

# Linking Livelihoods and Land Cover in Southern Africa

JESSICA STEELE

My research looks at savanna ecology, land cover, and human livelihoods in the Okavango Delta region of southern Africa. I am working toward linking village-scale socioeconomic data with regional land cover in northern Botswana and the Caprivi Strip in Namibia. Multiple factors contribute to land cover change in this area including humans, large herbivores, climatic changes, and fire, to name a few. This is of particular concern as people are intricately tied to the landscape through subsistence farming, wild food gathering, natural resource extraction, grazing, and tourism as a primary economic activity. This interconnection necessitates judicious environmental policies and careful discernment in the management of protected areas, hunting, and regional economic growth.

During a previous trip to Botswana and Namibia in 2010,



I worked with a team of graduate students and professors to collect socioeconomic data including livelihood composition and land use practices in seven villages across the region. Our goal was to learn about as many households as possible in each village through semi-structured interviews. Other members of the team conducted focus groups with community members and personal

interviews with village chiefs. We are in the process of analyzing these data, and currently gaining insight into the complex relationships between individual households, institutions, wildlife, and the land.

The next step in my research was to return to this area in May and June of 2011 to collect ecological data, including plot-level vegetation measurements and spectral signatures of key savanna species. I am analyzing satellite imagery, and fieldwork is an absolute necessity when using remote sensing to characterize a landscape. Scientists and managers in this region are concerned about shrub encroachment as a potential threat to species diversity and ecological stability. Thus far using remote sensing to classify the landscape into shrubs, trees, and grasses has not been successful. Accordingly, that fine-scale level of discrimination would be extremely useful in understanding the function of the savanna.

That being the case, in addition to running vegetation transects and completing a training sample sheet at each site, I used a spectroradiometer to measure the spectral signature of key savanna species. The spectroradiometer takes the same measurement as the satellite and I intend to use these signatures to identify species on the imagery. In several cases the images I am using overlap with the villages we sampled, providing an opportunity to make direct links between people and the environment. It is my hope that these datasets will foster the connection of local-scale livelihood strategies and regional environmental change, providing insight into the ways future environmental changes could affect people and social stabil-

ity in this region. I am sincerely grateful for the financial assistance from the Center of African Studies, without which this work would not have been possible.



*Jessica Steele is a Ph.D. student in geography. Funding for this research from: NASA Land-Cover / Land-Use Change Program Grant, CAS pre-dissertation research award, QSE3 IGERT Travel Grant, UF CLAS Travel Grant, and the UF Office of Research.*