Voices From the Field

Interviews with:

Steven Sesnie, Spatial Ecologist, Fish & Wildlife Service

Neal Jander, Geographer, National Park Service

GIS Support for Land Planning in Colombia

Steven Sesnie, Spacial Ecologist, USFWS and Neal Jander, Geographer, NPS. Photo credit: DOI-ITAP.

Context: As the Colombian Government and the Revolutionary Armed Forces of Colombia signed a peace agreement that put an end to a 50-year civil war, new demands, including access to land, have become a primary concern in terms of maintaining protected areas in the region. The Environment Peace Initiative for Colombia (EPIC) is a project from the U.S. Agency for International Development (USAID) which aims to ensure the sustainability of natural resources in Colombia at a key point in time when many economic development and conservation possibilities are becoming a reality.

DOI-ITAP ASSIGNMENT: Steve and Neal travelled to Colombia for a week to provide support to the Colombian Government to improve land change modeling scenarios. A primary objective of this assignment focused on providing assistance with the creation of geographic information system (GIS) platforms and training courses to consolidate and analyze natural resource data for conservation purposes. This effort will better inform and support the decision-making processes regarding forest change and prioritizing wildlife corridors between protected areas in Colombia's Meta and Guaviare Departments. Spatial data and modeling applications developed as a part of this initiative are broadly applicable to other parts of Colombia.

What was your role in the EPIC Program?

Steven: My role was to consolidate and develop new spatial data that could be used in land change modeling, and then to assist with the technical details of working together with our partners in Colombia. Our job was also to develop the technical aspects of sophisticated, but user-friendly land planning tools. We provided an analytical framework and GIS tools to help use spatially explicit natural resource data in land planning scenarios and determine the potential impacts of extending infrastructure into sensitive conservation areas.

Neal: My main role was to assist with the provision of data for the project and to obtain interpretable results from the models that we run. I also developed maps from these results that were used as a communication tools with project partners.

How was your experience during preparation for this assignment?

Steven: We identified and consolidated essential GIS data with the help of our Colombian partners to run preliminary land change models prior to arrival, so while we were there (in Colombia) we were able to dedicate an entire week on refining our analyses, rather than preparing data. If we hadn´t done that (preparation time), we would not have met our objectives for running change models and synthesizing data in a format accessible to land managers and planners. That was very critical to achieving the results in a short period of time. I think the focus that was identified by ITAP was critical to our efforts and facilitated us in achieving our main training objective, which was to translate GIS data and techniques into useful products for conservation decision making.

Neal: Before our trip, it was extremely important to have several conference calls with our Colombian counterparts and hear the Spanish technical terms we would be using. We also had a good amount of support from ITAP, especially with the logistics of the trip and the factsheet developed by the EPIC Project explaining key elements of the project.

Describe your most rewarding experience during your participation in the EPIC Program

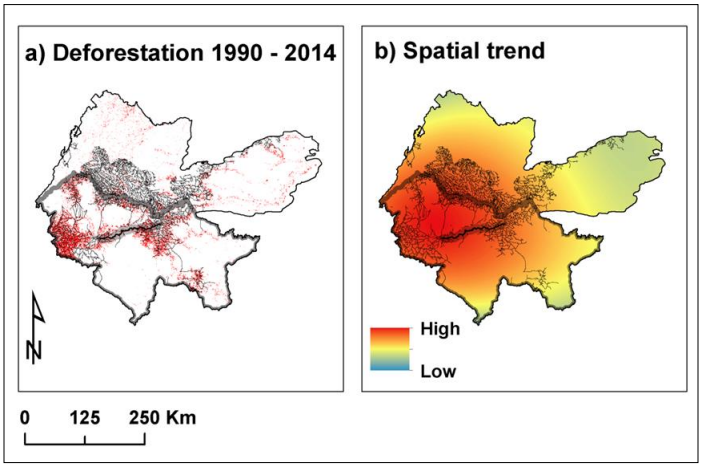
Steven: It was important to have high quality spatial data and other background materials working with our Colombian counterparts. That really allowed us to work in a productive way. Our partners in Colombia understood that the tools were available; but they were having technical difficulties getting them to work together with their own database. They understood that these visual modeling techniques were available, but didn´t have features of software identified. We developed the data in a way that was functional, and integrated that into the land change modeling tools they were familiar with. We left feeling very good that our partners in Colombia will continue on working with them as needed.

Neal: The Colombian government has a great amount of geospatial information available for land cover. We just took what they had to the next step by using it to model the future landscape conditions and vulnerability of land change for key locations and habitat connections in the study area.

What was the impact of this experience at your professional and personal level?

Steven: This experience helped to sharpen my own technical skills. I really needed to think more clearly about each aspect of the modeling, how it should be used and what sort of detail I should be paying attention to better understand important forest change factors in the context of the study area. I think it also sharpened my knowledge and skills about how land change modeling tools work, which has increased my interest in applying them to other situations and conservation questions that we have here in the US.

Neal: The ITAP experience was really valuable and allowed me to learn in a different way. I would say for me this experience has given me new ideas for projects with the National Park Service in the US. I´m interested in using the land change modeler and applying it to some projects that I have.



Deforestation within the study area a) between 1990 and 2014 (red) and b) matching spatial trend in areas that corresponded with remnant forest patches and higher road densities (light gray lines). More extreme road densities to the north of the study area (broad gray outline) had far fewer remnant forest patches in 1990, and concomitantly lower deforestation. Photo: DOI-ITAP

Land Use and Land Cover Change (LULCC) presentation by the US/Colombian GIS technical team to Colombian National Park Service (PNN) personnel at the end of the workshop. Photo: DOI-ITAP

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