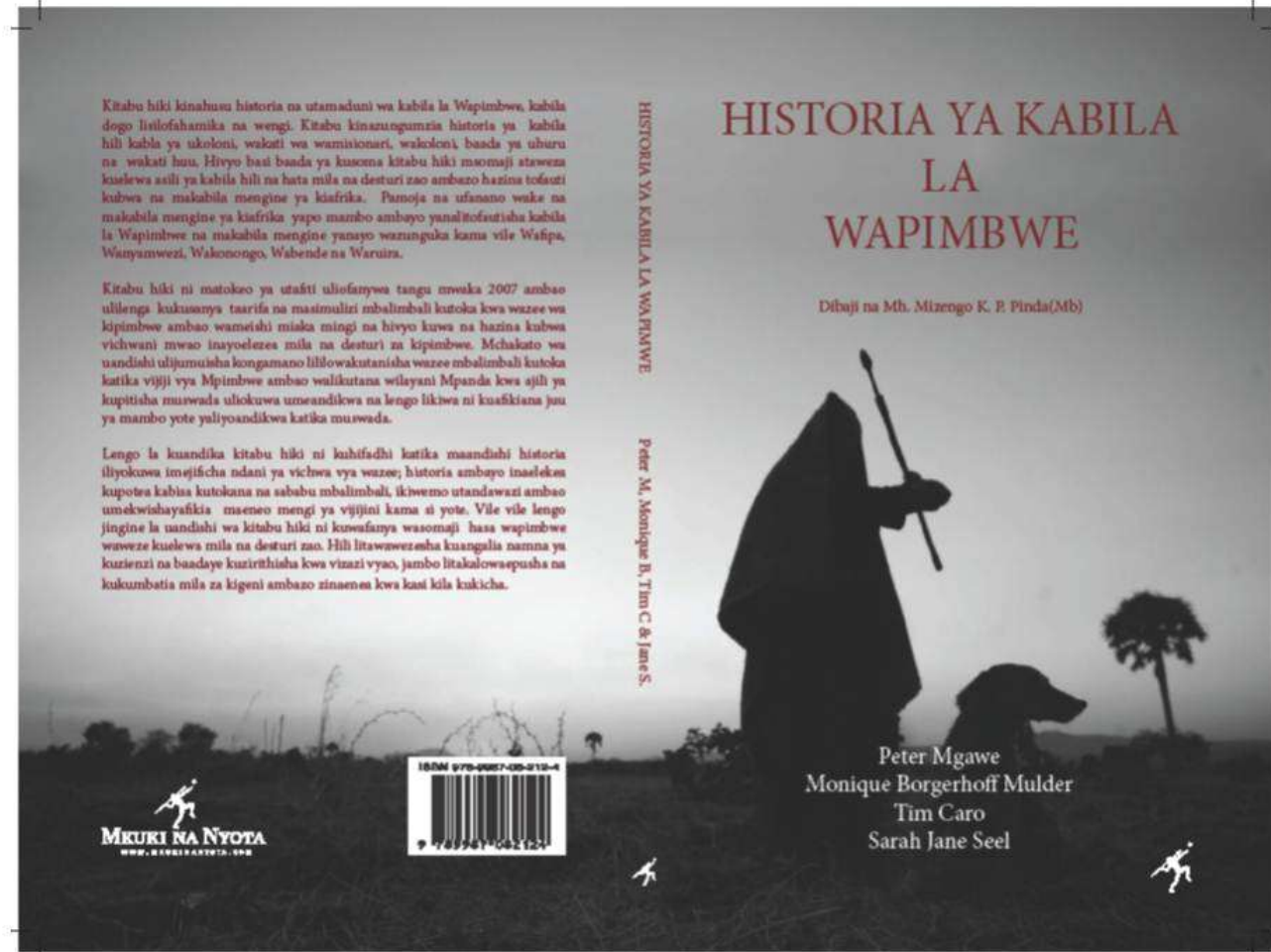
(Feeny D, Berkes F, McCay BJ,  
Acheson JM. 1990. The  
tragedy of the commons:  
twenty two years later. *Hum.  
Ecol.* 18:1–19)

Tragedy of the *unmanaged*  
commons (Hardin 1991)



Netting, R. (1981) Balancing on an Alp

“Twin juggernauts of centralized government and expanding commercial interests, often working in collusion, which undermine local resource management regimes...”



(Smith & Wishnie 2000)



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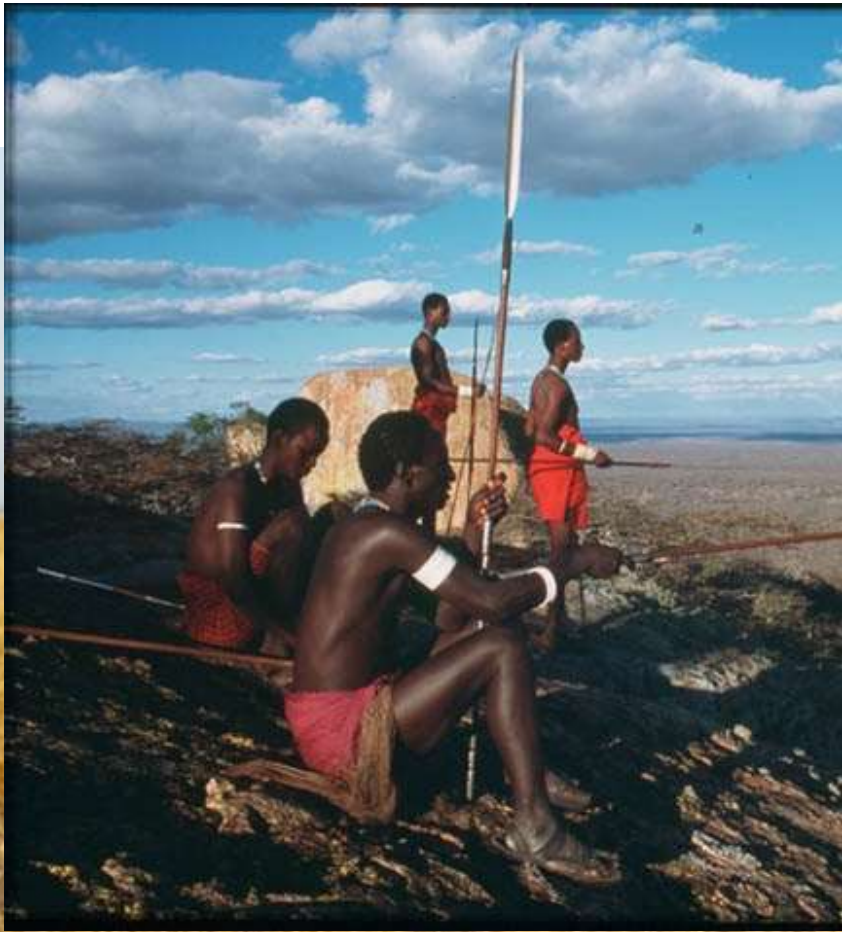
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# Protected Areas / “Fortress Conservation”





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SAVANNAS FOREVER  
TANZANIA  
DATA FOR AFRICAN DEVELOPMENT



HOME ABOUT US OUR SERVICES CLIENT STORIES OUR WORK ARTICLES

Q search...

## What can anthropology contribute to M&E?

Advocacy –

## Holistic understanding

Salerno, J., M. Borgerhoff Mulder, M. N. Grote, M. E. Ghiseli, and C. Packer. 2015. Trade-offs between household food security and human-wildlife conflict in community conservation areas in northern Tanzania. *Oryx*

Lawson, D. W., M. Borgerhoff Mulder, M., et al. 2014. Ethnicity and Child Health in Northern Tanzania: Maasai Pastoralists are Disadvantaged Compared to Neighbouring Ethnic Groups. *PLoS ONE* 9(10).



SAVANNAS FOREVER  
TANZANIA  
DATA FOR AFRICAN DEVELOPMENT



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Q search...

## What can anthropology contribute to M&E?

Advocacy –

Holistic  
understanding

**Mosaic pattern of  
effects**

Comparison

Lawson, D. W., S. James, E. Ngadaya, B. Ngowi, S. G. M. Mfinanga, K. Hartwig, and M. Borgerhoff Mulder. 2015. No evidence that polygynous marriage is a harmful cultural practice in northern Tanzania. **Proceedings of the National Academies of Sciences**

Salerno, J., M. Borgerhoff Mulder, and S. C. Kefauver. 2014. Human migration, protected areas, and conservation outreach in Tanzania. **Conservation Biology** 28:841-850

# Systematic Comparison (CEE)

1. Searched 136 “CBC” case studies (5 online data bases/6 terms)
2. Used multilevel model to explore three sets of predictors of “success”
  - National context
  - Project design features
  - Community characteristics

Brooks, J.S., Waylen, K.A and M. Borgerhoff Mulder, 2012. How national context, project design, and local community characteristics influence success in community-based conservation projects. *PNAS*



## Community Characteristics

- Ecological conditions
- Local Institutions
- Local land tenure
- Ethnic heterogeneity
- Population size
- Market integration /
- Market-based threats

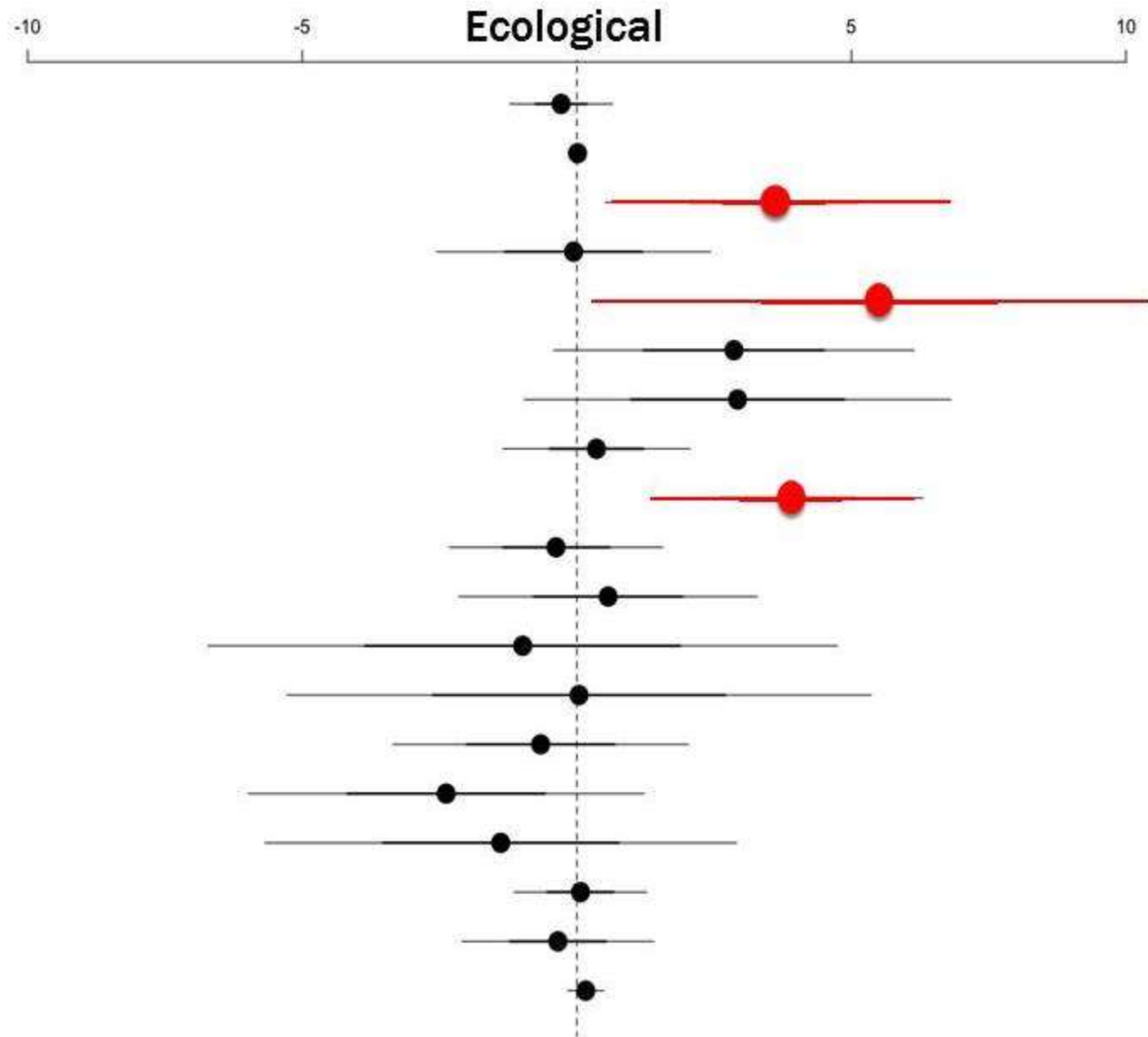
## Project Design

- Community engagement
- Capacity building
- Participation
- Protectionism
- Resource use
- Economic benefits
- Benefit distribution
- Social capital
- Environmental education

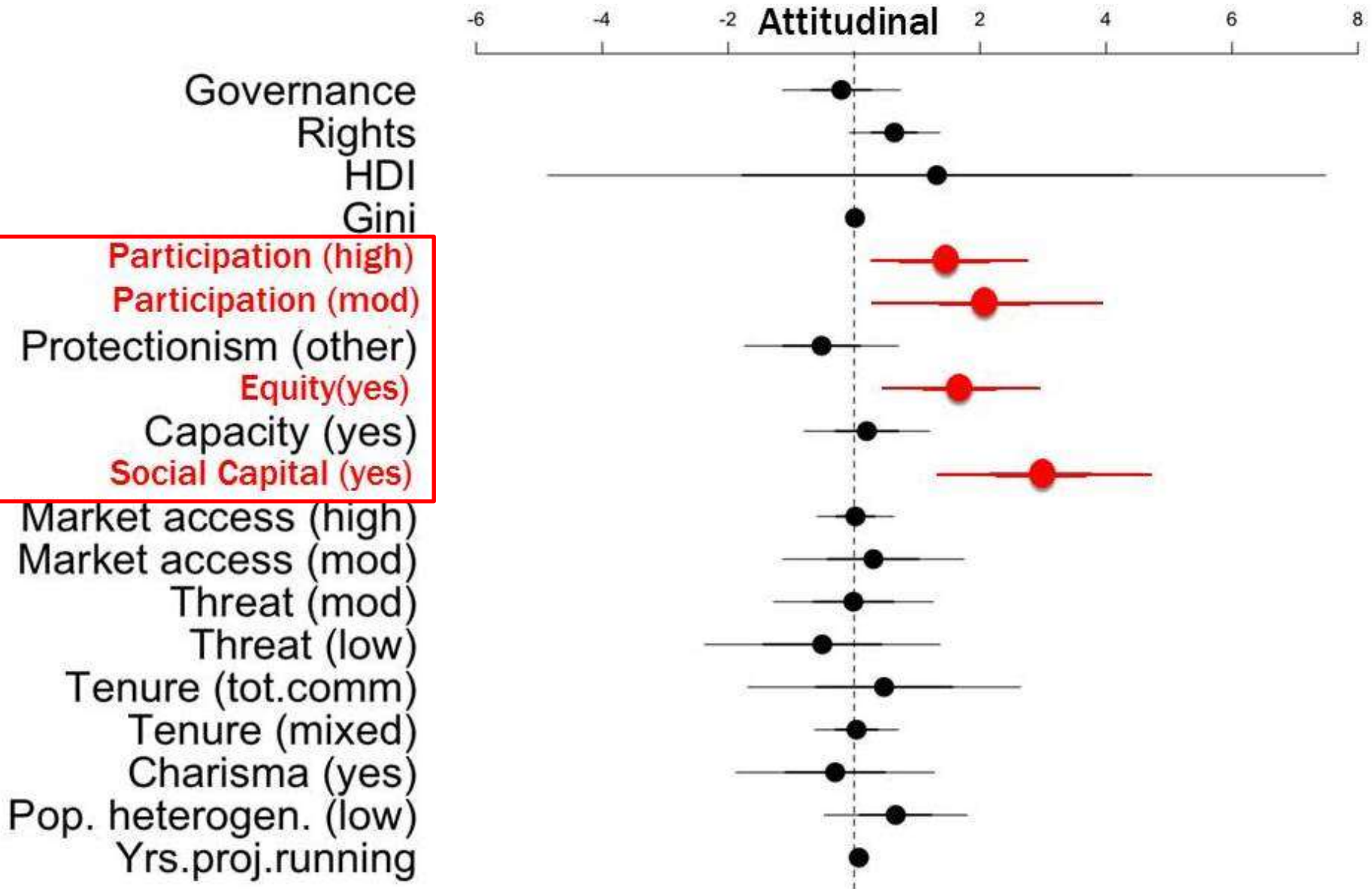


## National Context

- Governance (World Bank)
- Political Rights + freedoms
- Human Development Index
- Economic Inequality (Gini)



Proportional odds logistic regression. AIC model selection coefficients (90% & 95% CI)



Proportional odds logistic regression. AIC model selection coefficients (90% & 95% CI)

- Take an anthropologist
- Beware excess advocacy (conservation scientists, anthropologists alike)!
- Incorporate important features of community/individual wellbeing to monitor
- Embrace complexity (analytically)
- Watch out for those red buttons!





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Thank you for listening!