Barba Azul Nature Reserve
November 2015 Update

Introduction

August to November is the main period of the dry season where much of the heavy work needs to be done. Heavy materials like fencing posts and timber for window frames have been transported to Barba Azul. In this period also the hard physical work has to be done like creating fire-breaks, large trail systems and runway maintenance with the great help of our newly purchased tractor.

This period was also highlighted by many research studies like the Blue-throated Macaw and the Buff-breasted Sandpiper survey as the latter migrates in this season. Besides having lots of research activities taking place, this is also the peak for tourism, with 2015 running the most tourists ever in Barba Azul.

As the dry season has almost ended and rain is starting to become more frequent, the Blue-throated Macaw is ready for his breeding season as they have been spotted demonstrating their amazing mating spectacle which will lead them to leave Barba Azul to find breeding cavities. This will open straight away a new research topic as we need to survey whether the nest-boxes in the reserve are going to be occupied this year.

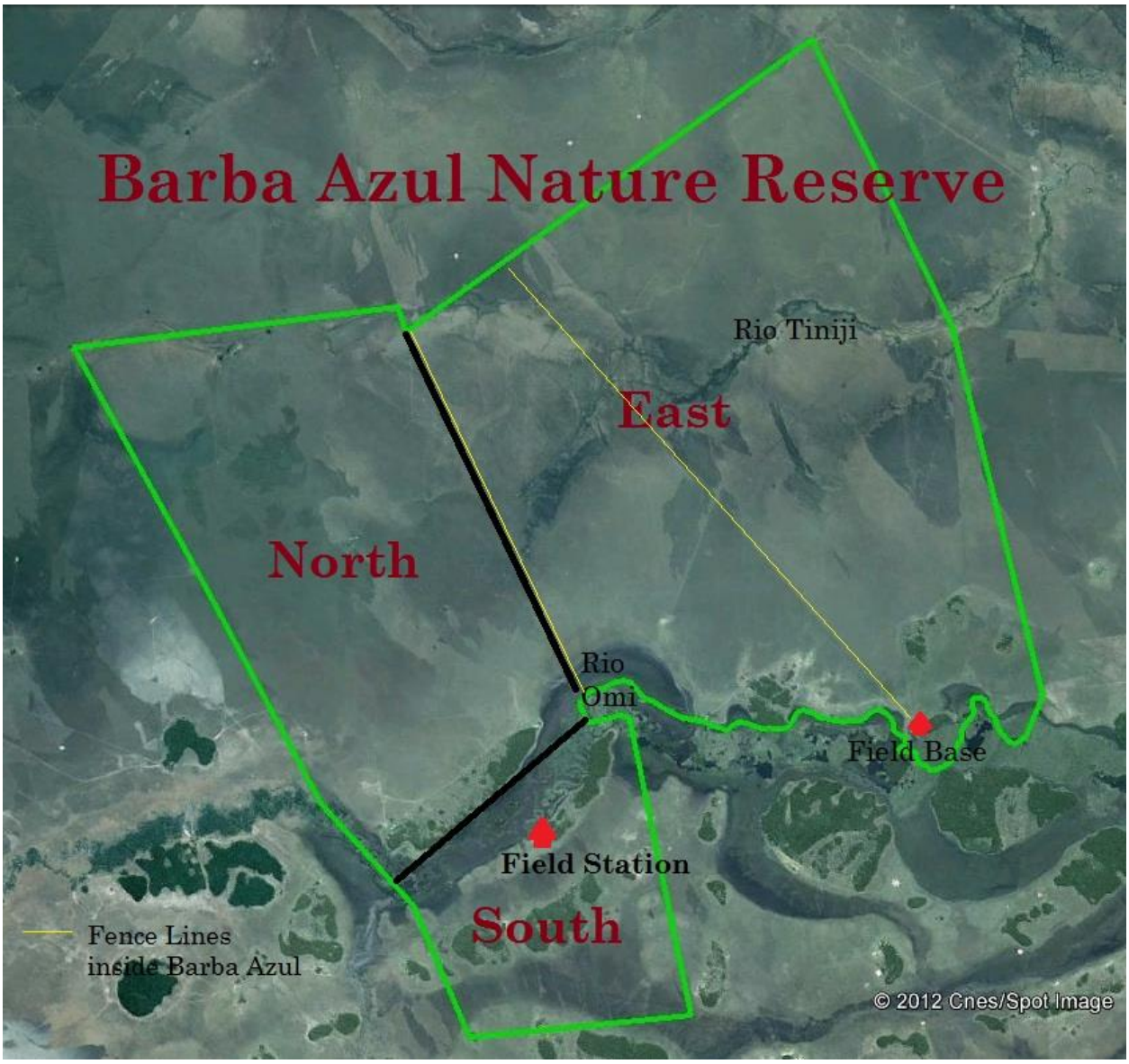
Conservation and development of the Barba Azul Nature Reserve is supported in 2015 by:

2015 Goals

For 2015 we will continue to conduct protection activities in Barba Azul throughout the year, such as fence mending, border patrols, cattle removal, grass mowing, runway upkeep, infrastructure maintenance, firebreak mowing, and overall protection vigilance.

Our development goals for 2015 are:

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 (free of cattle 2016)


Barba Azul Nature Reserve
Rio Tiniji
East
North
Rio
Omi
Field Base
Field Station
South
Fence Lines
inside Barba Azul
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Protection

Firebreaks

We need to control fires on the Barba Azul Nature Reserve. The tractor arrived in July on Barba Azul, where it was immediately applied to creating fire-breaks. A grid system of large broad trails was plowed in order to prevent fire crossing from one area to another.

At the 20 of September a fire entered Barba Azul and was able to cross several fire-breaks as during this period of the dry-season we witnessed extreme heat and extraordinary heavy winds. This resulted in sparks flying over large distances not being able to be stopped by the implemented firebreaks. It is clear that with changing climatically conditions, extreme dryness, and heavy wind, this ecosystem needs a complicated fire-break protection method.

Figure 1: Rene Cartagena bordering the burnt savanna area (picture taken by Tjalle Boorsma)

Future fire breaks will be characterized by two parallel plowed trails of 15 meters in width, located 100 meters apart. The grass in-between these fire-breaks will be burnt, as a process called back-burn, in order to keep fuel loads limited, and therefore giving flying sparks no chance to light fires through a long distance. We hope to have fire-experts visit to help the reserve creating this fire control system that will protect the reserve from uncontrolled fires.

Cattle

Little by little we are removing cattle from the reserve borders. The Barba Azul coordinator has ordered neighboring farms to take out their cattle and advised them that fencing off the Barba Azul South parameter is going to be executed at the end of October/beginning of November. From that moment the large forest chunks of Barba Azul South will be protected from the destructive grazing by cattle, and allow regrowth of many tree species.

Also forest islands in the Tiniji watershed are being fenced as part of the reforestation project, in order to prevent cattle from grazing newly planted Motacu saplings in the Barba Azul East cattle management area.

Figure 2: Short grass pasture around forest islands at Tiniji watershed that will be used for grazing cattle. The island itself will be fenced in order to secure growth of the reforested Motacu saplings (Picture taken by Tjalle Boorsma)

Management

Motacu Palm Forest Protection

The focus of this reforestation project will be the Tiniji watershed area for this first year. We will be creating 3 artificial forest islands and reforesting Motacu trees in forest islands deprived of natural regeneration. Barba Azul south has several large Motacu forest islands, though they tend to be less visited by the Blue-throated Macaw. We are working on fencing the entire southern border, preventing cattle from neighbouring ranches to use these islands. Due to the changes in cattle management in Barba Azul East, where we will start our own cattle management this year, we will place all our effort in the Tiniji river system area.

The output of the Motacu Reforestation Project will be:

1. **Fencing of 7 Motacu dominated islands** in the Tiniji watershed (island 3B, 4B, 5B, 6B, 7B, 8B, 12B)
2. **Creating 3 artificial forest islands** with a land diameter of 50 meters (fenced off)
3. **Planting Motacu of different age classes**. An island of an average of 50 meters will be reforested with:
    1. 20 Motacu with a size of approximately 2,5 meters
    2. 40 Motacu with a size of approximately 1 meter
    3. 40 Motacu with a size of approximately 0.5 meter
4. **Ringing of Fig trees** that parasitize on adult Motacu with use of chainsaw

Figure 3: Forest Island 5B in Tiniji watershed devoid of naturally regenerating Motacu trees (Picture taken by Tjalle Boorsma)

The artificial forest island will be a mixture of the above indicated number of Motacu trees and deciduous tree species to create a more natural forest diversity stand.

Isla Barba Azul, the large forest island opposite the field station at BANR will be used as natural nursery. Many Motacu palms are able to regenerate in this forest stretch as it has had little cattle impact for the last 8 years. We can use these Motacu saplings to reforest the understory of the circular forest islands in the Tiniji watershed. Blue-throated Macaws tend to be very selective with Motacu seeds they consume. Regenerating Motacu that is found under these preferred mother trees will be used for the reforestation project.

Figure 4: Ringing of the patristic strangles figs that kill adult Motacu trees as part of our reforestation plan. Reserve manager is removing the trunk part of the strangler fig (Picture taken by Hernan Lopez)

Barba Azul East Cattle management plan

Our neighbouring ranch of Barba Azul East (BAE) is willing to locate 1200 head of cattle on our 6,000 hectare cattle management area of BAE. This is the number of head of cattle that we have to demonstrate to the Bolivian government that we are managing our land according to land-use restrictions. BAE is not listed as a private nature reserve. In BAE we want to try to establish a harmony between protecting habitat and ranching- and this land will be used to conduct ranching experiments for sustainable management that can be applied to ranches in the area. 1 head of cattle per 5 hectares is necessary to complete these requirements. We therefore have to protect the forest islands that will be reforested with

Motacu palm from cattle directly grazing these newly planted saplings. The contact is set for the first of November to enter these cattle on our land. Proceeds from the ranching will be used to help manage Barba Azul.

Research

Buff-breasted Sandpiper survey

September until October is the peak season for the Buff-breasted Sandpiper 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.

A group of four students from the Cochabamba University that 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 that want to do their thesis on this subject.

Figure 5: Cindy Veizaga searching Buff-breasted Sandpipers and counting all the shorebirds that are present in the short grass habitat around the river systems (Picture taken by Tjalle Boorsma)

Blue-throated Macaw Survey

The global Blue-throated Macaw 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.

Figure 6: Barba Azul coordinator (Tjalle Boorsma) searching for Blue-throated Macaws during the BTM survey from his main type of transport (Picture taken by Hernan Lopez)

Cornell Lab of Ornithology visit

Gerrit Vyn and Andrew Johnson from Cornell Lab of Ornithology visited BANR to film the beautiful Blue-throated Macaw in its natural environment. Although conditions are hard in the Beni savanna, as there is a very short timeframe with great light to film the birds, they were able shoot great footage of the birds and many other amazing wildlife of Barba Azul.

They will combine this material with a rainy season visit in January. The project is designed to help conservation project with threatened species, creating videos and photos that the project can use to promote conservation of the species.

Figure 7: Gerrit Vyn and Andrew Johnson from Cornell Lab of Ornithology filming a Tamandua foraging in a Motacu palm (Picture taken by Tjalle Boorsma)

Tourism

Barba Azul had the highest tourist count this years. A total of 44 tourists will visit the reserve this year, with around 132 tourist nights (each night costs $150). We hear great comments about the new cabins although many changes still have to be executed. The father of the reserve manager, Andele Boorsma will be locating removable windows in November that prevent rain from entering the cabins druing the storms. This will also be done for the field station. Next year we are planning to extend roofing around the cabins, complete the furniture, move electric cables underground and ensure light along the trail towards the cabins.

Another great project we would like to execute is the completion of a dinner area for tourists. There they will have their meals and beverages, relaxing area and there we can inform them about our projects and ways to help the reserve in the future.

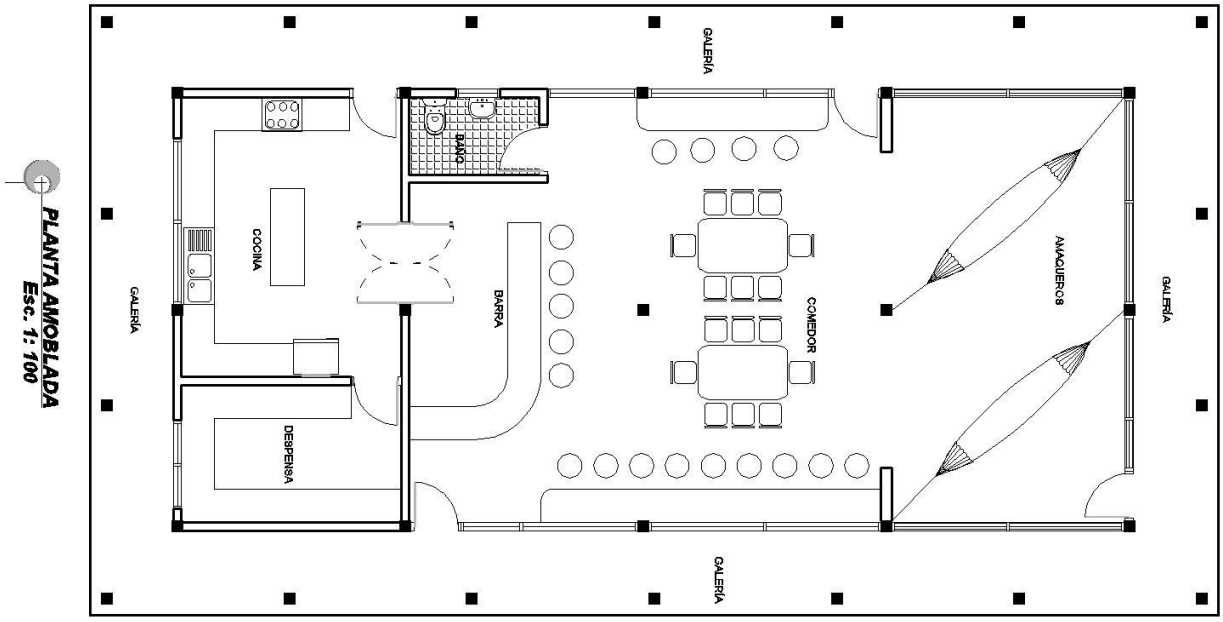

Figure 8: Blueprint of the dinner we would like the construct in 2016

Appendix 1; Future Fire Management Plan

Fire Management Plan

The 2015 burn clearly indicated that fire prevention with use of firebreaks is a very complicated matter in an ecosystem with lots of flammable fuel loads, neighbouring ranches burning their parcels, and very strong winds. Not only are neighbouring ranches a possible risk for emerging fires, also many thunderstorms (dry and wet) pass through the savanna in the dry season setting fires.

Fire is part of the Beni savanna ecosystem as it ensures the return of stored nutrients in dead biomass to the soil that can be reused by the system. Though fire is part of this system, it should be controlled in a proportional manner when trying to protect this endangered ecosystem. Controlled burning to create a maze of different savanna age classes is preferred in order to maintain the highest possible diversity.

Firebreaks that were conducted in July-August 2015 were established to withhold fire from entering the BANR borders from neighbouring farms. The combination of strong wind and inadequate firebreaks resulted in the 52% burn of BAN

Future fire control management should take into account the strong winds that are present during the peak of the dry season when most ranchers start burning their grasslands. According to J.R. Weir (1964), firebreaks should at least have a width of 10 times de flammable matter. Tall grass savanna of 3 years old tends to be approximately 1.20 m in height, resulting in a firebreak of at least 12 metres.

Future firebreaks should be ploughed up to 15 metres in order to have the minimum width necessary to prevent fire from crossing. Firebreaks should be of complete bare soils without remaining grass waste, which has been the cause of fire crossings during the last burn. In order to ensure clean firebreaks (without grass waste) a “rear blade (scraper)” should be used to clean up the breaks. This implement should be purchased in the future.

In order to prevent spark from lighting fires across the 15 meter firebreaks due to extreme strong winds, the fuel load should be minimized right after the firebreaks. This can be done

through cutting the grass short on both sides of the firebreak for at least 50 meters. This is not possible to do so at BANR due to rough terrain created by termites.

The other possibility is to "back burn" large strips right after the created firebreak of approximately 100 meters in width to prevent sparks from lighting fires right after the firebreak. This is done through creating two broad firebreaks parallel to one another 100 meters apart. The grass in between should be burnt in a controlled manner. This is done by burning downwind starting a few metres from the firebreak. Than continue burning strips behind the first burn so no fuel loads are present for the fire to go out of control. This should be done by experts in controlled burning and should never be done by unexperienced reserve staff.

We would like to create a grid of firebreaks in this manner to also control possible lightning fires that can start within the border of BANR. This ensures only a small patch burn, which is restricted to the grid where the fire originated. In this manner we are able to create a maze of different savanna age classes that will also increase the total savanna biodiversity.

It is important that BANR has its own big water tank that can be transported with use of the BANR tractor and its trailer to ensure a large water supply for fireman to control fires when they tend to go out of control. This is also necessary when controlled back-burns are created to prevent fire from going out of control.

Appendix 2; 6 new bird species for Barba Azul

The Barba Azul bird list is growing and growing (see it on ebirdhttp://ebird.org/ebird/hotspot/L1133586). And additional 6 new species are added to the Barba Azul checklist after my last field visit in the first weeks of September. Barba Azul has a total of 265 species (as of today after two bird tour visits 287).

New species recorded are:

1. Yellow-breasted Crake (*Porzana flaviventer).* I found this species in the marsh opposite the field station a meter away from me. **No recordings of this species in Bolivia on E-bird!!**
2. Pied Lapwing (*Vanellus cayanus*). Seen by Fanny (Tibi survey group) at the short grass area starting at the far end of Isla Barba Azul (N-E).
3. Sunbittern (*Eurypyga helias).* Saw the bird flying off from the little forest island where we leave the boat at the field station.
4. Short-tailed Swift (*Chaetura brachyura*). Flying overhead with a group of approximately 50 Southern-rough winged Swallows at Barba Azul East near rio Tiniji.
5. Green-barred Woodpecker (*Colaptes melanochloros*). Foraging on a large dead tree at Isla Barba Azul.
6. Lesser Kiskadee (*Philohydor lictor*). A pair seen close to the water (several sightings) at the forest stretch starting from the field station. I bet this species has been overlooked.

Many birds are breeding at this moment.

1. Nacunda Nighthawk (*Chordeiles nacunda*). Two eggs on the ground (seen by cornell)
2. Turkey Vulture (*Cathartes aura*). Two white eggs. Breeding on the ground under a fallen tree with shrubs overhead.
3. Southern Lapwing (*Vanellus chilensis)*. 4 eggs on the ground
4. Orinoco Goose (*Neochen jubata*). 16 chicks fledged from the nest-box at the main entrance. They all jumped from the box. Adult bird took off with chicks and left 3 behind.
5. Rufous Hornero (*Furnarius rufus*). Two birds were active at their nest at the field station.
6. Rusty-backed Spinetail (*Cranioleuca vulpina)*. A circular grass-like nest (app. 30 cm in length) at 3 meters height at Isla Barba Azul.
7. At this Rusty-backed Spinetail nest an apparently young Barn Owl (*Tyto alba)* has its roost. Seen the bird three times in the same bibosi tree.
8. Jabiru (*Jabiru mycteria*). Large nest with at least one chick at a strip of trees within the rio Omi.
9. Buff-necked Ibis (*Theristicus caudatus)*. Seen two birds flying with sticks at Isla Barba Azul.

Figure 9: Barn owl (*Tyto alba*) at his Bibosi roost (Picture taken by Tjalle Boorsma)

The camera traps captured a new mammal species for BANR, the Bicolored-spined Porcupine (*Coendou bicolor)*.

Also the Neotropical otter (*Lontra longicaudis)* have been observed twice at Barba Azul North.

Figure 10: Neotropical otter (*Lontra longicaudis)* foraging in drying pond at Barba Azul North (Picture taken by Tjalle Boorsma)