

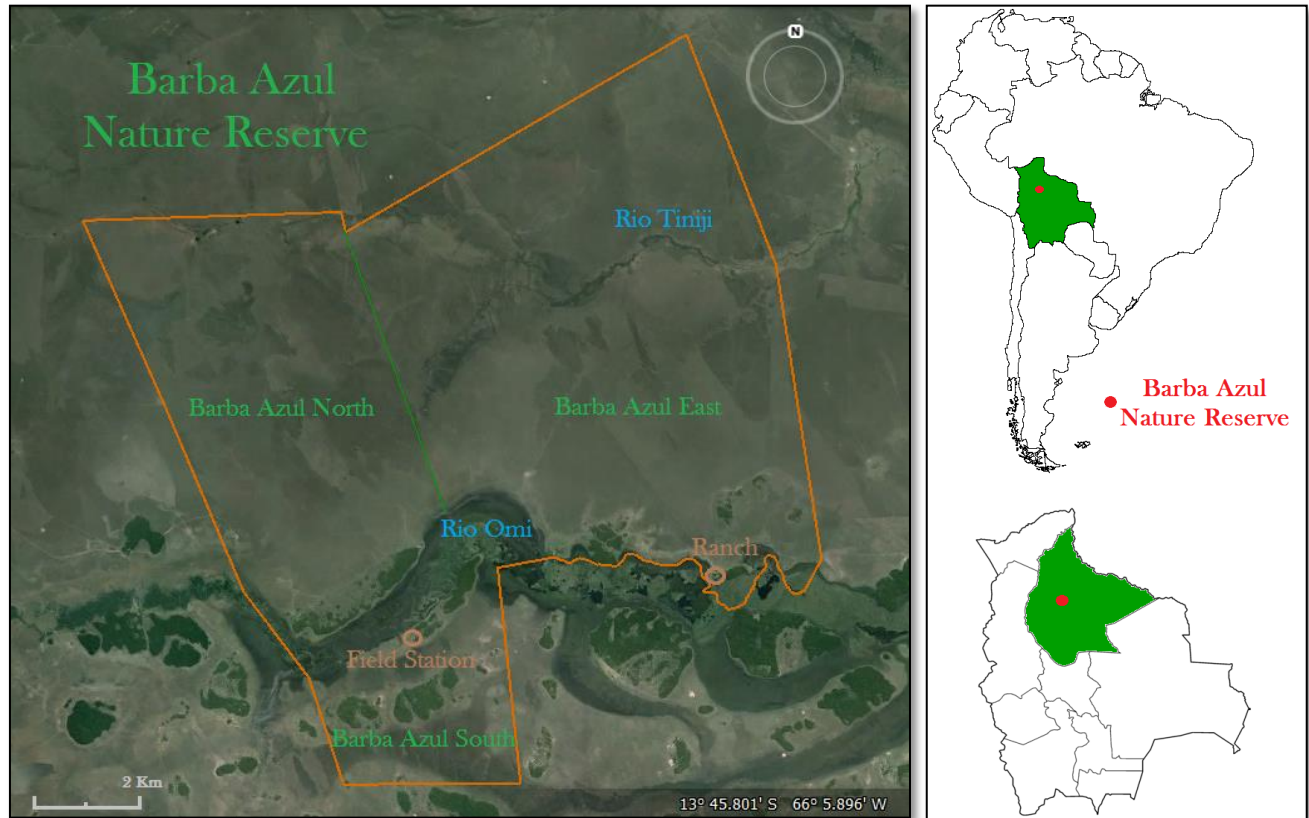
Barba Azul Nature Reserve May 2016 update report



The first Blue-throated Macaws have returned to Barba Azul Nature Reserve after breeding outside the reserves boundaries. Surveying of returning birds should give us an estimate on how many juveniles have successfully left their nests. Project pictures can be downloaded from: <https://www.flickr.com/photos/128583429@N05/albums/72157657123371838>

Introduction

November marks the start of the Bolivian rainy season which is accompanied with heavy rainfall in January, February and March. The El Nino of 2016 was recorded as one of the hottest in human record. It made this year's wet season very unpredictable with heavy rainfall in October and very few rain storms in the heart of the rainy season. The few rainstorms that arrived at Barba Azul Nature Reserve ensured at least some level of flooding of the savanna and surrounding river systems, making the area impassable with heavy machinery and vehicles. During this period of little field activity at Barba Azul, our Barba Azul field team enjoyed their well-deserved holidays and have returned with a motivation to continue our conservation efforts at Barba Azul Nature Reserve.



Conservation and development of the Barba Azul Nature Reserve is supported in 2016 by:



A grant from the
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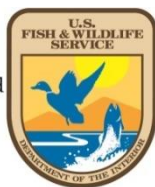




Figure 1. Rene Cartagena returning from monitoring blue-throated Macaw nest boxes while dark storm clouds are forming above the river Omi at Barba Azul Nature Reserve. Local rainstorms affected water levels of the river Omi & Tiniji and flood the savanna habitat, blocking the route for heavy machinery and vehicles (Tjalle Boorsma).

Barba Azul Nature Reserve 2016 Goals

Our main goals for 2016 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

Protection

Establishing impenetrable firebreaks

This year's wet season has been extremely dry in comparison to a normal wet season in the Beni Department. Climate models show increased temperatures for the Beni savanna that have been accompanied with less rainfall during the dry season. This is the recipe for increased possibilities for fires as farmers continuously burn their grassland to ensure fresh grass sprouts for their cattle. This increases the likelihood of fires entering the reserves boundary.

This year we will improve and extend the firebreaks as soon as heavy equipment can enter the savanna habitat. We will also experiment with an extended firebreak design using a technique called back-burning. With this technique, one creates two thin firebreaks and then intentionally burns the area in between, creating a wider area incapable of carrying over a fire. This will start in May as soils are still moist ensuring that the top soil doesn't get burnt.

In November last year we fenced off the southern border of Barba Azul South. We have almost no cattle grazing there now, increasing grass length making the savanna more susceptible for fires. Therefore additional attention has to be put in firebreaks at Barba Azul South protecting the field station and surrounding forests.



Figure 2. Establish impenetrable firebreaks. A firebreak at Barba Azul North preventing fire to cross from one side to the other. These firebreaks will be broadened, extended, improved and elevated (Tjalle Boorsma).

Management

Reforestation tree islands at Tiniji

Due to the difficult weather conditions at Barba Azul Nature Reserve, very few activities can be realized during the wet season as soils become waterlogged, completely impassible with heavy machinery. Due to the unusual heavy rainfall in October all activities related to reforestation of the Tiniji forest islands had to be halted. Reforestation activities that are supported by World Land Trust will continue when water levels drop sufficiently and the savanna becomes passable. It is expected that from July onwards the following activities will continue.

Fencing off 7 Motacu dominated forest Islands

Fencing the 7 designated Tiniji forest islands, to prevent cattle from entering and destroying the newly planted Motacu saplings, will be executed when they are no longer surrounded by water. The fencing is necessary as these islands are located in the cattle management area of Barba Azul where we will experiment with sustainable cattle ranching.

It is expected that from July onwards the savanna will be sufficiently dry to ensure the implementation of this activity. The 2016 El Nino wet season will be followed by a severe La Nina, ensuring unpredictable weather conditions.

Planting 100 trees per forest islands of different age classes

Each forest island will be reforested with 100 Motacu saplings of different age classes that are naturally regenerated at Isla Barba Azul, a large forest island that have been fenced off for approximately 8 years where natural regeneration of Motacu have been successful.

The planting of Motacu saplings is planned at the end of September/beginning of October. These dates coincide with a visit of a professional re-forester (Marc Meeuwes) from the Netherlands who has been in charge of large reforestation projects for National Parks in the Netherlands, and has been a direct college of Tjalle during his time where he was running his arborist company. Tjalle Boorsma and Marc Meeuwes will be in charge of the reforestation of the 7 Motacu forest islands at Tiniji.

Finishing the ringing of parasitic fig trees

A great start was made last year of ringing parasitic fig trees that threaten adult Motacu trees that serve as host. These figs strangle the host tree to compete for water and light resources and eventually the host tree will die as it cannot compete against the fast growing figs.

In order to overcome this problem, parasitic fig trees are ringed (partial removal of continues stem) ensuring the future persistence of the adult Motacu. These important adult trees will continue producing seeds that are able to regenerate as cattle pressure is no longer a constraining factor. When the Tiniji watershed can be reached by the tractor, the 3 remaining forest islands will be cleaned off from parasitic fig trees.

Completion of second and third artificial forest island

Our first self-made raised island has been successfully created in September last year. It will be monitored during the heart of the wet season to ensure that it is sufficiently high to reforest with Motacu at the end of this year's dry season (October). Two additional forest islands will be created and reforested with use of a the land scraper that can dig up dirt and drop it where needed.

Armonía's purchase of the John Deere tractor with the financial help from ABC and ICFC, proved itself essential for ground level practical conservation work like this reforestation program. Without this conservation tool, reforestation at Barba Azul would have been very challenging.



Figure 3. Degraded Rio Tiniji forest islands in the heart of the rainy season, deprived of Motacu palm regeneration and therefore the main focus of the Motacu reforestation project.

Completing cattle ranching plan and infrastructure

A cattle ranching expert, who studied sustainable land use management and who has an ecosystem responsible ranch in the Beni Savanna, will visit Barba Azul in May with Tjalle to create a management plan on how to durable manage cattle, protecting this endangered ecosystem.

With financial support from March fund and ABC we are able to get the expertise and work on a management plan demonstrating how to experiment with cattle pressure affecting local wildlife and Buff-breasted Sandpiper habitat in Barba Azul East. We will experiment with cattle as well as local habitat management to study how to improve habitat for the Buff-breasted Sandpiper and during their stop-over period in September, monitor their preferred foraging habitat.

This cattle management plan will be presented in June. This is followed by several workshops that Armonía is organizing with many important players within the cattle business. Local as well as international experts, conservation organizations and the Beni cattle federation will be part of this workshop exchanging knowledge and experience.

Our plan is to eventually have our own Barba Azul cattle that can be sold as green beef on the Latin American market. These are the first import steps that are made to become a pilot ranch in the Beni, in order to present a ranching system protecting this local ecosystem.

Our first step has been renting Barba Azul East to one of our neighbors for 1USD per cow/month. According to national law regulations we have to have 1000 head of cattle roaming Barba Azul East as this area has cattle ranching as its zoning plan. 1 head of cattle per 5 hectares is by law the minimum number of cows that have to be present. The 1000 head of cattle, now grazing at Barba Azul East, generate an additional 12,000 USD per year that helps Barba Azul reaching economic sustainability.



Figure 4. Fully fencing Barba Azul Nature Reserves borders. Hardwood post to ensure cattle free conservation and tourism areas outside the cattle management area of Barba Azul East (Tjalle Boorsma).



Figure 5. Nest box monitoring program 2016. Juvenile Toco toucan occupying a artificial Blue-throated Macaw nest box standing in its own excrement and completely covered with parasites (Rene Cartagena).

Research

Blue-throated Macaw nest-box monitoring

December 2015 was highlighted by the placing of 10 new artificial nest boxes and the restoration of another 10 present nest boxes for the Blue-throated Macaws. It was also the start of monitoring of the already present nest boxes. This is important in order to evaluate whether these nest boxes are being effective. Monitoring of nest boxes is a tough job as long distances have to be covered on foot or horse, carrying a long ladder on their shoulders as no other way of transportation is possible during this time of year.

Further monitoring of the nest boxes will continue in May with the help of Miguel Ortega to assist Rene Cartagena to reach the furthest most nest boxes in the reserve. As most birds have already left their nesting sites, evidence like feathers, scratch marks on the wood and other sign of Macaw usage will be searched for. Additional information of state of boxes as well as usage by other animals will be noted down. Nest boxes around the field station have been monitored in December, just before Rene Cartagena enjoyed his well-deserved holidays in January and February.



Figure 6: Rene Cartagena monitoring a Blue-throated Macaw nest box placed in September 2014. This specific nest box was occupied by a Toco Toucan (*Ramphastos toco*) (Tjalle Boorsma).

Blue-throated Macaw tracking study

Armonía is working together with Lisa Davenport and Donald Brightsmith from the Florida Museum of Natural History who has been tracking Orinoco Goose at Barba Azul as well as in collaboration with Loro Parque Fundacion, to study the movement behavior of the Blue-throated Macaw population of Barba Azul Nature Reserve.

Over 100 birds are found at Barba Azul, making this area the stronghold of the species. The macaws use the reserve to forage, roost and mate, though they have not yet bred at Barba Azul. As we still do not know where they breed, Lisa davenport will place tracking devices on several birds (exact number has to be decided) to study where these birds go during their breeding season. If funding is secured, an additional on-ground effort will be executed by Armonía staff to explore 2 possible breeding sites North-East and North-West of the reserve (see fig. 7).

This study is of utmost importance to understand the complete lifecycle of the reserve's Macaw population to ensure future breeding success at Barba Azul, protecting this amazing endemic and Critically Endangered species.



Figure 7: Possible breeding site locations. This map is showing the 2 main target areas to find possible Blue-throated Macaw breeding sites: surroundings of the newly discovered Blue-throated Macaw (BTM) roost site and the Mercedes ranch north of Santa Ana de Yacuma. Orange outline indicates the Barba Azul Nature Reserve parameter.

Thesis research at Barba Azul

Before Tjalle's arrival in Bolivia to start working as the coordinator for the Barba Azul Nature Reserve, he presented the reserve at the Wageningen University in the Netherlands, that is known for their ecological research. Many students showed their interest in executing their Master thesis study at Barba Azul in Bolivia. Additional contact was made with professors and students during his last holiday visit at the Netherlands to promote Barba Azul. Iris Hordijk will focus her study on the regeneration of Motacu palm on forest islands and Fabian Meijer on the preference of Blue-throated Macaws to specific areas and Motacu trees in the reserve.

These efforts have resulted in two confirmed thesis students at Barba Azul. Also a graduated master student will volunteer for one year at Barba Azul focusing on the nest box monitoring program 2017 as well as studying the local movement and behavior of the Blue-throated Macaws in Barba Azul Nature Reserve. Many professors showed their interest in the reserve and would like to see research going at Barba Azul.

In June a PHD student specializing in mammalogy from the Texas A&M University will visit Barba Azul to execute her pilot study on medium to large mammals affected by land-use change. Also a group of 8 Bachelor students from the Glasgow University will visit Barba Azul for the fifth time, focusing on local Macaw movement, foraging behavior, camera trapping around positioned dead pigs to study local scavengers.

These student will also focus on a savanna age class study where they will study the presence and abundance of savanna specific bird species. They will establish transect lines and will place mist nets in savanna patches of different age classes to study the effect of fires creating a mosaic of different grass age and length.

Information document for researchers and students

A detailed research information document has been established by Tjalle to present all necessary information that is needed to visit Barba Azul Nature Reserve for executing research activities. It contains the research themes of interest, background information on Armonía and Barba Azul and all the logistic information to plan your work at the reserve. This document is uploaded at the Armonía website, www.armoniabolivia.org, and is now available for researchers and students around the globe.

Tourism

Blue-throated Macaws and first tourist arrived at Barba Azul Nature Reserve

The rainy season goes accompanied with the breeding season of the Blue-throated Macaws. From October until March the Macaws are almost absent from the reserve. The 15th of March we had our first tourists visiting Barba Azul and also the first groups of Blue-throated Macaws arrived at Barba Azul. Up to 12 individuals have been observed and a very pleased visitor left Barba Azul with an amazing 4 night 5 day experience. Over 150 species were observed during his trip guided by Tjalle.

Cabin improvement with extended roofing

In the third week of January 2016 a contractor from the community of San Jose the Uchupiamonas who are the leading experts in roofing construction with palm fonds, visited the Barba Azul Nature Reserve with the reserve's coordinator to take up the construction work to extend roofs for all cabins to ensure long term rain prevention.

All measurements were taken, roofing material was calculated and labor was planned. Two weeks are needed to construct the extended roofs for all 4 cabins with 4 constructors who will be responsible for purchasing, transporting of material, construction at Barba Azul and their stay (room and board) at the reserve.

Construction of the extended roofs are planned to be performed between June and August. The actual date of execution completely depend on weather conditions whether heavy trucks are able to reach to reserve over land. In 2015 we were able to reach the reserve over land in mid-July with many struggles and with changing climate and this year's La Nina, we cannot give an exact date to execute the construction work.

Dinner

Since May 2015, Barba Azul has finished the construction of 4 cabins, each with two beds, a private bathroom and an astonishing view over the river Omi. In order to ensure full comfort for visitors that help Armonía's conservation efforts through their visit, a common dinning and information area has to be established. Food and drinks will be served in this dinner as well as information and marketing of our hard conservation work can be presented.

The construction of this dinner would ensure the achievement of goal 2 “complete tourism infrastructure for Barba Azul Nature reserve”. We are still in search for funding for this big project as we have not found a donor who is willing to financially support the construction of this important tool to ensure full comfort and to present our conservation project we are implementing throughout Bolivia.

Tourism information document

A detailed tourism information document has been created explaining Armonía's conservation efforts at Barba Azul, the ecosystem with its associated wildlife, logistics & prices and what can be expected being in the heart of the Beni Savanna. It is important to manage expectation of visitors interested in experiencing the beauty Barba Azul has to offer. This document will be uploaded to our website so it is available for tour agencies as well as individual travelers. This document should make agencies interested in sending their clients to Barba Azul, ensuring the very much needed funds to reach economic sustainability to manage Barba Azul.



Trail map

We are reaching the completion of trail systems at Barba Azul. Many trails have been created through the hard work of Rene Cartagena. Additional trail extensions will be established to ensure seeing the highlight bird species Barba Azul has to offer.

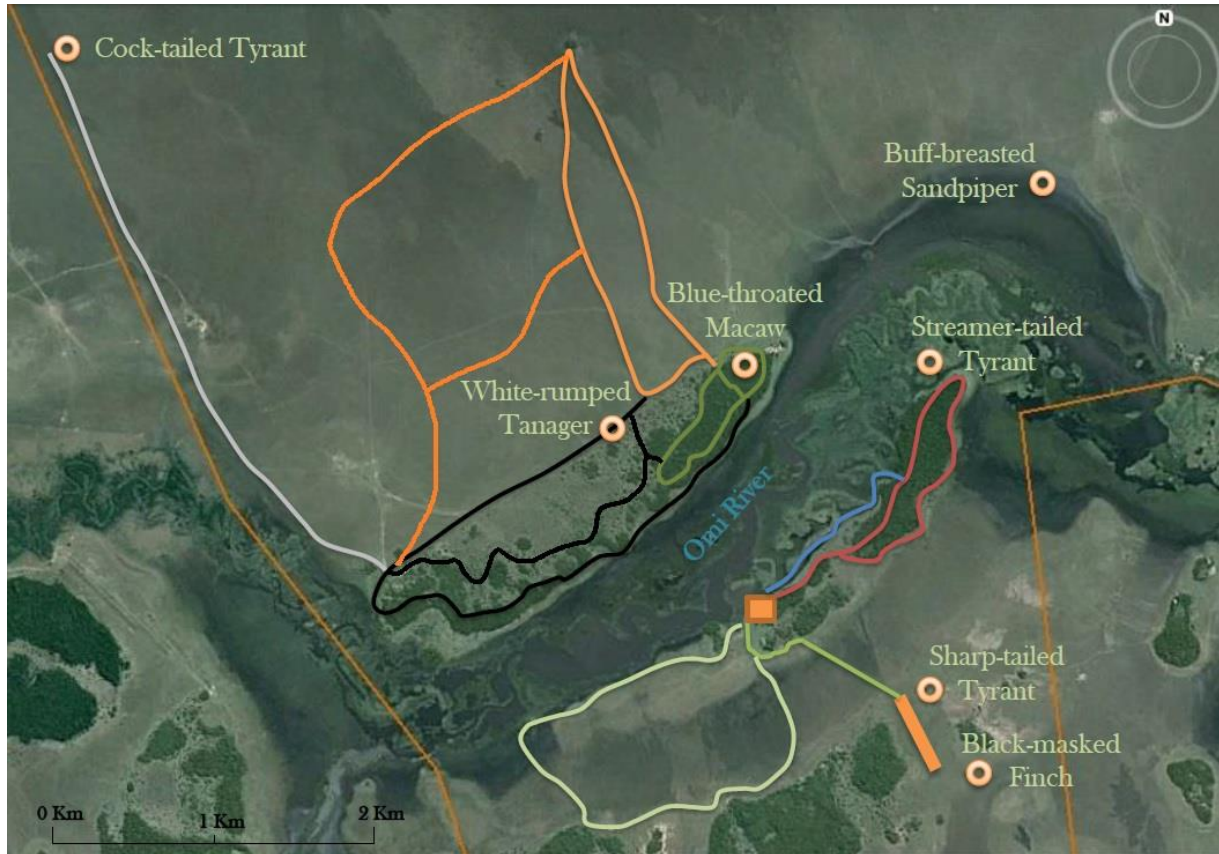


Figure 8. Trail map with all the trail systems Barba Azul Nature Reserve has to offer to see the highlight bird species.