

Project Update: February 2018

Bioacoustic Monitoring

Fieldwork—I have recently finished bioacoustic sampling of the central production zone in Colombia. I sampled 81 sites in the Magdalena River valley in the departments of Santander and Cesar, including oil palm plantations, rubber plantations, forest patches, and cattle pastures. This concludes fieldwork for the acoustics component of my PhD.

Analysis—In between time in the field I have continued analysis of the north zone recordings, conducting a soundscape analysis of 94 sites. Using ordination methods, I found that sites grouped into clusters according to habitat. This demonstrated that soundscapes are a useful tool for comparing biodiversity in different land uses. These results were presented at the International Conference of Conservation Biology (ICCB) in Cartagena, in July 2017. They were also contributed to the IUCN Oil Palm Task Force *Situational Analysis*, currently under review (<https://www.iucn-optf.org/situation-analysis>). I complimented this soundscape analysis with an indicator species analysis that reveals which components of the soundscape are most important in characterising each habitat. These analyses are the foundation of an article *in prep* that will be submitted for publication in March 2018.

Capacity Building/Outreach—I continue to work closely alongside *Cenipalma*, the research branch of the Colombian national oil palm grower's association. I have built important relationships within this institution and there is keen interest for continued collaboration, particularly for long-term bioacoustic monitoring on plantations. Our goal is to build on our successes thus far, and use the results of this research to establish an acoustic monitoring program at Cenipalma and other interested oil palm companies. Cenipalma has four experimental research stations in different regions of Colombia that provide a great opportunity to further integrate conservation in the private sector and educate/empower non-traditional actors to participate in this initiative. Upon completion of this grant, I plan to submit a 2nd Rufford small grant to pursue this opportunity and capacitate local stakeholders.

Socio-Economic Interviews

I designed a series of instruments to assess RSPO certification *in situ*. The RSPO program is recognised as an industry standard for sustainability, yet its effectiveness has never been measured in the field. This component of my research aims to better understand the motivations and barriers to certification, how the RSPO standard is implemented across the Colombian oil palm sector, and whether certification produces changes in management practices on plantations.

Fieldwork—The first instrument was designed to assess management practices among two groups of smallholder producers: RSPO certified and conventional. In Colombia, this study was only possible in the north zone where smallholder production is a more common model. In collaboration with colleagues at the Universidad de Los Andes in Bogota, I conducted over 100 surveys with certified and non-certified producers in the

Magdalena department. This large sample size should allow for the establishment of a robust counterfactual for comparison between groups.

I then modified the instrument to scale up to medium-sized producers and the large extractor companies that buy fruit from these smallholders. These are referred to as the "anchor companies" and they offer extension services to their smallholder producers. Due to this hierarchical model of production and access to capital, anchor companies are typically responsible for initiating and implementing the RSPO standard among producers. This second round of interviews thus served to better understand the process of implementation, and to observe if certification produces any differences in management at different scales (i.e. smallholder—medium—large).

In addition to the two anchor companies representing the sample of smallholders, I also interviewed five additional producers in the region—companies that were either certified RSPO, in the process of becoming certified, or not certified nor in the process. These interviews will also be conducted in the East zone to compare regional differences in sustainability. This final stage of interviews captures the motivations and barriers to certification across a gradient of producers, and helps understand these dynamics from a market context (i.e. whether market dictates the decision to become certified). This information will be analyzed under a tele-coupling framework.

I am currently in the process of conducting these interviews with the oil palm companies of the east zone, to further understand the role of markets in RSPO certification. My remaining time in the field (until March 2018) will be spent completing these interviews and also talking with other industry stakeholders (i.e. traders, consumers) to help supplement the information captured in these interviews.

Analysis—I have already begun analysis on the surveys and interviews, and will continue working closely with my co-advisor at the Universidad de Los Andes in my remaining weeks in Colombia. Preliminary results will be presented at a tele-coupling symposium at the US-IALE (International Association for Landscape Ecology) conference in April 2018 in Chicago, Illinois. The results will also be published in at least two peer-reviewed journal articles to be prepared in the coming months.



Interviews



Palmicultor



Left: Giant Anteater. Right: Monkey.

