

MANAGING NATIONAL PARKS IN THE CONTEXT OF CHANGING HUMAN POPULATIONS AND ECONOMICS: STRENGTHENING COLLABORATION BETWEEN RESEARCHERS AND MANAGERS WORKING IN AND AROUND SERENGETI AND YELLOWSTONE NATIONAL PARKS

NARRATIVE SUMMARY

The SEYE project is comprised of a set of discrete planning activities with the near-term goal of solidifying collaboration between researchers and managers associated with Yellowstone and Serengeti National Parks and their greater ecosystems. The planning activities include a workshop in Africa to bring U.S. and African researchers and managers together to define collaborative opportunities. These activities will lay the foundation for the future of the project, aimed at creating a more formal ongoing collaboration on shared issues of management, training, and research. The long-term goal is to contribute to the capacity necessary to maintain and sustain these natural areas as representatives of two of the world's premier national park systems and biodiversity preserves.

RESEARCH

Problem Model. Serengeti and Yellowstone are arguably two of the world's most significant national parks. As large nature reserves, they are similar in that they contain biologically diverse and largely intact grazing ecosystems surrounded by pastoralists and ranchers whose livelihoods are dependant on livestock. In various ways, they have both served as models for conservation in the context of competing human land uses in and adjacent to the parks.

Although the physical, biological, and socio-economic situations of the two parks are strikingly different (Berger 1991), profound functional similarities exist (Frank et al. 1998). Both systems are large and heterogeneous with strong topographically controlled vegetation gradients that range from semi-arid grasslands to closed woodlands or forests. Large migratory grazers track the spatial and temporal variability in resources along these gradients. Both parks conserve only a portion of the ecosystems in which they reside and on whose resources the parks depend for their long-term sustainability. Agents of disturbance are similar, including fire, livestock grazing, and animal diseases. The dynamics of both systems are intimately tied to human activities, including hunting, grazing, recreation, and eco-tourism. Ecosystem simulation models developed for Yellowstone can be readily modified for extension to East African ecosystems (Coughenour and Singer 1996, Boone et al. 2002) and some such as POLEYC/SAVANNA (funded in part by GL-CRSP) have already been applied in both parks.

The research literature comparing the ecology of the two systems is rich, but there is no similarly comprehensive comparison of conservation management issues and strategies between Yellowstone and Serengeti National Parks, including the ecosystems and communities in which they are embedded.

The SEYE project is comparing and contrasting the ecological, socio-economic, and policy contexts for the Yellowstone and Serengeti National Parks as vehicles to conserve biodiversity and promote sustainable livelihoods. The comparison will address several critical management challenges that are shared by the two park systems, including:

- Human population is increasing along the boundaries of both parks;
- Population and land use change at the edges of the parks and reserves alter animal migrations in and out of reserves and their interaction with livestock;
- Disease transmission between livestock and wildlife alters the population dynamics of animals and constrains management practices for the parks, pastoralists, and ranchers in the ecosystem;
- Regional economic stability is tied to each park's amenity values in complex, and often disputed, ways;
- Effective management will address issues and processes that span jurisdictional boundaries, including lands and policies outside the parks.

Comparative analyses of Yellowstone and Serengeti will be useful in their own right and at the same time will contribute to a larger effort to link current theoretical advances in conservation biology, sustainability, and ecological resilience to practical issues of design and management (Barrett and Arcese 1995, Norton-Griffiths and Southey 1995, Gunderson et al. 1995, Ellis and Swift 1998, Brandon et al. 1998, Walker 2002).

Progress. Our progress was impeded by constraints on travel imposed by the political turmoil of 2003. Progress in the latter half of 2003 has been strong, including the following:

- First, a study tour was hosted for senior Tanzanian National Parks (TANAPA) staff in Yellowstone National Park (YNP) in June 2003.
- Second, Dr. Glenn Plumb (YNP) and Dr. Lisa Graumlich traveled to the Greater Serengeti/Mara in August 2003 to meet with stakeholders and discuss and identify issue and problem models that can form the foundation for long-term collaborations.
- Third, East African perspectives on park science and management were incorporated into the 7th Biennial Yellowstone Science Conference to be held in October 2003.

Through these activities, we are developing jointly defined objectives for future collaboration. The final step in defining the relevant problems and problem models will take place in late January or early February 2004 when we will host a scoping workshop at Serengeti National Park. We see such a workshop as the final step in defining needs and opportunities for a sustained, multi-year follow-on effort that would link U.S. land-grant university researchers and land managers with their counterparts in East Africa.

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GENDER

The project has made strong efforts to ensure that women are strongly represented in all project activities. Towards that end, we had several notable successes. One of the four senior TANAPA officials to visit YNP in June

2004 was female (Anna Grace Kyoma). In meetings in Kenya and Tanzania, we sought out female participants in our informal workshops. The extensive professional network of Dr. Robin Reid of ILRI facilitated our contact with senior female researchers and managers.

POLICY

In November 2003, we hosted two Tanzanian policy makers at the Big Sky Institute and Yellowstone National Park to brief them on the project objectives and to discuss policy implications. The visitors were: Mrs. M. Watondoha, Trustee of TANAPA and Member of Parliament, Dr. H. Mwakyembe, Trustee of TANAPA and member of the East African Legislative Assembly. Mrs. Watondoha invited Dr. Graumlich and colleagues to brief Parliament on project results in 2004.

OUTREACH

Given the preliminary nature of our project, we have not accomplished any specific outreach activities. We intend to target national park managers and land resource decision makers at the regional level in the U.S., Kenya, and Tanzania with our future efforts.

DEVELOPMENTAL IMPACT

Environmental Impact and Relevance.

Our project will contribute to developing a stronger scientific base for the management of Yellowstone and Serengeti National Parks and the lands surrounding these parks.

Agricultural Sustainability. Our project will enhance our understanding of disease transmission between livestock and

wildlife in and around Yellowstone and Serengeti National Parks.

Contributions to U.S. Agriculture. Our project will increase our understanding of the ecological interactions between national park and the lands surrounding these parks.

Contributions to Host Country. We anticipate that our project will contribute to the capacity of Kenya and Tanzania to manage the national park and reserve lands in such a way that promotes ecological integrity as well as the economic development of surrounding communities.

Linkages and Networking. We anticipate developing a strong network of U.S. and East African researchers and managers who have common interests and experiences in managing national park lands.

OTHER CONTRIBUTIONS

Support for Free Markets and Broad-Based Economic Growth. We anticipate that this project will provide new perspectives on economic development, in particular, nature-based tourism in and around Yellowstone and Serengeti National Parks.

Contributions to and Compliance with Mission Objectives. We are in touch with the Kenyan and Tanzanian missions and are working to align our project with their objectives.

Concern for Individuals. Our concern for individuals is manifest in our plans to develop training opportunities for young and mid-career researchers and managers from the host countries.

Support for Democracy. We are not currently directly addressing support for democracy.

Humanitarian Assistance. We are not currently directly addressing humanitarian assistance.

LEVERAGED FUNDS AND LINKED PROJECTS

National Science Foundation, Biocomplexity in the Environment, Global Change, Globalization, and the Vulnerability of Mountain Systems, 2001-2003, \$80,000 (Graumlich, PI).

COLLABORATING PERSONNEL

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