



Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program

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Trip Report: Ecuador June 24-30, 2006

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Purpose of Trip: Establish contacts and conduct a preliminary survey of the aquatic biodiversity in streams of the Chimbo watershed.

Description of Activities: I traveled from EET Pichilingue to Quito on June 24 where I met Andrea Encalada, Universidad San Francisco de Quito, and we made travel arrangements for the trip to Guaranda. On June 26 we met with the rest of the US SANREM team and with the staff of EcoCiencia. In the afternoon we traveled to Guaranda where we met contact people from INIAP who will collaborate on the projects.

June 27-29. The group divided into three teams: biodiversity, soils, and social action. Andrea and I went with the biodiversity team. On the 27th we traveled to the region of San Simon a community slightly higher than Guaranda. The streams here were in relatively good condition, especially those shaded by vegetation. Most trees in this area are non-native. In the afternoon Andrea and one of the staff from EcoCiencia returned to Quito. Subsequent aquatic samples were collected with the help of Juan Calles of EcoCiencia.

June 28: The biodiversity group traveled to the community of Chillanes, which is downstream from Guaranda and where the Chimbo is a medium sized river running through a steep valley. The land here is also mostly in intensive agriculture, but some large remnant forest patches still remain on upper slopes. We stopped at two small torrential streams south of Chillanes, one containing a waterfall surrounded by remnant forest. These streams are not technically part of the Chimbo watershed but were easily accessible and their aquatic fauna is probably representative of small second to fourth order streams in this level in the Chimbo watershed. The first stream was surrounded by pasture but farther up was a large patch of forest. It had a reduced aquatic insect fauna characteristic of small pasture streams. The second stream, as has already been noted, was flowing through a remnant forest patch. Its fauna was much more diverse and included a number of indicator species of good water quality.

The final stop was on the Río Chimbo itself at the bridge on a road to Riobamba. The invertebrate fauna here indicated an intermediate level of impact, due almost entirely to agricultural activities which dominate the entire Chimbo valley at this location. The types of invertebrates present indicate that siltation may be a problem, but not a catastrophic one. Yet to

be determined in this and other streams in the watershed are the effects of high water, spates, and siltation during the rainy season.

June 29: We went up to Alto Guanujo an agricultural region in the Paramo. The area is also very intensively agricultural but we found small pockets of native vegetation in steep stream valleys and also along some roadsides. All aquatic samples taken from streams in this area appeared to indicate relatively good water quality. There were some puzzling variations between streams, possibly due to distribution of introduced trout.

In the evening there was a general meeting of all team members. It was decided to confine the project activities to the areas of Alto Guanujo and Chillanes. The EcoCiencia people will decide on some additional biodiversity indicators to supplement the aquatic biodiversity study. Transportation issues were identified as a potential problem: the sites as Chillanes are going to require substantial driving time to get to the area and to travel from site to site. INIAP will investigate establishing an office and apartment in Chillanes to facilitate work in this region.

June 30: Three of us (Backman, Lynch, Flowers) left the main group at Guaranda and traveled to Babahoyo where we met Danilo Vera from INIAP. We were met by people from the INIAP station at Boliche, and traveled to several cacao plantations near Bucay at the foot of the Andes. An invertebrate sample was taken from the Río Chimbo above, one of the lowest relatively unpolluted stretches of the river. Here the invertebrate community suggested a small improvement in water quality from the Chillanes area upstream. The river at this point flows through a valley that still has substantial, although degraded forest.

General observations: The aquatic invertebrate fauna of the Río Chimbo and its tributaries probably represents the largest remaining fraction of the original biodiversity of this area of Ecuador. In general, the streams sampled during this trip had a good diversity of aquatic invertebrates, suggesting that, while impacts have occurred, they are not unduly heavy. We did not sample in any urban or urban outfall areas, where impacts would be expected to be much greater. Future plans for the coming year will center on getting a more complete inventory of sites in the Alto Guanujo and Chillanes areas. When specific communities or areas are identified by other SANREM teams for their studies, the aquatic biomonitoring sampling will be adjusted to concentrate on these same areas.

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