



EL SILENCIO NATURAL RESERVE
BARBACOAS, ANTIOQUIA

TECHNICAL REPORT
PRESENTED TO: MARC HOOGESLAG
COORDINATOR SMALL GRANTS FOR THE PURCHASE OF NATURE PROGRAMME
IUCN NATIONAL COMMITTEE OF THE NETHERLANDS
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FUNDACIÓN BIODIVERSA COLOMBIA
BOGOTÁ D.C., AUGUST 2013

Advances in the management of the El Silencio Natural Reserve, Antioquia, Colombia:

Technical Report¹

Introduction

In the last 15 months, Fundación Biodiversa Colombia (FBC) has managed an area of 74 ha which forms El Silencio Natural Reserve (SNR), with the main objective to conserve and restore sensitive Colombian ecosystems: low-land tropical wet forests of the middle Magdalena, seasonally flooded swamps associated with the Magdalena watershed and the water bodies included. During this period our activities have focused on three areas:

- 1) Rehabilitating current facilities in SNR and establishing a new research station
- 2) Improving current maps and delineation of the extent of SNR
- 3) Gathering and socializing basic biodiversity information about SNR
- 4) Pursuing the official protection status of SNR under Colombian environmental regulations

In addition to these activities, we are actively pursuing the expansion of the reserve at its current northern border in order to include about 64 ha of forest in good conservation conditions.

In the following sections, we provide more details about the progress made during this period, the activities to be developed in the next few months and the prospective expenses pertinent to funding provided by IUCN-The Netherlands.

¹This technical report is complementary with the financial report attached to this document.

1) Rehabilitation of current facilities and establishment of research station

When it was first purchased the area of SNR included a house that it is now used as lodge by the forest ranger and his family and it can be used for housing any visitor conducting research activities at SNR. We have rehabilitated this house for its current use by fixing and painting it. Nevertheless, we are working towards building a new house and a research station in the area, which will greatly improve the current lodging situation of the forest ranger and any future visitors. We have already selected the area for the new facilities, and in the near future, we will start construction. The design although simple (a single space with mosquito mesh and sanitary facilities), will allow for several visitors and researchers to stay for longer periods. Moreover, during construction, we will pursue construction practices with as low environmental impact as possible; for this purpose, we will be hiring local workers and we will be using local building material. We have already identified fallen trees to be used and we are analysing the usage of other local materials.



Figure 1. Panoramic view of current and future facility locations at El Silencio Natural Reserve (SNR). Picture taken in December 2012

2) Mapping and delimitation

To improve the current mapping and delineation information of SNR, a topographer helped us with the interpretation and ground-proofing of high-resolution satellite images (using Geographic Positioning System technology). We have been mapping the whole reserve, and adjacent forests and wetlands, as well as other relevant areas for the management plan of the Reserve. So far, we have identified five major areas (Figure 2):

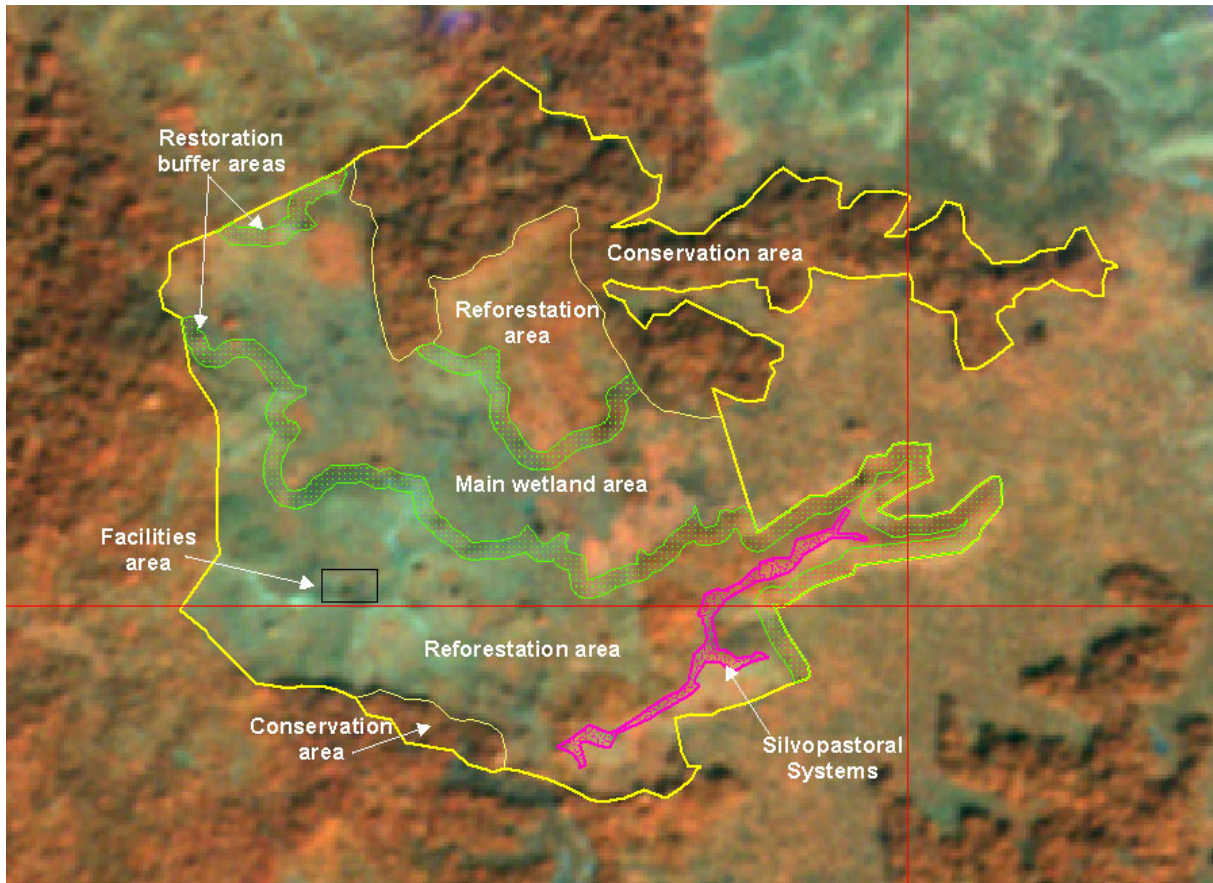


Figure 2. Areas delimitation of El Silencio Natural Reserve. Area designations were generated using high-resolution satellite imagery and ground proofed using GPS technology

- **Conservation areas (ca. 25 ha)**, which are mainly natural forests. These areas will be mainly dedicated to research and low impact activities, such as seed and seedlings recollection for the nursery.
- **Restoration areas (ca. 10 ha)**, which include mainly the borders of the main wetlands, water courses and degraded slopes that are currently deforested. We will start implementing assisted regeneration to restore and protect these areas with plants produced at the nursery in SNR.
- **Productive/protective reforestation (ca. 26 ha)**. It is composed mostly by grasslands, most of which will be destined to a low density timber plantation with different species of native trees grown in the nursery at SNR from seeds and seedlings collected inside SNR or from the surrounding forest, as a collaborative effort with local landowners. The idea is to combine fast softwood growing trees (like *solera Cordia gerascanthus*), with slow-growing species (either softwood or hardwood) that produce better wood (like *abarco Caryniana pyriformis*). This activity will be the core of our productive sustainable project and it will serve as a pilot outreach project to promote alternative land uses by local landowners.
- **Silvopastoral system for cattle (ca. 8 ha)**. Area for intense livestock management that is characterized by gentle slopes at higher elevations from the riverbed. This area will be fenced to avoid cattle to impact areas with other designated purposes. In this area, we will plantforaging treesto provide shade, additional protein for cows and nitrogen to the soil, as well as fast growing trees for the future life fence. We will implement an

experimental approach in this area to test for different livestock management practices; this project will also be used as outreach to promote alternative, more environmentally friendly practices among landowners

- **Administrative area (ca. 1 ha).** This area includes current house, and the areas designated for the research station, plant nursery, water collection systems, and orchard and food production.

In addition to current refinements on the topographical information of the SNR, we have worked on improving current fences and public signs. As described above, our priority for fencing has been the isolation of an area for silvopastoral systems, which is in progress (it requires a lot of work since the perimeter is about 3 Km). Future efforts will be devoted to establish landmarks to help other and us to clearly identify the reserve's boundaries. So far, we have placed two public signs, one in the entrance of the reserve and the second one inside the forest, near the limit with the neighbour land. (Figure 3)



Figure 3. Public signs used to identify the boundary of El Silencio Natural Reserve at the main entrance.

3) Gathering and socializing basic biodiversity information about SNR

An important part of managing SNR has been to extend our current knowledge of the large biodiversity hold inside the reserve and its surrounding areas. More importantly, we have also focused on socializing this knowledge to improve public perception of conservation and restoration efforts. To this purpose, we have been raising awareness with our neighbours, who have shown interest in what we are doing. In addition, are actively sharing all information derived from our current research projects. For example, we have placed camera traps and songmeters in our forests and the ones of the Javas, Pampas and San Bartolo haciendas (see links provided below). We have shared these videos and photographs with different actors to raise awareness and draw attention to the Barbacoas area.

Videos: <https://www.dropbox.com/sh/54u96m8gzczpgrx/ZtZUMkOF2a>

Photos: <https://www.dropbox.com/sh/9kv9cfki3848vq4/XMaDYCU6XH>

Currently, our research activities have focused on completing floristic and faunistic surveys to fully document the high level of biodiversity associated with SNR and its surrounding areas. First, we are working on the identification of best forestry practices to improve our chances to design successful restoration and conservation management plans. In fact, one of our members at FBC took a course on germination and cultivation practices of native species to increase our capacity and knowledge in the subject. Second, recordings from songmeters are being analysed by a Universidad de los Andes Ph.D. student and researcher of FBC, trying to identify patterns of acoustic footprint specific to different landscape elements that we can be applied for biodiversity and conservation strategies. This is being carried out in collaboration with the Sound Bank of the Instituto de Investigaciones Alexander von Humboldt (IAvH).

We have socialised our activities and strengthen our relationships with the neighbours of the reserve, to raise awareness and invite them to work together towards the protection of the natural resources of the area. We are optimistic that the sustainable productive projects and conservation strategies that we will implement will permeate and be an example among the other owners, building a strong conservation front for Barbacoas in this area.

One important new development is the possibility of expanding the reserve at its northern border. In agreement with Open Forests we have a potential buyer for the forested area adjacent to El Silencio. Currently, we are conducting negotiations with the owner to define the area to purchase with the funds provided (U\$100.000). This money will be enough to buy half of the land (64 ha), but we are still uncertain on which part of the area the owner will sell, given that the forested section cuts the land in two. The ideal would be to raise the remaining funds (about U\$100.000) to buy the whole 128 ha area (Figure 4).

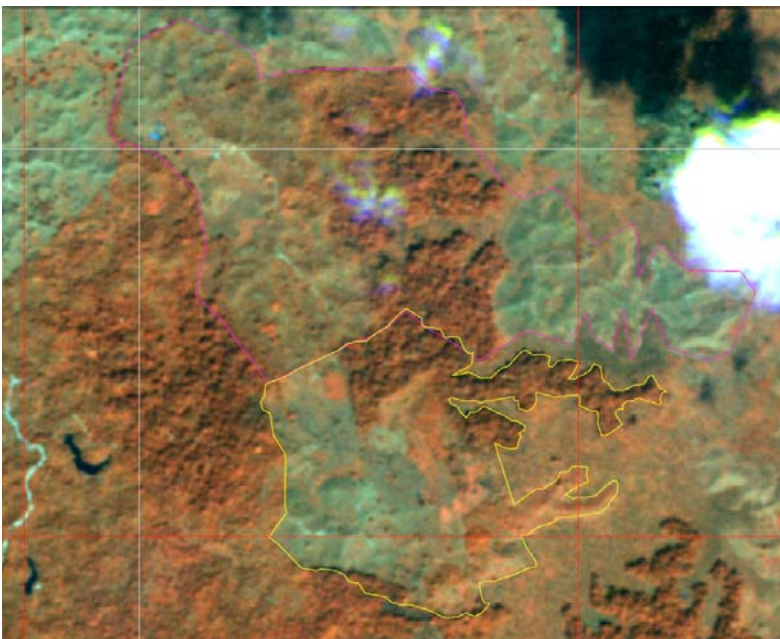


Figure 4. El Silencio (yellow) and El Olvido (purple, neighbour 128 ha land for sale)

4) Pursuing the official protection status of SNR (and BARBACOAS) under Colombian environmental regulations
SNR belongs to the highly diverse region of the middle Magdalena, and inside this, to the Barbacoas watershed, which holds a large diversity of forest and aquatic ecosystems. Despite its value, this area has very little protection under Colombian environmental regulations, and is currently under enormous pressure for its economic value. For this reason, we are working to improve the protection status of the region by requesting

that Barbacoas be declared a Public Regional Protected Area under Colombian environmental regulations. This declaration must come directly from the regional environmental authority Corantioquia, for whom we developed the update management plan for the future protected area. As part of this effort we have developed two agreements:

Javas, Pampas and San Bartolo Haciendas Management Plan

The forests of the Javas, Pampas and San Bartolo Haciendas, in the southwest of Barbacoas, are among the largest and best preserved forests of the Middle Magdalena Valley. After several years of collaboration and raising awareness, the owners decided to declare and register their haciendas in National Parks as the *Hector de Bedout Natural Reserve* of the civil society (which follows under the category of privately-owned reserves). For this purpose, they need a management plan for the area. In collaboration with two other institutions (Guayaacanal and Geominas), FBC carried out baseline fauna and flora characterisations from December 2012 to May 2013. In July 25th 2013, FBC socialised the Management Plan with owners, who received our proposals with enthusiasm and agreed to implement them. We will be working closely with them during the implementation of the plan. Among other things, these characterisations confirmed that Barbacoas forests and wetlands are probably the richest and best preserved areas in the Middle Magdalena Valley, since it is one of few places where original forests with almost intact ecological structure still exist.

From this study, a scientific paper has been already published (http://www.herpetologynotes.seh-herpetology.org/Volume6_PDFs/Vargas_Herpetology_Notes_Volume6_page189-191.pdf) and another is in review. We aim to publish a field guide for birds, mammals, and herpetofauna of the Middle Magdalena Valley using the results of these characterizations.

Declaration of a Public Protected Area in Barbacoas

Fundación Biodiversa Colombia (FBC) signed a cooperation agreement with the regional environmental agency, Corantioquia and The Nature Conservancy (TNC) Colombia. The main goal is to join efforts to declare the Barbacoas watershed as Public Regional Protected Area under Colombian environmental regulations. Our main argument is that this area holds enormous value as a conservation corridor for the Manatee (*Trichechus manatus*), and represents one of the best-preserved areas in the region. The activities carried out by FBC will include a community-based fisheries management plan and a pilot for restoring plant communities at wetland edges through enclosures and assisted regeneration.

In general, with the consolidation of El Silencio Natural Reserve and collaboration with the Hector de Bedout Natural Reserve owners, the visibility of the area has increased. This is mostly due to our efforts in gathering basic biological information in collaboration with national research institutions like the IAvH.

Currently, we have an agreement with the IAvH to characterise the vegetation of Barbacoas at a landscape level, as the first step to design a regional management plan. This agreement includes identification of vegetation cover units using high-resolution Rapid Eye satellite images (pixel size 5m), based on the validation and characterisations carried out in the Hector de Bedout Natural Reserve. To date, we have identified land cover units for the whole area of Barbacoas and have designed the sampling scheme for botanical collections. Collections will start in mid-September, in collaboration with students and staff of the Universidad Industrial de Santander and the local environmental association Asoambiental. We expect at least one or two scientific papers resulting from this study.

Other agreements with the IAvH are being discussed, as they wish to use Barbacoas as a pilot research area for several fields they are working at the moment such as: wetland delimitation using remote sensing, acoustic footprint identification of different landscape units, and research on ecological structure of landscape units along a gradient of disturbance.

Other ongoing research includes the description and characterization of lizard species of *Anolis* by a PhD student of Universidad Nacional de Colombia in collaboration with expert herpetologists. At least one scientific publication will be the product of this collaboration. In addition, bird specialists of Universidad de los Andes and the University of Florida have also visited the area, and are enthusiastic about near future collaborations. To march 2013, they had list of 267 species and confirmed the presence of *Crax alberti* (CR, endemic) in dense populations. Finally, Universidad de Antioquia students are carrying out an *Iguana iguana* population characterisation in Barbacoas, supported by IAvH.

All these studies are being and will be coordinated by FBC and carried out mainly in the two conservation and research fronts we have established in Barbacoas: the El Silencio and the Hector de Bedout natural reserves. This is why construction of housing facilities for researchers in El Silencio Reserve is one of our priorities.

Budget and expenses (see attached financial report)

So far, we have spent €79,609 of the €78.300 that were received. Of these, €70,034 (budgeted was €73,000) were spent in land purchase, €4,726 (budgeted €7,300) in taxes, legal expenses and other purchase related expenses, and €1,043 (budgeted €1,000) in urgent management activities (delimitation, mapping, fencing and sign boards placing). Expenses on these three items have been concluded therefore leaving a surplus of €5,497. €39 (budgeted €2,000) of exchange visits has been spent in the course mentioned above, while €3,767 (budgeted €3,700) has been spent in facilities construction (mainly sawing of dead trees).

Proposal for the remaining budget

We propose to use the remaining €5,497 (land purchase and urgent management activities) to building the new house, which is one of our current priorities, leaving €5,430 (since we already spent 67 more than budgeted) for the continuation of this activity.

Of the money designated for exchange visits, we have spent €39 in a course on reproduction of native species. We propose to spend the remaining €1,961 in visiting other reserves that have successful experiences in management and planning, sustainable and environmentally friendly productive alternatives (sustainable cattle farming, productive reforestation, sustainable agriculture) and low-impact housing facilities. We have already contacted three of these reserves located insimilar climatic conditions and they are all very interested in exchanging their experiences with us. Silvia Vejarano will be going to all these visits as Project coordinator, along with a second researcher from FBC to be defined. We will also use some of the budget for inexpensive courses to increase our capacity.