

# Opportunities in coupled human and natural systems : Intellectual challenges

- ❖ Most work is at the local level (<100 km)
- ❖ Build on traditions of field work in social and ecological sciences
- ❖ However, ability to examine some key variables (climate, soil, biome, culture, institutions, etc.) is limited
- ❖ Several ways emerging to take the next steps

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- ❖ Several ways emerging to take the next steps
- ❖ Multi-site structured comparisons—small n
- ❖ Aggregation across sites—IFRI—typically ~100 observations at best
- ❖ Landscape scale—Deploying GIS and spatial analysis with secondary and remotely sensed data?
- ❖ Macro-comparative work—tradition of cross-national comparative analysis and biogeography

# Opportunities in coupled human and natural systems : Scientific legitimacy

- ❖ Ecological Society of America Section on Human Ecology
- ❖ Frontiers in Ecology and Environment
- ❖ PNAS Section on Sustainability Science

# Opportunities in coupled human and natural systems : Funding

- ❖ NSF Dynamics of Coupled Natural and Human Systems
  - ❖ Permanent NSF Program support across GEO/ATM, BIO/DEB, SBE/BCS
  - ❖ Proposals due third Thursday in November
  - ❖ Minimum expect is \$500k

# Opportunities in coupled human and natural systems : Funding

- ❖ MSU has won more awards than any other university:
  - ❖ Dan Kramer “Globalization and the Connection of Remote Communities: Environmental Implications “
  - ❖ Jack Liu “[International Network of Research on Coupled Human and Natural Systems \(CHANS-Net\)](#)”
  - ❖ David Campbell/ Jennifer Olson “[Dynamic Interactions Among People, Livestock, and Savanna Ecosystems Under Climate Change](#)”

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❖ MSU has won more awards than any other university:

❖ Jack Liu “Effects of Cross-Boundary Processes on Human-Nature Dynamics in Wolong Nature Reserve for Giant Pandas”

❖ Runsheng Yin “The Driving Forces and Environmental Consequences of Land-Use and Land-Cover Changes in the Upper Yangtze Basin of China: A Multi-Scale, Integrative Approach”

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❖ David Campbell/ Jennifer Olson “An Integrated Analysis of Regional Land-Climate Interactions“

❖ Jack Liu “Complex Interactions Among Policies, People, and Panda Habitat in the Wolong Nature Research Landscape”

❖ David Campbell “Climate and Land Use Change Processes in East Africa”