

Wednesday, 8 January / Miércoles 8 de enero

09:00-10:30: Salón Rubí

## Biogeography II / Biogeografía II

*Chair: Klaus J. Meyer-Arendt*

### ***Forest landscapes of eastern Panama reflect cultural identities of swidden farmers***

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Shifting cultivation supports millions of small-scale farmers in the tropics. The broad array of field types and forest stages create heterogeneous patchwork landscapes renowned for their diversity. Here, we explore the idea that the cultural identity of shifting cultivators is reflected in their management of fields and crops, and, in turn, that these distinct management practices combine across cultural territories to enrich agro-biodiversity at regional scales. Working in eastern Panama with farmers of three ethnic groups – Black, Emberá and Kuna – we compared the temporal and spatial dynamics of field-clearing and agroforest tree-planting among twelve villages (four of each ethnic group). Even in villages along the highway in which agricultural practices were changing most rapidly, farmers' cultural identities were reflected in distinct assemblages of agroforest tree species and field types. Together, these differences combined to foster agro-biodiversity in the broader landscape.

*Keywords:* landscape, forest, shifting cultivation, agro-biodiversity, cultural diversity

### ***Using Geographic Information Systems (GIS) to map forest resources: Spatial patterns of non-timber forest resource distribution in the Peruvian Amazon and support of community conservation efforts***

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In western Amazonia forests with high densities of ecologically and economically important tree species are present in different landscapes. We have found that the patchy distribution of non-timber forest species allows us to map their local distribution using GIS and document their populations, harvest impacts, and economic value with improved accuracy when compared to previous studies. In this study we identify and map wild populations of palm (*Mauritia flexuosa*) and fruit tree (*Myrciaria dubia*) species, and semi-domesticated concentrations of *Astrocaryum chambira* palms. Patches of these trees displayed great variation in area, spatial form and distribution, population density, harvest damage, and economic value. This method of large-scale mapping can help communities to implement forest management programs and determine forest economic value. Researchers will find this method

useful to study other species. Examples of findings are presented using several maps and analysis that illustrate the effectiveness of the methodology.

*Keywords:* Non-timber forest resources, GIS, oligarchic forests, Amazon, community conservation

***Theory and Context in Analyzing Livelihoods, Land Use and Land Cover:  
Lessons from Petén, Guatemala***

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This paper explores the dominant trends and dynamics that have unfolded in Guatemala's Petén region since the mid-1990s. Drawing from the author's own fieldwork as well as research by others, the article reviews key changes occurring in this frontier region with respect to population growth and redistribution; integration with national and international economic spheres; drug trafficking; and a process of de-agrarianization and dispossession among smallholders while large scale, commercial activities in agriculture, ranching and plantation forestry increasingly dominate. These changes are generating a rapid process of land concentration and intensifying pressure on remaining areas of forest. The paper also explores the implications of the situation in Petén for theory and policy with regard to deforestation, agrarian change and regional development. It argues that while generalizations about specific causes of deforestation are of questionable validity, it is worthwhile to look for, and seek to address, particular circumstances or situations within a community or region, as created through a combination of factors, that can generate deforestation pressure.

*Keywords:* livelihoods, land use, land covers, dispossession, agrarian change

***Ecologies of mangrove restoration for climate mitigation in El Salvador, 2011-2013***

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This paper analyzes mangrove restoration in the Lower Lempa of El Salvador between 2011 and 2013 as part of a national environmental program to restore ecosystems and landscapes. The focus is on one program goal, global climate mitigation. The approach taken is a fusion of cultural and political ecology. Mixed-methods included semi-structured interviews, household surveys and participant observation. The research questioned whether or not such restoration constituted a form of "carbon colonialism", or whether in fact participants were able to reconcile it ideologically, politically and materially with their own interests. Preliminary results indicate that while communities were able to appropriate the means and the ends of the national policy somewhat to their own advantage in the short-term, the overall global balance is not to their long-term advantage.

*Keywords:* Mangroves, restoration, climate mitigation, carbon colonialism, El Salvador

## ***Changes in Mangrove Habitat in the Dominican Republic***

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The objectives of this study were to assess the status (area change, threats, level of protection) of mangroves in the Dominican Republic. Although mangroves are less widespread here than in Cuba, Mexico, the Bahamas, or Panama, the rate of mangrove loss—at 2.8%/yr—has been ranked as severe by the FAO. Methods of analysis included comparing aerial photographs used in preparing the earliest topographical maps (1960s to early 1980s) with the most recent remote sensing imagery (2009-2012). Zones of severe mangrove reduction were identified, and field inspected in 2012. Results show that mangroves decreased from 25,245 to 18,441 hectares, and that agriculture, tourism, and salt production were the key causal agents of destruction. Remaining mangroves appear to be protected within national parks or by protective laws, and their roles in maintaining viable fisheries are recognized. Even in neighboring Haiti, the north coast mangroves appear to be relatively healthy.

*Keywords:* Dominican Republic, mangrove habitat, mangrove conservation, salt industry, tourism