Tropical Conservation and Development Program
TCD Field Research Grant Report

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Project Title: Exploring Biocultural Resilience Along the Aguarico River of Amazonian Ecuador
Travel Dates: July 4 – August 21, 2016

My summer research in the Amazon of Ecuador was the first step in a broader project to foster the resilience of Cofán communities by integrating social and ecological approaches to mapping and natural resource planning. Resilience thinking and practice offer innovative means to address processes contributing to the destruction of biological and cultural diversity in the Amazon. Resilience is the capacity of a system to absorb, resist, or recover from stress, and to adapt to change while maintaining valued functions and benefits. This project is also focused on biocultural systems, which encompass the interplay between human communities and landscapes; human use, knowledge, and beliefs define and are defined by the landscapes of which human communities are a part. In using the term biocultural, I aim create a new, complementary forum for dialogue and problem solving that reframes conservation planning.

Rooted in this understanding of biocultural resilience, I sought to work with in partnership with Cofán community members to map important aspects of their traditional landscape that link healthy ecosystems to direct human benefits such as nutrition and clean water, and indirect benefits such as the potential for an ecosystem to adapt to climate change or maintain culturally important practices that rely on biodiversity. I believe this process can reinforce community values for biodiversity and healthy ecosystems. Too often resource management initiatives have failed because of an inadequate understanding of the cultural context for resource use. By taking a biocultural resilience approach, the activities described below sought to work with, rather than counter to, the important cultural heritage of the Amazon to maintain ecological and human well-being. Broadly, I explored resilient Cofán communities through three overarching objectives:

1) Build on previously established relationships with the Cofán Nation;
2) Co-develop and field test biocultural indicators with local partners; and
3) Conduct participatory landscape mosaic and use mapping.

The following sections report on major outcomes between July 4 and August 21, 2016. For each of the three objectives outlined above, I provided details on the achievements made throughout the reporting period.

Objective 1: Build on previously established relationships with the Cofán Nation

Over the past 5 years, I have worked on a number of conservation and research initiatives in partnership with the Cofán Nation. During the reporting period I was able to further these relationships in a number of ways:

- *Improved language skills:* Time was spent time each day learning A'ingae (Cofán language) in a variety of settings (e.g. 'classroom' style sessions with a bilingual assistant, during long boat rides, and more naturally while conducting other activities).

- *Socializing in an informal setting:* Because focus groups, interviews, etc., can be so rigid in the types of information I was collecting, it was very helpful to have time to socialize and get to know social norms, values, and other important cultural aspects in an informal setting. This ranged from gathering and preparing food, to weaving hammocks, to helping in weekly *mingas* to build a tourist cabin. Hunting and fishing with various families also helped me to better understand seasonal events (i.e. when various animals are know to reproduce, be fattest, migrate, etc.), Cofán ways of classifying the forest (e.g. folk taxonomy). For instance, have unique words for most all animals in the forest, but will group animals by various characteristics: "tive'pa" (the animals with hands) = monkeys, "sanccopapa" (the ones with wings) = birds, “tsupiri'pa" = scaled fish, and so many more. This type of socializing also helped to build trust and friendships that will be valuable as I broaden my research and spend more time with the Cofán in the future.

Objective 2: Co-develop and field test biocultural indicators with local partners

Over the course of the reporting period, I worked with Cofán community members to identify specific indicators of direct and indirect pressures, biocultural state, and benefits relating to human and ecological well-being. I sought to accomplish this task through a variety of focus groups and key-informant interviews in both Zábalo and Dureno. The focus groups started out with broad discussions of biodiversity, listing examples such as wildlife, fruits, vegetables, medicinal plants, trees, etc., including their local names. We would then scale up to lists of landscape and watershed components including fields, forest patches, rivers, wetlands, water sources, etc., again listing the local words for these components. The conversation would them move into a discussion or resilience. Examples of resilience would be given, and I would later ask for them to list their own examples from the region. We also worked on a timeline with major events and changes in relation to the climate, environment, and others (floods, droughts, etc.). All of this set the stage to think about various indicators of resilience. Prior to departing to Ecuador, I developed a list of broad, non-Ecuador specific indicators that we used as a starting point. We worked through each of these broad categories (governance, local ecological knowledge, and biocultural connectivity). After several days and attempts, we were left with a list of approximately 20 concepts specific to the Cofán Nation and the territories of Dureno and Zabalo. Further work will be necessary to operationalize these specific ideas into quantifiable indicators. The majority of these concepts can already be viewed as indicators (e.g. number of *se’pi’cho* rules broken, percent of community speaking local language), but others are more difficult (e.g. important community values of *opatssi and na’su*, which were repeatedly brought up in discussions of resilience, but difficult to operationalize as indicators).

Objective 3: Participatory landscape mosaic and use mapping

A large amount of the reporting period was spent working with Cofán community members on participatory mapping activities to capture landscape patterns and use over time and space. A central theme that came out of the indicators focus groups and interviews was a concept called *se’pi’cho’* or the prohibitions. The prohibitions were largely born out of a desire to ensure the continued existence of the *tsampi* (the forest) that remained within Cofán territories, essentially a method of governing their commons. Today, the prohibitions are a complex set of rules and restrictions that, among many others, regulate a what (species), where (geographies), and when

(seasonality) members of the community can hunt for subsistence. While clear and concrete for a member of the Cofán community, *se'pi'cho* can seem full of contradictions to an outsider unfamiliar with the details of the territories' geography. Thus, I held additional focus groups with both elders and with the most experienced hunters and fishers to 1) better understand the evolution of *se'pi'cho* over the years because it is updated annually, 2) make a record, and 3) map the various rules in both space and time. Prohibitions are all marked by various natural boundaries in the environment, many of which can be nearly invisible to an outsider. For instance, some of the prohibitions were easy to track along the larger rivers, but many use small creeks that dry up at certain times of the year or transitions between two forest types that are very hard to distinguish for anyone other than a professional botanist or a Cofán. Overall, this was a large task that required trekking and canoeing across 140,000 hectares with GPS units in hand. But the Cofán were eager to both teach me about their regulations, and also use it as an opportunity to hunt in locations they aren't able to frequently visit. In addition to the prohibitions, we were able to map the communities (houses, infrastructure, etc.), gardens around the community, banana fields on the river banks, mineral licks, locations for gathering medicinal plants, and more. Overall, this mapping will contribute to further research by allowing me to test the effectiveness of the *se'pi'cho* as a resilience mechanism. For example, it seems as though the Cofán have created source-sink dynamics that can be further explored through camera trapping and catch per unit effort surveys to get a better understanding of animal abundance and the amount being hunted.

Overall, my field experience was very positive, and I am grateful to TCD for supporting my research. Gaines made in social connections, language skills, indicators, and mapping will all further my original research goal of better understanding biocultural resilience within this region of the Ecuadorian Amazon.