



Sustainable Conservation of Bolivia's Amboró National Park through Compensation-for-Watershed Services

Donors: US Fish and Wildlife Service, the Conservation, Food and Health Foundation

Project Summary

Natura's primary field project has the goal of consolidating and strengthening a community-led compensation-for-watershed-services system in the Amboró National Park/Los Negros Watershed. The specific objectives of the project are that by 2007:

- 2500 hectares of diverse cloud forest in upstream Santa Rosa are being protected through annual compensation-for-watershed-services;
- The Municipality of Pampagrande and downstream water users are contributing 60% of the cost of annual payments (including all operating and transaction costs);
- An additional 1060 hectares of upstream cloud forest have been set aside for permanent community water conservation reserves.

We are currently compensating farmers 1 beehive and training in honey production for every 10 hectares of cloud forest they agree to protect for a year. Honored contracts can be reenrolled into the program in subsequent years. Using short-term donor funds (from the US Fish and Wildlife Service), the farmers are thus demonstrating to downstream users—the potential long-term funders—that upstream watershed protection is feasible and trustworthy: as long as appropriate incentives are provided. Upstream landowners can enter the scheme at any time, and as confidence in the project increases, so does the number of farmers who want to join.

Project Description

Problem: Water scarcity is a major agricultural production constraint throughout upland Bolivia. The municipality of Pampagrande, close to Amboró National Park, has seen water flows halve in the last decade. Many local farmers blame upland deforestation, but no mechanism currently exists by which these farmers can influence upstream landuse decisions. Actions to reduce the impact of these changes have not been developed, and it is not clear how these communities can protect the water resources on which their agricultural production depends. Community organizations in upstream Santa Rosa and downstream Los Negros recently asked Natura for support in solving their water resource problem: to help build consensus that there is a water production problem, to increase local understanding of why the Los Negros river is drying, and to assess what the economic consequences might be. Discussions facilitated by Natura have focused on initiating local solutions, including developing institutions for sustainable water management.

The headwaters of the Los Negros River are in Amboró National Park, one of the most biologically diverse areas in the world. The park hosts an incredible variety of flora and fauna: at least 73 amphibian species, 145 species of mammals, and more than 800 bird species. Amboró contains elements from three priority ecoregions and protects the upper watersheds of many rivers, including the Piray and Yapacani that provide important water supplies to the cities and agricultural centers of Santa Cruz. However, the Park and buffer zone are increasingly threatened by illegal land incursions. Encouraged by farmers' unions and local leaders, landless migrants are entering the buffer zone and the park to clear "water producing" cloud forest for agriculture.



In 2003 Los Negros residents helped implement a pilot study that assessed the value of the watershed services and the opportunity cost of protecting upstream forests. Interviews with 200 farmers gave a preliminary assessment of land use types, prices, production costs and yields, and how costs vary with water availability. Although one hectare of unirrigated land is worth only \$500, a similar hectare with a reliable water supply is worth more than \$6000. Los Negros farmers expressed an interest in investing in upstream forest protection to reduce the risk of diminished water supplies caused by deforestation and climate change. With the help of Fundación Natura Bolivia, these communities are trying to pioneer an innovative approach to solve their problem: a locally managed system of compensation-for-watershed-services (CWS).

General Project Objective: Consolidate and strengthen the innovative community-led compensation-for-watershed-services system in the Amboró National Park/Los Negros Watershed.

Specific Objectives: (by August 2007)

- 2500 hectares of diverse cloud forest in upstream Santa Rosa are being protected through annual compensation-for-watershed-services (CWS);
- The Municipality of Pampagrande and downstream water users are contributing 60% of the cost of annual payments (including all operating and transaction costs);
- An additional 1060 hectares of upstream cloud forest have been set aside for permanent community water conservation reserves.



Background and expected results: A two-day self-diagnosis was undertaken in upstream Santa Rosa in 2002 to define the “state of the village” in terms of economics, infrastructure, environment and future plans and needs. Since then, Natura has helped develop a Santa Rosa Environment Committee, and organized 5 meetings of this Committee to develop the concept of CWS. The Committee has held numerous meetings with its downstream counterpart Committee to organize and plan water resource management, and organized two “field days” in which community members helped locate areas of importance for water management near the village. In 2005 Natura will continue this capacity building support in Santa Rosa/Los Negros.

In mid-2002, the Santa Rosa Environment Committee began to identify which of the community’s lands were appropriate and available for conservation. On January 11th 2003, Los Negros and Santa Rosa agreed that downstream water users would provide “compensation” for watershed protection in the form of one bee box and training in honey production for every 10 hectares of water producing cloud forest that upstream landowners protected. For the 2003-4 initiation of the CWS scheme, Natura used donor funds (from the US Fish and Wildlife Service) to construct more than 60 beehives and train 6 farmers in apiculture, in return for the conservation of ~600 hectares of biodiverse cloud forests. In 2004 the Municipality of Pampagrande provided more than \$2000 in counterpart funding to the project, to purchase additional bee boxes. Negotiations for the 2005 municipal contribution are already underway.



In addition to the compensation-for-water program, upstream landowners in the communities of Santa Rosa and Sivingal have expressed interest in creating community water conservation reserves to protect the basin's upper watershed. These reserves would border Amboró, and so provide a first buffer for the wildlife that is particularly abundant in this sector of the park. The creation and effective enforcement of community reserves will help prove to the downstream water users that upstream forest protection is possible, that with appropriate funding Santa Rosa and Sivingal can guarantee the water supplies to Los Negros, and that any investments that Los Negros makes in water protection would be secure. Upstream landowners have shown they are willing to protect these reserves, and have already signed a non-binding act to do so. However, there has so far been neither funds nor a strong incentive to enforce protection of these areas. Natura believes that a strategic investment of relatively little money will push the community into the long-term protection of these reserves, and so we are trying to help the communities formalize, institutionalize and enforce their water reserves in perpetuity.

Local water users throughout Bolivia are rarely able to sustainably manage their water resources because they lack a) accurate information, b) transparent and fair institutional mechanisms, and c) appropriate incentive structures. The model we are developing in Los Negros will provide all three, and thereby facilitate a more rational system of water resource exploitation. This is especially so because the "compensation" is not in easily-spent cash, but is in the form of an economically sustainable activity, in this case bee-keeping, that further increases the forest's value. Also, by binding watershed inhabitants to mutual interdependence, the project enhances communities' abilities to resist incursions from outside—be they migrants or unwanted political pressures—that could threaten the system's sustainability.

Our major long-term objective is to develop a model CWS system that incorporates upstream forest protection and more rational and strategic water use in the lower watershed. We are developing this model with the goal of applying it in other watersheds, other municipalities and other countries. To transfer the concept within Bolivia, in mid-2006 the Municipality of Pampagrande will facilitate a national municipalities meeting to share CWS system lessons.

Beneficiaries: Primary beneficiaries of the project are the members of the communities of downstream Los Negros (2970) and upstream Santa Rosa (481). With Natura's help, these communities have each set up an Environment Committee to begin to address the problems of water pollution, channel-flow diminution, and sedimentation. These Environment Committees have actively requested the activities to be undertaken in the project, and assisted in organizing the initial socio-economic data collection. All members of the Santa Rosa Environment Committee are of the poorest economic class, and almost a third of both Committees are women. As our results scale up to the national level, we will ultimately expect to benefit many other farmers in other Bolivian municipalities.

Current project status: Upstream farmers are invited to voluntarily enter the CWS program. We are currently compensating farmers 1 beehive and training in honey production for every 10 hectares they agree to protect for a year. Honored contracts can be reenrolled into the program in subsequent years. Using short-term donor funds, the farmers are thus demonstrating to downstream users—the potential long-term funders—that upstream watershed protection is feasible and trustworthy: as long as appropriate incentives are provided. Measuring and demarcating plots is undertaken with a hand held GPS receiver, the data later being plotted onto a 2001 satellite image-based landuse map. Farmers receive a copy of “their” map along with their contract. Field demarcation uses natural boundaries or trails, signs, and occasionally wire fencing



Many issues require negotiating with the communities if the project is to be sustainable. We are facilitating the first such ‘watershed compensation’ agreement in Bolivia, and one of the first to be set up with a poor community in a country where the legal system is not well respected. Negotiations about specific project design are complicated, critical issues of concern being that:

- All the community members that can affect conservation receive benefits; sufficient people receive benefits to develop a pro-conservation critical mass; and payments are only made for conservation of the habitat that either the community or individuals legally own. By only funding conservation of land owned by the community, we do not encourage migration of people who want to take advantage of compensation payments;
- We do not use project funds to protect Amboró National Park—improved park protection of the park is a by-product of the compensation;
- The community does not transfer ‘business-as-usual’ forest cutting activities from areas in the system to areas that are outside (If this “leakage” were happening, the project would not result in a net decrease of deforestation in the watershed, and so would fail);
- The community develops appropriate internal sanctions for members or outsiders who jeopardize conservation in the reserves and thus the benefits of the agreement;
- Is the “compensation” of bee boxes and training the most appropriate/efficient? We are providing a tool for sustainable development, but transaction costs are extremely high;

- How do we avoid the perverse incentive of a potentially responsible landowner not putting his land into *permanent* conservation, simply so he can receive annual payments?

In 2004 we successfully negotiated with 6 farmers to protect 500 ha and in 2005 we added 7 more farmers who are protecting another 600 ha. Farmers can enter the scheme at any time, and as confidence in the project increases, so does the number of farmers who want to join. We expect to continue discussions throughout the project's lifetime. Payments in 2004/5 comprised 1 beehive and training in apiculture for every 10 ha of cloud forest conserved.