

Barba Azul Nature Reserve Annual Report 2015



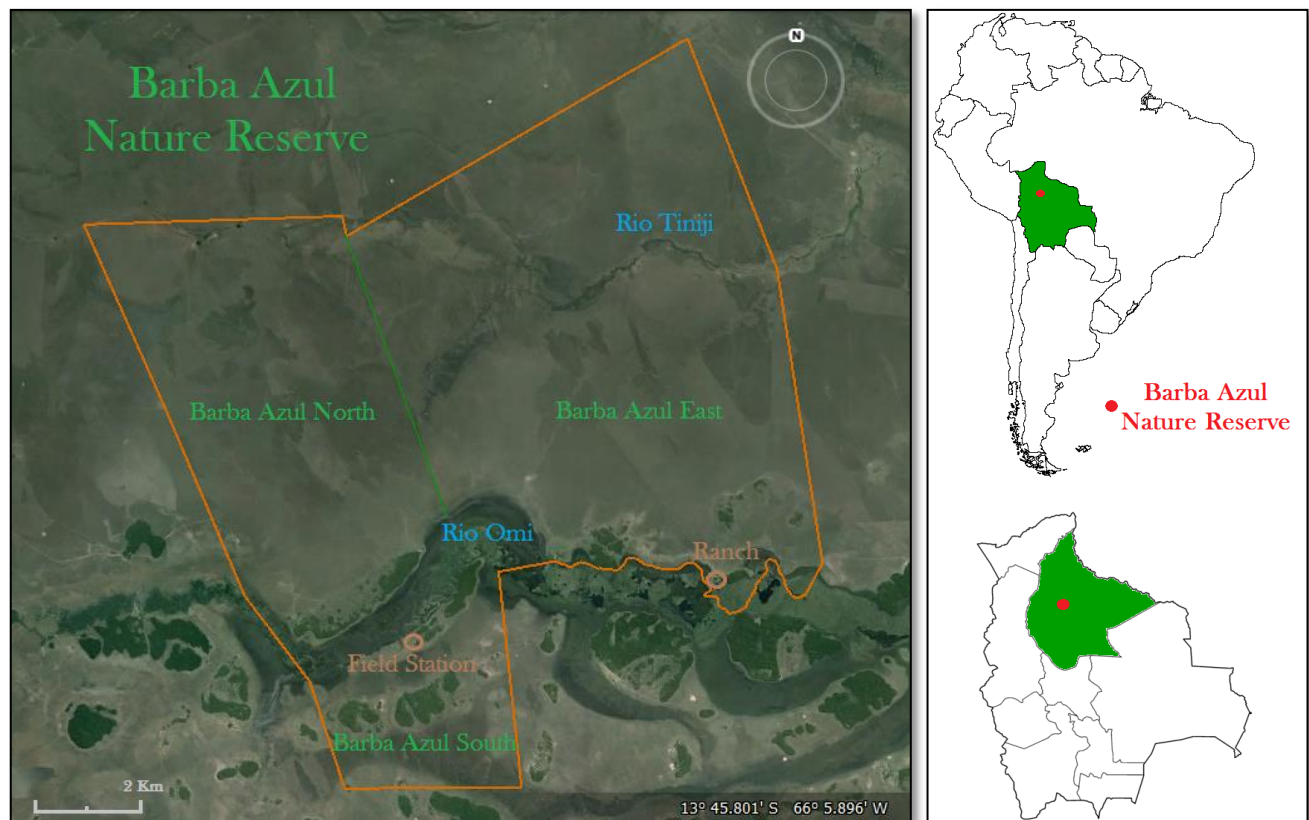
Four cabins with a spectacular view of Rio Omi (each with private bathrooms) were completed in 2015, improving the tourism attractions for Barba Azul. (project photos can be downloaded from <https://www.flickr.com/photos/128583429@N05/albums/72157657123371838>)

Highlights of 2015

The year 2015 was highlighted with many positive changes to continue Armonía's progress towards the creation of a sustainable private nature reserve. In May, Tjalle Boorsma joined the Armonía team as the new Barba Azul Nature Reserve coordinator with a fulltime focus on the development of the reserve. With his MSc degree in Forest and Nature Conservation and 8 years' experience in running his own business he comes with a great background to manage this program.

Ground level management has been radically improved through the purchase of a new John Deere tractor. After the Armonía tractor arrived at the Barba Azul Nature Reserve in July, it proved itself completely indispensable. In a time span of half a year we were able to complete large protection and maintenance projects that before were seen as being painstakingly troublesome. Finally we were able to transport heavy material to the reserve, create 30 km of firebreaks, fence our borders and increase accessibility to the furthest most corners of the reserve to ensure future project success.

Barba Azul Nature Reserve 2015 Annual Report



Conservation and development of the Barba Azul Nature Reserve was supported in 2015 by:



A grant from the
Neotropical
Migratory Bird
Conservation
Act





Figure 1. Blue-throated Macaw nest boxes being taken out to the isolated forest islands in Barba Azul North.

2015 Goals

We had seven main goals for 2015:

- 1) Remove cattle from tourism areas
- 2) Create a permanent firebreak on Barba Azul North
- 3) Create local socially beneficial activities
- 4) Maintain and improve the nest box program
- 5) Begin savanna age-class research
- 6) Complete tourism infrastructure
- 7) Design a management plan for Barba Azul East

1) Remove cattle from tourism area

We fenced off the entire 4 km southern border of Barba Azul South. This will finally keep out 250 cows that were roaming free around the field station and lodge. Also the cattle from our staff member were moved from the field station area to Barba Azul East, the cattle management area of the reserve.

We gave the land owner the option of charging him for the cattle head that are on our land- as is a typical Beni practice, which he has not been paying. He did not want to do this and agreed to fencing closed the area between the ranches. He would prefer to have his cattle on our land free, but he is fine with following the normal policies in the area.

2) Create a permanent firebreak on Barba Azul North

August and September were used to create a 30 km firebreak system to prevent invading fires from entering Barba Azul. The basis for this firebreak with a width of 10 meters was created with use of our new 24 disc plow and will be improved and enlarged in 2016.

3) Create local socially beneficial activities

Though no funding has been generated to establish the very much needed primary school in order to generate the preferred social beneficial activities, strong relationships have been established with neighboring ranchers. Tjalle has met the majority of the ranchers and improved the relationship between them and Barba Azul. This goal will remain a priority for 2016.

4) Maintain and improve the nest box program

No Blue-throated Macaws used the 22 nest boxes on Barba Azul through the 2014/2015 breeding season. In 2015 we were finally able to place 10 artificial nest boxes for the Blue-throated Macaws in the furthest most corners of Barba Azul that were before inaccessible. And again the newly purchased tractor proved its importance.

5) Begin savanna age-class research

An Armonía team led by Bolivian entomologist Caroli Hamel-Leigue gathered the first ever systematic data on insect diversity and biomass in three areas of savanna with different recent histories of fire occurrence and cattle grazing in Barba Azul North.

6) Complete tourism infrastructure

We received great comments regarding our 4 new cabins although many changes still have to be executed. An incredible improvement was the completion of portable windows for the cabins in September just before the rainy season, realized by Andele Boorsma.

Barba Azul had the highest tourist count ever. A total of 44 tourists visited the reserve this year, with a total of 141 tourist nights (each night costs \$150). Armonía received reservations for the Barba Azul Nature Reserve from individuals and tourism agencies. The profit from

tourism is divided at 40% to Armonía Administration and 60% to Barba Azul Nature Reserve management.

7) Design a management plan for Barba Azul East

Barba Azul East will be used to manage cattle at a low-impact level, as a means of insuring the sustainability of Barba Azul and in order to conduct experiments with cattle and natural habitat protection. The American Bird Conservancy and the March Foundation will support a project to contract cattle professionals to guide in a cattle management plan for 2016. In the final months of 2015, negotiations with one of our neighboring ranchers has resulted in a year rental contract signed in the first weeks of January 2016 to place 1,000 cattle head on Barba Azul East. The profit from cattle management will be divided at 40% to Armonía Administration and 60% to Barba Azul Nature Reserve management.



Figure 2. Barba Azul Nature Reserve's primary goal is the protection of the magnificent Blue-throated Macaw. A high count of 92 individuals were witnessed in June 2015 of which 72 birds roost in Barba Azul. (Photo by Tjalle Boorsma)

Protection

Motacu Reforestation Program

Through support from the World Land Trust, in September 2015 the reforestation plan for the Tiniji forest islands was established in order to restore Motacu (*Attalea phalerata*) dominated forest islands in the Tiniji watershed that have undergone almost a century without natural regeneration due to extensive cattle ranching.

The present forest islands are a dying ecosystem, dominated by a late age class of Motacu and some early successional plants. They probably only provide a home for 30% of the forest animals in the region, and much less for forest diversity. The forest islands in a more natural state will have higher plant diversity, age diversity, and hence higher animal diversity. For example, in the Barba Azul forest island, as the habitat is recuperating, we are recording forest species returning to the area that were absent. A more varied plant community will also help in water retention through the dry season, which will assist the Rio Tiniji's year round ecology.

From September to November the first important steps were taken to restore this important ecosystem for the Critically Endangered Blue-throated Macaw. An essential trail system has been developed for tree transportation from the natural nursery at Isla Barba Azul to the forest islands in the Tiniji watershed. The first artificial forest islands has been raised from the ground and parasitic strangler figs have been removed from adult Motacu trees.

All fencing material to enclose the forest islands, preventing cattle from entering were transported to Barba Azul and will be set at the start of the dry season (July 2016) to ensure a successful planting and survival of Motacu saplings. Planting of the Motacu saplings will be executed in October 2016.



Figure 3. Motacu dominated Forest Island in the Tiniji watershed that will be reforested with Motacu palm saplings to ensure future existence of this vital habitat for the Critically Endangered Blue-throated Macaw.

Nest Box Program

The nest box program in 2015 was supported by Loro Parque Fundacion, Cincinnati Zoo & Botanical Garden, Mohamed bin Zayed Species Conservation Fund and the British Birdfair through BirdLife International. Nicolas Lefrique conducted his master thesis on this work and produced a lengthy report which we could send to anyone interested. At Barba Azul, 22 nest boxes were placed in 2014 on 6 forest islands located along the Rio Tiniji, north of Barba Azul: 4 nests on the 3B island, 4 on the 4B, 4 on the 5b, 3 on the 6B and 7B, 2 on the 8B; and 2 nest boxes were present on the “Isla Maneche”, south of Barba Azul.

Of the 22 nest boxes, 8 were used by birds species (36%): 7 were used by Black-bellied Whistling ducks (*Dendrocygna autumnalis*) and 1 by Barn owl (*Tyto alba*). 3 nests were used by wasps (*Polistes* spp.). The remaining 11 nest boxes were not used during the breeding year 2014/2015. The box design has successfully fledged Blue-throated Macaw chicks in the southern population. These boxes we maintained in mid-2015 and were in good shape with low bee infestations- a constant problem with nest boxes. We will continue to maintain these boxes, and possibly make changes according to breeding results for 2015/2016.

We placed another ten new nest boxes at the northern limit of Barba Azul. This area also has isolated forest islands, which are also popular roosting sites, especially for the Blue-throated Macaw, but previously -without a tractor- were too difficult to access.

Research

Three main research projects highlighted 2015.

Savanna Age-class Study

The seasonally inundated Beni Savanna ecoregion is assessed as Critical/Endangered by WWF. While natural in origin, it has been shaped by pre-Hispanic indigenous people and large-scale post-conquest cattle ranching, including the extensive use of anthropogenic dry season fires. Natural multi-year, post-fire vegetation dynamics and succession of grassland as well as its associated animal communities in the region are virtually unknown. Such information is crucial for effective grassland management aimed at supporting maximum biodiversity levels at Barba Azul Nature Reserve.

An Armonía team lead by Bolivian entomologist Caroli Hamel-Leigue gathered the first ever systematic data on insect diversity and biomass in three areas of savanna with different recent histories of fire occurrence and cattle grazing. Field work was carried out in the first three weeks of July 2015 just after the ground had started to dry up. Several types of insect trapping methods have been used to sample a broad range of taxonomic groups, including a group with excellent bioindicator properties, the scarabaeine dung beetles. This study is intended as a first step in a several-year monitoring program that will help guide successful grassland management strategies.

Blue-throated Macaw Survey

Through Loro Parque Fundación support, the global Blue-throated Macaw (*Ara glaucogularis*) population in Bolivia's Beni Savannas is speculated to number less than 300 individuals, but we do not have scientifically sound data on population size and trends. We conducted the first-ever systematic survey in August 2015 to obtain reliable global population size estimates using simultaneous surveys in each of the three different regions with occurrence records of the species. Results will form the basis for future population monitoring and population trend estimates.

The Barba Azul Nature Reserve had the highest count of 72 birds that arrived at their night roost at the far end of Barba Azul North. There was a constant group of around 40 to 50 individuals foraging at the main forest islands of Isla Barba Azul. The reserve manager, responsible for the survey in Barba Azul, witnessed clear daily patterns of foraging, resting and roosting. This data will be published in a still to be confirmed journal

Buff-breasted Sandpiper Survey

September until October is the peak season for the Buff-breasted Sandpiper (*Calidris subruficollis*) migration in Bolivia. The Beni savanna is one of the critical stopover areas where buffies as well as other migratory shorebird species fatten up for their journey to Argentina. They use the short grass areas around the Barba Azul river systems and therefore these areas have been surveyed during the Buff-breasted Sandpiper survey.

Through support by the Neotropical Migratory Bird Conservation Act, a group of four students from the Cochabamba University who have been studying shorebirds for several years executed this study in the reserve. We have collected shorebird and Buff-breasted Sandpiper data now for over three years and we will now be able to see trends in behavior and feeding preference. We are looking for students who want to do their thesis on this subject.



Figure 4: Buff-breasted Sandpiper fattening up at their critical stop-over site in the Beni Savanna. In 2014 over 1500 buffies were observed in one day at Barba Azul. ©Daniel Alarcon

Barba Azul Nature Reserve: the only long-term avian monitoring station in the Beni Savanna

The 11,000 hectares of Barba Azul Nature Reserve (13°45'45"S, 66°05'54"W) is the only private reserve protecting the Beni Savanna ecoregion, characterized by seasonally inundated grassland floodplains alternated by gallery forests and Motacu dominated forest islands. At Barba Azul, Asociación Armonía is safeguarding vital habitat for the Critically Endangered Blue-throated Macaw and protecting critical stopover habitat for the Buff-breasted Sandpiper.

Armonía staff and birding related visitors have collected comprehensive avian presence data over a time span of 5 and a half years, documented at the Cornell Lab of Ornithology's E-Bird database. Extensive monitoring of Barba Azul in 2015 has resulted in an additional 41 confirmed species, augmenting the reserve bird list to a total of 291 species.

Western Hemisphere Shorebird Reserve Network (WHSRN)

In September 2015, Barba Azul Nature Reserve was designated as a WHSRN site of regional importance. The WHSRN site Barba Azul Nature Reserve is an important stop-over site in Bolivia for the global population of the Buff-breasted Sandpiper. We estimate over 3,000 individuals forage at Barba Azul from August to November. In 2014, a September peak count had 1,600 individuals in one day, which is more significant when we consider that it appears these birds stay on the stop-over site from three to four weeks.



New Armonía website live

Since the second week of December 2015 our new Armonía website became live with the amazing help from World Land Trust. Our new website clearly explains our mission, goals and the entire project we work on. Please check it out:

www.armoniabolivia.com

Tourism

Tourism is one of our main strategies to lift Barba Azul Nature Reserve to a level of economic self-sufficiency that is necessary to ensure this long-term sustainable conservation project. This year we witnessed a threefold increase in the number of visitors experiencing the beauty of the reserve. This target group can even augment the economic self-sufficiency of Barba Azul as possible donors, as they observe the hard conservation efforts in the field first hand and feel honored to become part of the “Friends of Barba Azul” donor group, ensuring a long term yearly donation.

The 44 visitors of 2015 was not even close to the annual capacity of Barba Azul. We realize that many steps still have to be undertaken to increase the level of the lodge, though in future years we are confident in a higher number of visitors and therefore an increased percentage of income.

This year was the first year in which the 4 newly constructed cabins were used. We need to improve the cabins, though many positive comments and constructive criticism will ensure an amazing conservation and nature experience for future visitors.



Figure 5. A Bird Bolivia bird tour with members of the American Bird Conservancy board visiting Barba Azul in November 2015.

Management

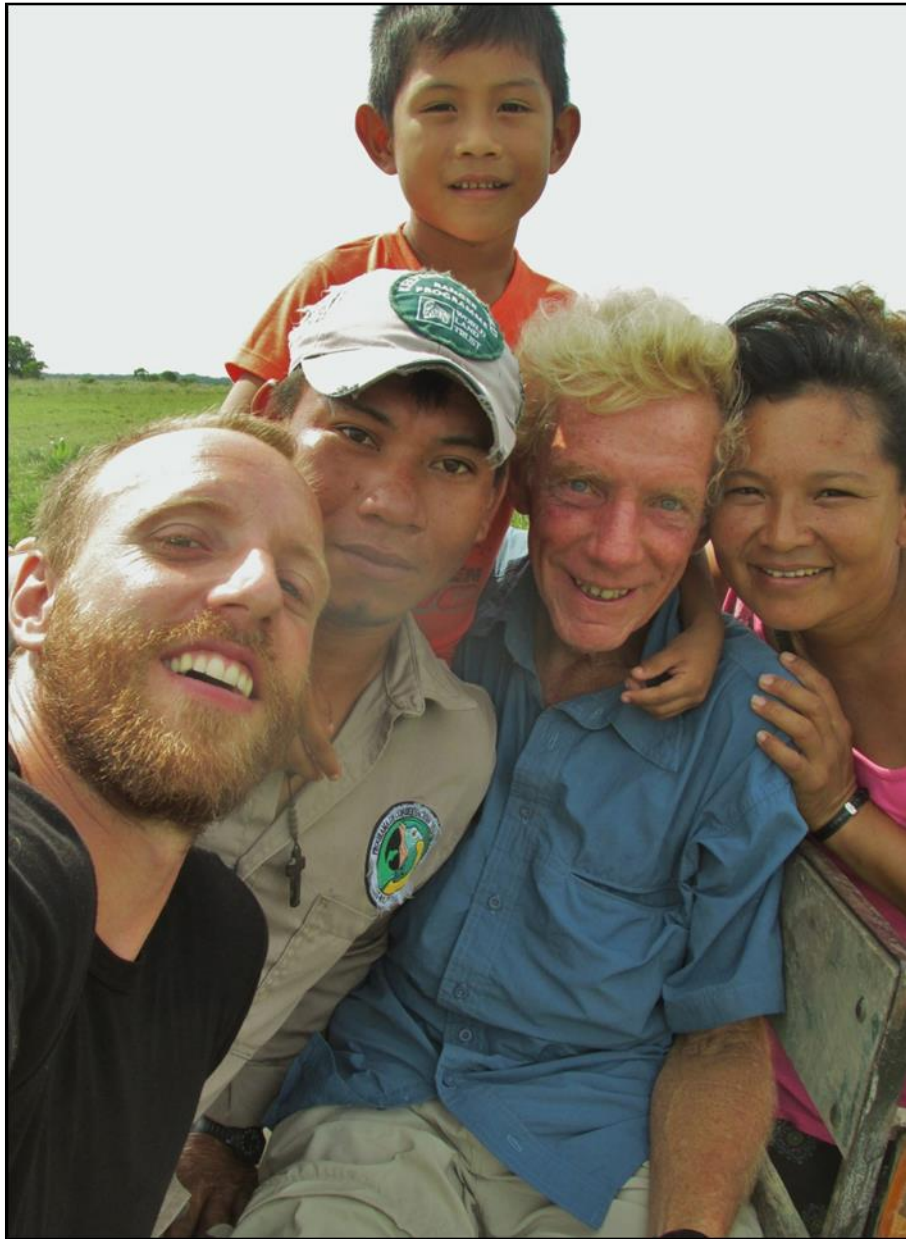


Figure 6. Barba Azul Nature Reserve field team (from left to right: Tjalle, Rene, Luis, Andele, and Rosario)

Through direct protection support from International Conservation Fund of Canada and World Land Trust, our field team was able to secure and improve protection of Barba Azul through 2015. Part of this support helped develop 5,000 ha of Barba Azul East into a low impact cattle management area, which will contribute to the economic self-sufficiency of the reserve. A rental contract has been signed with one of our close neighbors to place 1,000 cattle head, following the number of cows needed to legalize this crucial part of the reserve. This year's contract will start from the January 20th 2016 and generates 12,000 USD. In

subsequent years we plan to receive part of the payment as cattle head, to eventually generate our own Armonía cattle, augmenting our financial self-sufficiency.

Barba Azul East is an important area to the reserve as it holds 17 small Motacu dominated forest islands that are of high importance to the Blue-throated Macaws. Our Motacu reforestation program focusses on the Tiniji river system (located in Barba Azul East) where these small islands deprived of Motacu regeneration are replanted with Motacu saplings. These islands will be fenced off to ensure no further conflict between cattle presence and sapling herbivory.

Direct contact has been made with the “Grassland Alliance” who established a conservation network between ranchers in Uruguay, Brazil, Argentina and Paraguay to preserve crucial habitat for grassland birds and biodiversity in general. Armonía is in its initial phase working on a management plan to start a similar type of Alliance between cattle ranchers here in Bolivia, producing biodiversity friendly beef. One of our staff members visited for the second time the “Grassland Alliance” conference of which the latter was held in Brazil last November. Close contact was made with experts from the Alliance and through American Bird Conservancy and the March Foundation which will support experts to visit Barba Azul in 2016.

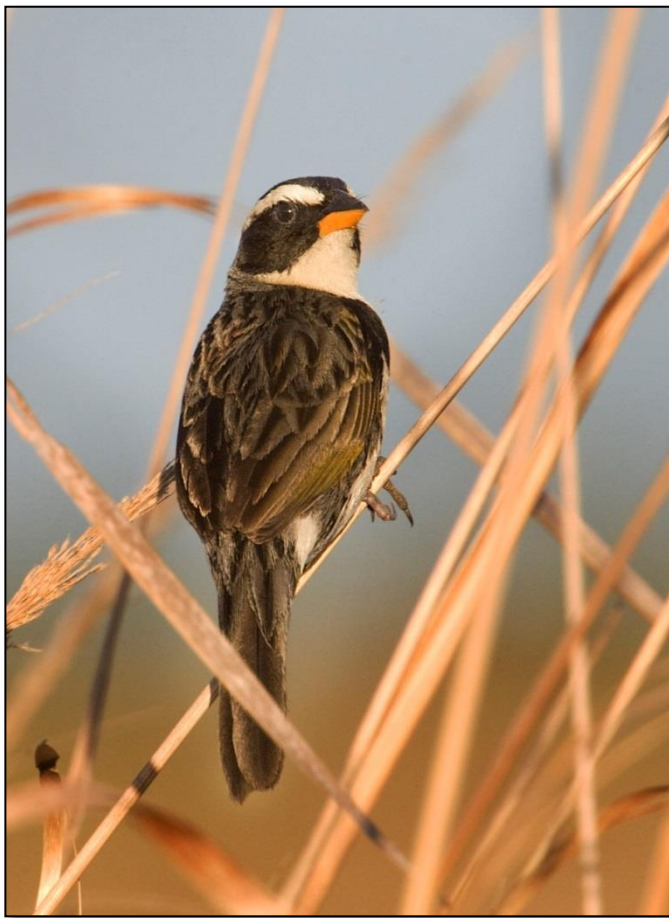


Figure 7: Black-masked Finch is listed as Vulnerable under the IUCN red list of threatened species due to the destruction of suitable grassland habitat by mechanized agriculture, intensive cattle ranching, invasive grasses, anthropogenic fires and others. Still observed in high numbers at Barba Azul Nature Reserve. ©Daniel Alarcon

Barba Azul Nature Reserve 2016 Goals

For 2016 we will continue to conduct protection, research and monitoring activities in Barba Azul throughout the year. We have set the following goals in order to ensure a continuous development of Barba Azul Nature Reserve and its infrastructure.

- 1) Establish Impenetrable firebreaks
- 2) Complete tourism infrastructure
- 3) Complete cattle ranching plan and infrastructure
- 4) Fully fenced boundary
- 5) Fully reforested Tiniji forest islands
- 6) Savanna age-class and Motacu palm monitoring program
- 7) Buff-breasted Sandpiper improved habitat, and foraging data
- 8) Blue-throated Macaw population monitoring program

1) Establish Impenetrable firebreaks

The basic firebreak grid system was created in the 2015 dry season and will be enlarged and improved when water levels drop around July 2016. As cattle have been removed from Barba Azul South through fencing-off 4 km of open border, fuel loads of large dead grass material will increase. A firebreak system will be implemented to protect Barba Azul's infrastructure and surrounding forests.

2) Complete tourism infrastructure

We received constructive criticism of the cabins in 2015 and with this experience we will improve the cabins to insure as much comfort as the habitat will avail. The roofs will be extended to prevent rain from entering as well as netting around the inner ceiling as needed to inhibit insects from entering. We would like to create an underground electric wire system with lights along the trails reaching the cabins.

3) Complete cattle ranching plan and infrastructure

We have support to contract a professional cattle rancher and a local cattle rancher to advise us on our ranching plan. This advice will be used in 2016 to create our Barba Azul low-impact cattle ranching plan. We also have prepared proposals to search for more financial support.

4) Fully fenced boundary

All open borders will be fenced and present fencing will be repaired when needed. With our tractor we can now easily transport fencing materials to all corners of Barba Azul. We have prepared a proposal to seek funds for cattle management infrastructure.

5) Fully reforested Tiniji forest islands

The basic infrastructure has been created to start planting Motacu saplings at the end of the dry season in 2016. After fencing off the assigned islands, saplings will be transported from their natural nursery at Isla Barba Azul to be planted at the forest islands in the Tiniji river system.

6) Savanna age-class and Motacu palm monitoring program

In 2015 we started our first savanna age-class study which was the first step in a multiple year monitoring program. It is important to see overtime how biodiversity changes in response to environmental factors in the Beni savanna. Now that we have started our Motacu reforestation project, we realize that crucial information on natural regeneration of this species is lacking. We hope to find graduate students focusing on many interesting questions surrounding the Motacu palm.

7) Buff-breasted Sandpiper improved habitat, and foraging data

We will experiment and improve stop-over habitat for the Buff-breasted Sandpiper. We will study and experiment with grass length and presence of cattle in order to see how habitat differences influence Buff-breasted Sandpiper presence.

8) Blue-throated Macaw population monitoring program

Blue-throated Macaws arrive back each year in May to the reserve in high numbers and with chicks. They leave the reserve in November after they finished their mating spectacle. Where they go breeding is still one of our largest questions. We would like to set-up a radio tracking monitoring project to learn more about the complete lifecycle of the BANR Blue-throated Macaw population.



Figure 7: ICFC and ABC were willing to help Armonía in purchasing this un-sexy conservation tool that in only half a year of hard work proved central in conducting practical conservation work on the ground. (photo by Tjalle Boorsma)