



ANNUAL REPORT FOR AWARD # 0551832

Texas Agricultural Experiment Station of the Texas A&M University System

TITLE: Land Trusts: Mediating Science and Policy on Conservation Lands

Participant Individuals:

CoPrincipal Investigators: Jane Packard, Priscilla Weeks

Graduate students: Jodi Minion; Andres Esparza

Partner Organizations:

Houston Advanced Research Center: Financial Support; In-kind Support; Facilities; Collaborative Research; Personnel Exchanges

Our collaboration is fully integrated at all levels. Financial support has been in terms of a reduction of the overhead charged. The in-kind support provided has been the use of software and computers. We hold research meetings jointly at HARC and TAMU. The Co-PI has her office at HARC, where she interfaces with her staff and TAMU collaborators in design, data collection, data analysis and preparation of products. We planned for A. Esparza to exchange with HARC as an intern.

Other collaborators:

Activities on this project are closely integrated with the research team of Dr. Michael Paolisso in the Anthropology Department at University of Maryland-College Park. Additional members of the UMD-CP team include: Nicole Dery, Shawn Maloney, and Marty Krizan. Part-time assistance in research and administration has also been provided by personnel at Houston Advanced Research Center: Stefanie Ritter, Ginny Jahn and Becky Robinson.

Activities and findings:

Research and Education Activities:

The goal of this project is to improve our understanding of how land trusts span the boundary between natural science and social values. For this first year, our tasks were to (1) characterize the structural diversity of land trusts in the research area and (2) identify the social and scientific components of materials used by land trusts to communicate about the identification and management of private conservation lands.

We have chosen 3 organizations for our case studies, to investigate how perspectives may vary at local, regional and national levels. These are: The Nature Conservancy, Conservation Fund and the Big Thicket Natural Heritage Trust. We have also attended the conferences of the umbrella organization, the Land Trust Alliance, to better understand how these organizations relate to the diversity of land trusts within the Southwestern Region and the nation.

We used the standard techniques of naturalistic inquiry to collect data, including: participant observation, informal conversations, formal interviews, web-based and literature searches for documents. In collaboration

with the USDA research project headed by M. Paolisso, formal interviews were transcribed, coded and archived. Materials have been collected and archived in electronic and hard copy formats at TAMU/TAES. Matching funds through this collaborative project have allowed us to leverage funds from the present NSF grant to become integrated into local, regional and national networks in a manner that otherwise would not have been possible.

Findings:

Our initial working hypothesis was: those land trusts that resonate more with perspectives of local communities, will experience relatively more ease in implementing land conservation policies. We predicted that local land trusts would (1) borrow more heavily from local social values than from scientific models (imported from organizations outside the local communities), and (2) rely more heavily on informal social processes to manage the tension between local perspectives (e.g. county tax base) and science-based policies.

Since the collection and analysis of qualitative data are still in progress, we are cautious about reporting findings prematurely. However, we can report that the evidence indicates our initial hypothesis was rather simplistic and the interactions among land trust organizations at the local level are much more complex than previously reported in public documents.

Examining the evidence collected in this first year (structure, products, process), we discovered more coordination among land trusts than expected. We will be examining this line of evidence to better understand how these organizations partition the activities to achieve their shared mission of integrating social and ecological knowledge to meet planning needs for future generations.

Training and Development:

Two graduate students have successfully been recruited to pursue higher education in science, as a result of this project. Both have shown excellent progress in bridging interdisciplinary studies, in part due to positive experiences with science as undergraduates.

As an undergraduate, Jodi Minion participated in an NSF-REU program designed to aid in career retraining. She has chosen to focus more in depth on natural resource policy, successfully transferring to another lab in our department.

Joining our research team in the second semester, Andres Esparza brings excellent skills in analysis of socio-demographic data, critical thinking and communication. With an undergraduate background in sociology, he has chosen to focus on the role of cultural diversity in shaping perceptions of conservation. By participating in this project, and the research partnership with the University of Maryland, he will refine transferable skills including: cultural competency; interviewing; written surveys; database management (e.g. Geographical Information Systems); analysis (integration of qualitative and quantitative approaches); and communication of scientific results in reports and peer reviewed publications.

Outreach Activities:

During the first year of this project, we have participated in several types of outreach activities, as an avenue for becoming more fully integrated into local communities and to better understand local perspectives about

science. These outreach activities include participation at: (1) city council meetings, (2) chamber of commerce meetings, (3) regional tourism development initiatives (Pineywoods Experience), (4) development of citizen science programs in the inventory of biodiversity (All Taxon Biodiversity Inventory at Big Thicket National Preserve), (5) community outreach by college students (BioBlitz in a local nature park and national preserve), (6) presentations at Big Thicket Science Conference and associated field events, (7) career development seminar for undergraduates, (8) presentations in college courses, (9) facilitating networking among federal employees of the National Park Service and tribal employees, (10) volunteer service with Texas Master Naturalists, a local chapter of a statewide network of citizen Scientists, and (11) development of curriculum related to diversity and conservation.

Journal Publications:

Bernal Stoopen, J. F., J.M. Packard and R. P. Reading., "Binational collaboration in endangered species recovery: a framework for consensus analysis", *Ecology and Society*, vol. , (), p. . in preparation

Packard, J. M. and P. Weeks, "Hog-hunting to conserve biodiversity: integrating perspectives on biocomplexity", *Southeastern Naturalist*, vol. , (), p. . in preparation

Book(s) of other one-time publications(s):

Stoopen, J. F., J.M. Packard and R. P. Reading. "Binational collaboration in recovery of endangered species: the Mexican wolf as a case study". Pages XXX-XXX in L. Lopez-Hoffman and K. Flessa (editors). Transborder conservation between the U. S. and Mexico: binational solutions to our shared problems. To be submitted to Island Press, Washington, D.C., USA. in review.

Other Specific Products:

Teaching aids

We are preparing a curriculum for a workshop addressing diversity in social conditioning surrounding the concepts and actions associated with "conservation lands". In this pilot curriculum, the specific type of social conditioning addressed is in terms of organizational culture and the shared language of "mission drift". The learning goal of this curriculum is enhanced awareness and understanding influencing behaviors associated with bridging cultural divides between research scientists and practitioners in the "land-trust" community. The curriculum is consistent with the curriculum modules currently piloted as "Diversity and Conservation" through the Land Conservation Leadership Program based at the National Conservation Training Center.

We plan to share this curriculum with practitioners at the annual meetings of a national organization, the Land Trust Alliance, as well as its regional networks (Southwest and Southeast). The curriculum will be shared with conservation scientists and scientists-in-training at the annual and section meetings of the global Society for Conservation Biology, through the Education Committee of the Social Sciences Working Group. Participants from diverse institutions of higher learning will be invited to attend these workshops through the membership networks of their professional societies.

Internet Dissemination:

<http://www.harc.edu/OurWork/Projects/LandTrusts>

This is the primary portal for providing visibility to the widest possible public audience. It has a link to the TAMU/TAES website, which provides portals for specified diverse audiences.

Contributions:

Contributions within Discipline:

By integrating theory from political ecology and conservation science, this research project has uncovered new insights about the roles of private organizations, i.e. land trusts, in shaping the interfaces between science and society. With changing global markets and increasingly complex politics influencing how taxpayers' dollars are directed, government organizations are challenged by expanding constraints on actually implementing environmentally sound policies. This gap in capacity has been bridged, in part, via strategic partnerships in the private sector, through outreach activities of non-governmental organizations. Where an organization is situated within the political hierarchy of local, regional and national networks, makes a big difference in both the available resources and the realistic strategies for mobilizing such resources.

By the end of this project, we will have collected the evidence needed to test the simple model that local land trusts utilize social values, in contrast to use of sound science by extra-local (regional/national) land trusts. We anticipate that a more complex model will emerge, in which we can predict when the flow of information between scientists and citizens is facilitated and when it is inhibited, analogous to a membrane that opens or closes permeable pores under specific conditions of resource availability and/or stressors. Furthermore, our research will provide a deeper understanding of how organizations collaborate in forming networks to most effectively direct resources to address land conservation needs at a variety of social levels, spanning local to national perspectives.

Contributions to Other Disciplines:

This ongoing research will contribute valuable social perspectives to inform both the theory and practice of the natural sciences, in particular, through the study of biocomplexity (i.e. integration of natural and human systems). Predictions about ecological changes in human-dominated landscapes, must be coupled with realistic models of social processes, if they are to provide accurate information for decision makers. Bridges across barriers to interdisciplinary communication will be made more explicit as a result of the current research project.

Results of the present research will clarify the extent to which stressors at local scales need to be matched with local interventions (e.g. prescribed burn forest treatments) and the extent to which regional interventions will address widespread stressors (e.g. global climate change) affecting larger landscapes. It will provide a basis for scaling up from what is known about local sites, to projecting trends within regional landscapes, where conservation of biodiversity and ecosystem services are desirable to society (e.g. as mandated by governmental policies).

By clarifying the nested hierarchy of human systems, conservation scientists will be better able to match information at the appropriate scale in the hierarchy of biological systems. Strategic planners will be better able to predict when and how information flow between scientists and citizens needs to be facilitated, and when it is unlikely to yield progressive results.

Contributions to Education and Human Resources:

In this project, a rich learning environment has been created by integrating experience, academic and local knowledge to support collaborative learning. This has worked on several levels including growth in interdisciplinary understanding shared by the co-principal investigators, as well as development of a deeper understanding of scientific processes by scientists-in-training, the graduate students on the research team. To help broaden the experience base for Andres Esparza, we have arranged for an internship at HARC during summer 2007.

We also have integrated elements of positive role modeling to recruit several well qualified students from under-represented groups, to consider careers in science and technology. For example, we participate in a network of scientists in the study area who will host undergraduate students from Eastfield College, Stephen F. Austin College, Prairie View College and Texas A&M University. The graduate research assistant on our team, Andres Esparza, has chosen to focus on questions of participation by Latinos in citizen outreach programs associated with conservation lands, thereby serving one of the fastest growing under-represented communities within the study site.

Contributions to Resources for Science and Technology:

During the previous year, we have drafted a plan for preparing the educational resources to disseminate results of this study in a manner that will enhance communication between research scientists and practitioners. Educational modules will be designed to address learning goals of awareness (20 min presentation), knowledge overview (45 minutes), skill sets (2 hours), simple case studies (4 hours), comparison of case studies (8 hours) and integration of skill sets and knowledge (8 hours). These modules will provide for progressive addition of complexity, with the shorter options designed for broader public audiences and longer options designed for more experienced and specialized audiences of practitioners and scientists. Combining all modules could provide the basis for a continuing education curriculum suitable for delivery by distance education and/or 3-day training sessions within appropriate programs such as the Land Conservation Leadership Program of the Land Trust Alliance and The Conservation Fund. This would provide the infrastructure for practitioners to learn about scientific results of this study and for scientists to learn about the practical problems encountered by practitioners.

Contributions Beyond Science and Engineering:

Across the nation, the timber industry is selling lands once managed for timber production. This has created social and scientific uncertainty about the future of ecological services once provided by these forested lands, e.g. protecting urban water sources, flood control, clean air/water and biodiversity. The result is social uncertainty about (1) potential deforestation as private lands change ownership, and (2) shifting patterns of employment potentially influencing views of conservation practices. Scientific uncertainty about changes in the ecological services provided by forests, raise questions about increasing stressors potentially affecting sensitive ecosystems or the quality of life in rural and urban communities within the affected watersheds.

The cumulative decisions made by private landowners may affect interactions of multiple stressors (e.g. deforestation, global climate change, and invasive species) in a manner that reduces the resilience of communities adapting to change. The major benefit for society will be cost effective environmental protection as a result of this study. The costs of restoring damaged ecosystems are much greater than maintaining the functions of intact, healthy watersheds that provide clean air and water for rural and urban communities.

Special Requirements for Annual Project Report:

Unobligated funds: less than 20 percent of current funds

Project Participants

Packard M Jane : Principal Investigator

Has worked for more than 160 hours : Yes

Contribution to project : Collaborated with Co-PI in design, adaptation and implementation of project. Provided theoretical grounding for integration of human systems and biological systems. Recruited, supervised and mentored graduate students. Managed logistical arrangements and linkages with local communities at field site. Administered the overall budget. Prepared first drafts of reports, manuscripts and products for dissemination. Coordinated review and revision of products by team members. Provided principled leadership to meet the challenges of working within an interdisciplinary research team, including fostering positive problem solving approaches.

Weeks Priscilla : CoPrincipal Investigator

Has worked for more than 160 hours : Yes

Contribution to project : Collaborated with PI in design, adaptation and implementation of project. Provided theoretical guidance on structure and functioning of land trusts as boundary organizations. Aided in the recruitment of the graduate student. Conducted participant observation via participation on a BTA/NPS committee and attendance at conference. Devised social codes for documents and chose documents to be coded. Supervises research assistant. Administers HARC budget.

Minion Jodi : Graduate student

Has worked for more than 160 hours : Yes

Contribution to project : Collected, analyzed and summarized data. Maintained a database of documents associated with the project. Managed the interface with a transcription service for audio records of interviews. Searched and obtained relevant literature. Attended a conference and submitted a report on how the project could be presented in a relevant manner to a wider audience to enhance the social merit.

Esparza Andres : Graduate student

Has worked for more than 160 hours : Yes

Contribution to project : Collected, analyzed and summarized data. Maintained a database of documents associated with the project. Searched and obtained relevant literature. Assisted in preparation of web-based survey questionnaire. Assisted in planning for dissemination of results for diverse audiences, associated with training in cultural competency. Assisted qualitative data collection techniques (i.e. participant observation and field notes). Assisted with design for thematic content analysis of documents and plan for survey distribution. Assisted in editing and revising the annual report for more effective communication with a wider audience.