

Tuesday, 7 January / Martes 7 de enero

9:00-10:30: Salón Rubí

Biogeography I / Biogeografía I

Chair: Kristen Conway-Gómez

La biodiversidad de Los Andes Centrales como respaldo para el desarrollo rural

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El desarrollo rural es una preocupación permanente de los gobiernos de todos los colores políticos en el Tercer Mundo, especialmente en América Iberoamericana. Los rurales ocupan un poco más del 40 por ciento de la población mundial y su importancia crece porque son los que producen la mayor parte de los alimentos que sostienen nuestras vidas. A pesar de esto, en las políticas de desarrollo se habla mucho y se hace poco en favor del sector rural, especialmente para mejorar la calidad de vida de los más pobres, que en términos globales se encuentran en los territorios montañosos del mundo. En esta ponencia se presentará una estrategia para el desarrollo rural aprovechando la biodiversidad de los Andes. El objetivo es atraer la atención hacia las ofertas ambientales que tienen los lugares y que al ser aprovechadas apropiadamente pueden contribuir a mejorar los ingresos de sus habitantes. La discusión se orientará hacia la biodiversidad vegetal en donde sobresalen algunas frutas y yerbas medicinales.

Palabras clave: montaña, rural, desarrollo, yerbas medicinales, frutas silvestres

Creating Digital Elevation Models in Data-Poor Mountainous Regions: A Comparative Analysis of DEMs Developed for a Peruvian Glacial Valley

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Digital elevation models (DEMs) are a basic but often critical component of geographical research. However, outside of North America, Europe, and East Asia, accessing high-resolution DEMs (i.e. <30m resolution) can be difficult due to the lack of publicly-available satellite data or because of the high incidence of cloud cover. As part of our research in Río Abiseo National Park, Peru we constructed a 2.9m resolution DEM for the Callejon Rojas valley (6.76 km²) using GPS track points, photo reconnaissance, ground truth surveys, and point digitizing within ArcGIS 10.1. In this paper, we compare our results with DEMs produced using ASTER grids and digitized topographic maps for the same valley. The pros and the cons of these and other DEM options for Latin Americanist geographers are reviewed and the methodological challenges associated with field mapping in remote locations are discussed.

Keywords: DEM, field research, GPS elevation points, mountain valley, Peru

Assessing the feasibility of using small unmanned aircraft systems for community forest monitoring in tropical areas

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Sound community forest management (CFM) strategies are essential to enhance tropical forest dwellers' livelihoods and can be effective for biological and cultural conservation. Critically, community monitoring (CM) processes have to be developed in combination with CFM strategies so that a range of appropriate forest assessments can be made over time, and management can be improved. Moreover, CM of forests is crucial to successfully implementing REDD+. Although CM is usually carried out through conventional ground surveys, these are time-consuming, tedious, costly, and plagued with difficulties especially in tropical forests. In this paper we assess whether it is feasible that communities use small, low-cost, unmanned aircraft systems (UAS) to monitor their tropical forests, and whether their utilization would ease that task. Our assessment is based on literature review and hands-on experience with UAS. Though there are some significant challenges yet to be surmounted, we believe that CM of forests with small UAS can already be partially accomplished, and that this technology will help communities to better manage and conserve their forests.

Keywords: drone, unmanned aerial vehicle, community forests, community monitoring, conservation

Climate Justice: Low-Income Communities and Access to Resources at the U.S.-Mexico Border

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Climate creates an uneven landscape of negative impacts on low-income and marginalized communities. This paper examines the interface between climate vulnerability and environmental justice in southern Arizona and the U.S.-Mexico border region. What is the relationship between climate and poverty in the U.S. southwest and Mexican border region? What are the implications for environmental justice--in terms of access to safe water supplies, health, food, and energy-- as climate changes? Although exposure to climate impacts may be universal across a region, the associated risk can vary according to demographic and economic characteristics (e.g., age, socioeconomic level) and capacity to respond. The semi-arid U.S. southwest and border region has been called "ground zero" for climate change. It is projected to become hotter and drier under future climate change, creating the potential for heightened vulnerability and increasing challenges to achieve environmental justice. This paper is based on three NOAA-funded research projects on energy and food poverty, water vulnerability, and adaptive capacity in the region.

Keywords: climate vulnerability, energy poverty, U.S.-Mexico border

***Changing rain forest resource availability among rural communities
in the Napo river basin, Peruvian Amazon***

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A primary challenge confronting researchers and NGOs working on conservation and development issues in Amazonia lies in the low settlement density, high environmental diversity and marked heterogeneity of natural resource use among rural populations. This paper reports on initial findings from the Peruvian Amazon Rural Livelihoods and Poverty (PARLAP) Project, which includes an ongoing survey of over 1000 communities in five river basins in Loreto and Ucayali. We examine how rural peoples' access to natural resources – forests, fish, and game – have changed over time in one river basin – the Napo – by comparing initial resource access (i.e., at time of community establishment) with access in 2012 across 273 rural communities. Our analyses assess differences in changing resource access by community type, location, size and era of founding. Implications of our findings are discussed for conservation and development initiatives in Amazonia.

Keywords: Rain forests, resource depletion, indigenous and folk peoples, Amazonia, Peru

***Encounter Rates at Basking Sites of Yellow Spotted River Turtles (Podocnemis
unifilis) in Lowland Eastern Bolivia***

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Bushmeat consumption affects wildlife abundance globally. This paper develops a model to predict basking sites for the yellow-spotted river turtle (*Podocnemis unifilis*) using an OLS model on turtles encountered in basking surveys at two sites adjacent to human communities and one not. Field work in eastern lowland Bolivia was conducted in 2000 and 2011. From our data we derived two additional metrics; turtle encounter rates and a proxy for human impact called Human Impact Factor. Landsat satellite imagery was used to measure the surface area of each river segment, allowing calculation of the dependent variable – turtles encountered per square kilometer. Our model supports the hypothesis that human population has a negative impact on observed turtle encounter rates. Additionally, our model predicts a significant positive correlation between turtle encounter rates and two ecological classifications - high cliff with vegetation or branches and muddy flats. Analyses of turtle encounter rates and factors that influence it are critical for the conservation of *P. unifilis* and the broader Amazonian ecological system.

Keywords: Bushmeat, river turtles, conservation, Bolivia,