GPS AND COMPASS TECHNOLOGIES AS TOOLS FOR LAND DEMARCATION AND CONSERVATION IN THE PERUVIAN AMAZON

By Angie Fuhrmann

The following is the script used in a nine minute informational video about the goals, methods, and results of my Fellowship project for the Center for Collaborative Conservation. The video will be given to each of the collaborators to use for project promotion, marketing, and education, will be donated to the Collaborative Conservation Learning Network, and will be published on the Village Earth website.

The Peruvian Amazon. A region, richly endowed with biodiversity, minerals, hydrocarbons and forestry resources. Rivers flow down the eastern slope of the Andes, providing important sources of freshwater, food and energy as they converge to form the Amazon River. And because of these riches, conflict has arisen between the national government of Peru and the region's indigenous peoples, who make up a large part of the forest's inhabitants. As they debate over who has the right to the land and resources, and who has a say in the plans for current and future development, indigenous communities live under threat of environmental degradation, erosion, drought, poverty and social upheaval while receiving only limited assistance in their struggle.

The protection and defense of indigenous territories is largely determined by their ability to acquire legal titles to their limited land resources - a first step to ensure legal protection from outside encroachment. However, for communities with limited access to resources, it's not an easy process. Not only is it expensive and time-consuming, but it also faces stiff opposition from many of the non-indigenous settlers that now live in the region.

During the Peruvian Government's titling process, borders are imposed on communities, which are drawn up from out-of-date base maps, and lack reliable information on population centers and titled lands. Because of this, land and resources are often misappropriated and the needs of the local population are not addressed. Once titled, indigenous communities receive little to no assistance in the management and protection of their territories. They must rely on their own initiative and often do not know exactly where the boundary lines on paper actually exist in the vast, dense jungle.

Outdated studies and inadequate geographic information are also used when establishing resource extraction concessions, which grant official, temporary title to the concessionaire. This has created a contested landscape riddled with overlapping claims to land and resources.

For these reasons, the Shipibo indigenous community, Santa Rosa de Dinamarca, in the Ucayali Region, contacted the nonprofit, Village Earth, based in Fort Collins, Colorado and addressed a need for the capability to protect and manage their titled territory at the community-based level. Together, and in collaboration with Colorado State University's Department of Anthropology, and the Center for Collaborative Conservation, a capacity building workshop was manifested based on the goals of the community. The workshop itself was facilitated by graduate student, Angie Fuhrmann, one representative of Village Earth and three technical specialists.

Through a series of meetings, community leaders of Santa Rosa de Dinamarca discussed and formulated itineraries, travel logistics, food and lodging, and workshop goals, which included educating community leaders on the procedures necessary to demarcate their boundaries using maps, compasses and GPSs; strengthening communication and further collaboration between Shipibo communities, colonists, local, regional, national and international organizations and government agencies; and creating action plans for each community centered around demarcation, management, and protection.

The community of Santa Rosa de Dinamarca thought it would be beneficial to invite four neighboring Shipibo communities to share the opportunity for capacity building. They also decided it was important to invite representatives from the Common Good Institute (IBC), the Ministry of Agriculture (MINAG), the Inter-Ethnic Association for the Development of the Peruvian Rainforest (AIDESEP), the Ucayali Regional Organization of AIDESEP (ORAU), the Agency for Formalization of Informal Property (COFOPRI), and the Ombudsman (DP), all of

which have roles in securing rights to indigenous territories and throughout the land titling process itself.

The workshop itself lasted for three days at the end of July in 2010, and was attended by 27 participants representing the four communities of Santa Rosa de Dinamarca, Santa Marta, Sol Naciente, and Caimito. Although all of the governmental and organizational representatives acknowledged our invitations, not a single one of them showed up.

The first day of the workshop, participants spent the morning in the classroom discussing maps, coordinate systems, and the basics of using a GPS. They also discussed how to obtain the territorial maps from the Ministry of Agriculture and the Common Good Institute which have latitude and longitudinal coordinates for several points along the territorial boundary lines.

As an example, this is a map showing the territorial boundaries for the community of Santa Marta. Each coordinate point with an exact latitude and longitude is named. The exact latitude and longitude coordinates for each point are listed in the table in the corner of the map. By having the technical capacity to correctly enter the coordinates into a GPS, the community members are able to use the GPSs to navigate to and between these points.

Participants spent the afternoon of the first day of the workshop practicing these navigation techniques to practice points throughout the community of Santa Rosa de Dinamarca. After a few hours, the workshop participants were capable of navigating without the help of the technical assistants.

The second and third days of the workshop, participants traveled into the rainforest to actual coordinate points along the territories' boundaries. Facilitators also introduced compass technology to compliment the GPS navigation, because the thick canopy of the jungle can often distort the GPS signals.

Participants ventured through the jungle and located a coordinate point shared by two of the participating communities. Groups of three handled compass navigation, two people operating the compass itself, and one person standing ten to 20 meters in the distance along the boundary line. Their role was to move a large marker stick according the directions of compass operators, ultimately creating the boundary line. The GPS operators walked the line and double checked for accuracy while other participants took turns machete-ing through the dense terrain, clearing a path to become the boundary. These paths will later be demarcated with certain types of plants to allow for recognition of the territorial boundary, as fences are impractical, costly and would be overgrown in a short amount of time.

The end of the workshop resulted in three major accomplishments and many more lessons learned. First, all of the participants had the chance to operate both the GPS and compass technologies, read maps, locate boundary points, and work on logistical plans for demarcation. Second, participants located and marked three different coordinate points, two of them shared by more than one community, and participants cut about two and a half miles of boundary lines in two different environments. One section through old growth forest, the other section through swampy terrain near the Ucayali River, so that practice reflected the actual environmental conditions to be faced when doing the demarcation work. Third, participants opened dialogue and increased support between the participating Shipibo communities and also with the outside collaborators. This specifically resulted in preliminary talks among the Shipibo communities to form the Coalition for the Protection of Shipibo Lands in the Masisea District.

Participants and facilitators also learned that boundary demarcation in this region is neither an easy nor short process. Yet, it is an important first step in the management and protection of territories and resources.

With their homeland under threat, these indigenous people are the ones who are defending the forests. To effectively deal with these complex issues, they must have the proper training, skills, and tools. Access to technologies such as GPS and compass, in combination with their ancestral knowledge of the land and their deeply vested interests, has helped to form a new generation of land stewards that are able to work both in our world and theirs.

This would not have been possible without the collaboration of the participating Shipibo communities; technical specialists Bryan Baker and John Von Nieda; Village Earth; the Center for Collaborative Conservation; the Department of Anthropology at Colorado State University; and most of all to the community, Santa Rosa de Dinamarca for developing and hosting the workshop. Gracias a todos.