

## **Symposium: “Mapping and disentangling human decisions in complex human-nature systems”**

Co-organizers: An L., Aitken S., & Silbernagel J.

Presenters: Aitken S. (Prof and Chair, SDSU Geography)  
An L. (Associate Prof, SDSU Geography)  
López-Carr D. (Associate Prof, UCSB)  
Chen X. (Postdoctoral Fellow, Harvard University)  
Wandersee S. (Doctoral student, SDSU)  
Zvoleff A. (Doctoral student, SDSU)

Discussant: Liu J. (Rachel Carson Chair & University Distinguished Professor at MSU)

Moderator: López-Carr D. (Moderator)

**Synopsis** (less than 1500 characters): Many coupled human-nature systems are characterized by complexities such as nonlinearities and heterogeneity (Liu et al. 2007 *Science*). Less is known about how human decisions are made to affect such systems. This symposium, incorporating case studies in three Asian National Reserves/parks, centers on generalizing characteristics, driving forces, and related methodologies for understanding human decision making and its consequences. Employing social surveys, fieldwork, and different modeling approaches (e.g., agent-based modeling), three junior researchers explore how social norms and the hierarchical structure of human organizations or decisions may feedback into each other and affect human resource-utilization decisions, thus affecting habitat dynamics of these species. Following that, their mentors and a few well-established outside researchers present general theoretical reflections on what theories and methods can be used to tackle human decisions, and how such decisions lead to system changes. Our purposeful intermix of researchers from different career stages, study sites, and backgrounds aims to better fertilize the study of complex human-nature systems. This symposium has been endorsed by International Network of Research on Coupled Human and Natural Systems and consulted with the AAAS Geology and Geography Section. To disseminate the exciting findings presented at the symposium more widely, we will write a synthetic paper and publish it in a peer-review journal.

**Scheduling and Time Justification for 180-minute proposals** (*You may not exceed 1000 characters (including spaces)*): The discussant (Liu) will give a short introduction about the state-of-the-art in studies of coupled human-nature systems [**10 minutes**--similar hereunder]. Then we will hand out a discussion outline & survey questionnaire to each participant regarding challenges, usefulness, and weaknesses of our approaches, and future directions in modeling human decisions and its consequences in complex human-nature systems [**5**]. Then the three junior presenters Chen, Wandersee, and Zvoleff will each present a case study [**60**]. Next we will allow interaction between the audience, presenters, organizers, and discussant regarding the outline / survey and these case studies [**10**]. The three mentors An, Carr, and Aitken will present generic theoretical and methodological perspectives in studying complex human-nature systems [**60**]. The discussant (Liu) will lead discussions based on the outline and questions from the audience, and we will collect the questionnaires for preparing the synthetic paper [**30**].

**Relevance to Theme** (less than 500 characters): First, the symposium tackles human decisions in complex human-nature systems from different disciplines, bridging quantitative and qualitative analysis. Second, it assembles studies from multiple sites with varying human-environment stresses (e.g., habitat degradation), generating understandings that go beyond specific places. Third, the presentations and resultant paper will advance interdisciplinary research as well as the theory & methodology of studying complex human-nature systems.