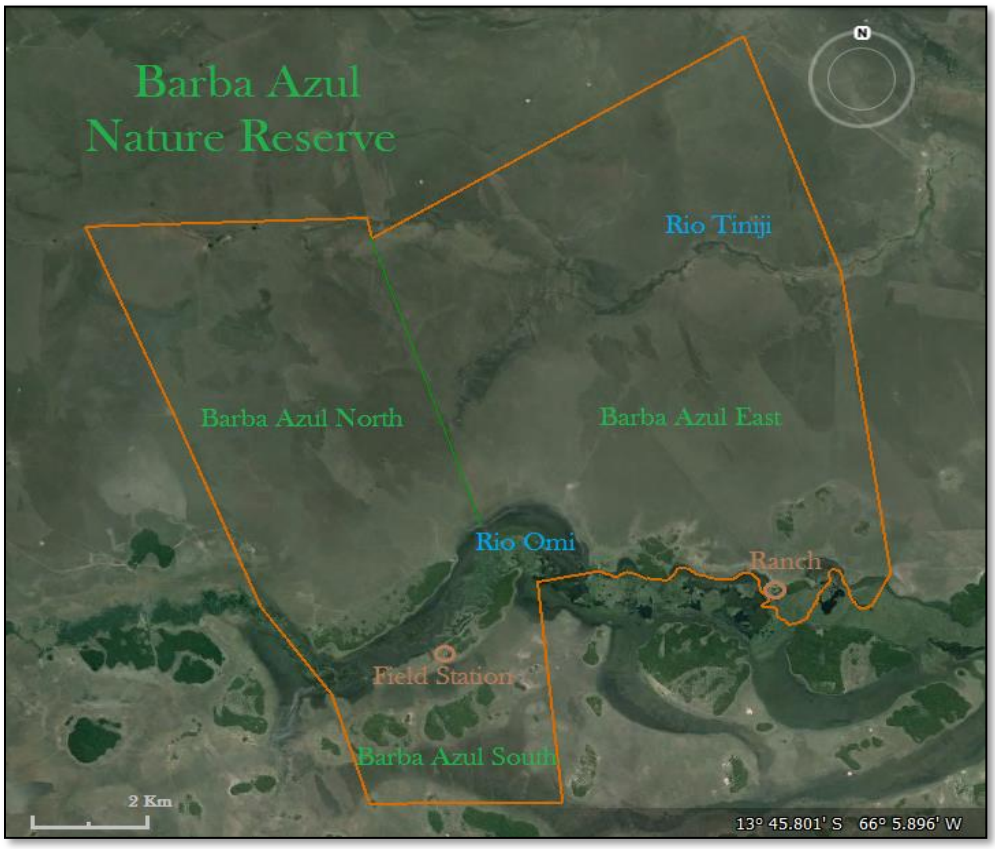
Friends of Barba Azul Nature Reserve
Annual report 2016

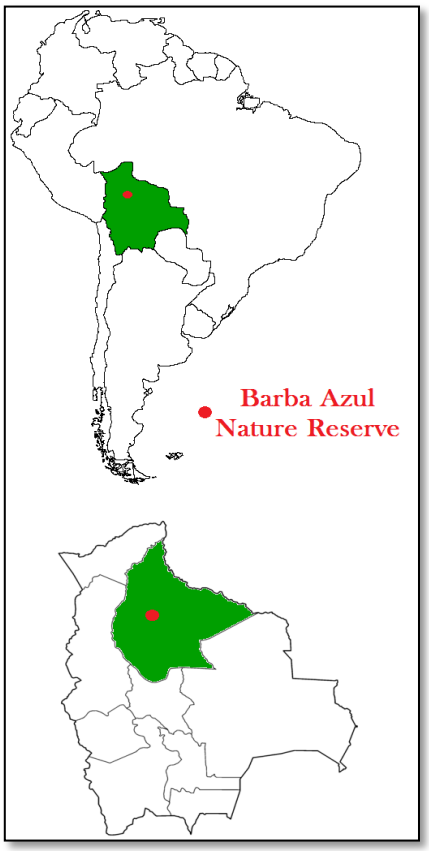
The highest count in history of 118 Blue-throated Macaws was observed at Barba Azul Nature Reserve in September 2016. Photo by Fabian Meijer. Project photos can be downloaded from:
https://www.flickr.com/photos/128583429@N05/albums/72157657123371838

Highlights of 2016

2016 was highlighted with the highest count of Blue-throated Macaws ever registered. 118 birds were counted in September at the main roost in the northern most corner of Barba Azul North. This fully reflects our conservation activities, showing that more Blue-throated Macaws find refuge each year at Barba Azul. Not only was this the highest count ever throughout the Beni, many juvenile birds were registered, indicating successful reproduction.

Successful steps have been made to secure future existence of vital Blue-throated Macaw roosting and foraging habitat by reforesting forest islands in the Tiniji river system. Motacu dominated forest islands have been fenced and reforested to ensure recuperation and regeneration.





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

AMERICAN BIRD CONSERVANCY

Bird Bolivia
TOURISM & TRAVEL AGENCY

LORO PARQUE FUNDACION
Tenerife·Spain

ICFC where nature needs us most
International Conservation Fund of Canada

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The Mohamed bin Zayed SPECIES CONSERVATION FUND

MARCH CONSERVATION FUND

MUSEO DE HISTORIA NATURAL ALCIDE d'ORBIGNY

A grant from the Neotropical Migratory Bird Conservation Act
U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

WORLD LAND TRUST

Figure 1: The Barba Azul Nature Reserve field station overlooking the river Omi marsh habitat. The Omi marsh habitat consists of species from two river ecosystems, fresh-water river habitat species and lake species, as during the dry season the current of the river Omi is blocked. Drone image December 2016.

Barba Azul Nature Reserve 2016 Goals

We set 8 main goals in 2016 to ensure a continuous development of Barba Azul Nature Reserve focusing on full ecosystem protection, habitat restoration and self-sustainability:

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

Summary of achieved goals

Many activities have been taking place at the Barba Azul Nature Reserve in 2016; improving main infrastructure, collecting vital habitat & species data, habitat protection & restoration activities as well as planning future activities working towards the reserve's sustainability.

1) Establish Impenetrable firebreaks

First ever firebreak blocking big fire originated in neighboring ranch, preventing the destruction of the main Blue-throated Macaw foraging habitat. A total of 35 km of 20-meter-wide firebreaks have been established in Barba Azul North and East. It will be a continuous maintenance to keep firebreaks from functioning. March Conservation Fund in collaboration with ABC funded a scraper blade to fully maintain firebreaks.

2) Complete tourism infrastructure

All 4 cabins have been fully improved with extended roofing and improved mosquito netting to (see page 19). We still need to find around $7,000 support for the final finishing touches to the cabins, like bedside tables, chairs, etc. We were not able to raise the funding for the last missing step, the dinning complex. We reevaluated the structure, drew up design plans with a blueprint, and have price quotes. This will be a fundraising priority for the beginning of 2017.

3) Complete cattle ranching plan and infrastructure

Significant steps were taken to get Barba Azul to the next level to reach economic sustainability by completing an eco-friendly beef production plan with help from cattle management experts from around the world. With funding from March Conservation Fund and ABC we will implement the infrastructure in 2017. A total of 15 km of paddock fence and a corral will be built to ensure cattle ranching in Barba Azul East.

4) Fully fenced boundary

A total of 400 fence post with an additional 20 corner posts have been purchased in July 2016 to place 2,8 kilometers of open border as well as paddock fencing. Fencing activities will continue in 2017. An additional project with planting trees as fence posts will be executed with the help from funds from World Land Trust.

5) Fully reforested Tiniji forest islands

Completed the World Land Trust (WLT) supported Motacu reforestation project by reforesting 7 degraded Motacu dominated forest islands with a total of 700 trees. Trees were planted just before

the rainy season. Results of surviving trees will be analyzed in the 2017 dry season. Additional $6,000 was supported by WLT to continue reforestation activities at Barba Azul.

6) Savanna age-class and Motacu palm monitoring program

Students from the Wageningen University of the Netherlands as well as Scottish students from The Glasgow University collected data on Motacu regeneration throughout Barba Azul, soil composition, Blue-throated Macaw behavior and mammal/bird presence in different habitat types. Glasgow University donated their drone to the Barba Azul Nature Reserve. Thesis results will be presented by students in the beginning of 2017.

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

The highest number of Buff-breasted Sandpipers were observed in a new monitoring area at Barba Azul Nature Reserve. A day count of 1450 birds were counted at the short-grass habitat of the Tiniji river system. Our improved monitoring system could be the basis of better estimating birds passing through. Habitat improvement activities like mowing grass showed no significant results but will be improved and extended in 2017 to continue experimenting.

8) Blue-throated Macaw population monitoring program

A complete Blue-throated Macaw nest box monitoring has been finalized in May. A total of 68 nest boxes have been evaluated, though no Blue-throated Macaw have yet tried to use the nest-boxes. Also, a monitoring protocol has been established to keep track of the Blue-throated Macaws at three important points within the reserve.

Figure 2. Buff-breasted Sandpiper (*Calidris subruficollis*) at river-edge short grass habitat in the Barba Azul Nature Reserve. High numbers of Buffies are correlated to heavy rainfall as well as high cattle abundance. A day count of over 1450 individual Buffies on the 8th of September at the Tiniji river system. Picture taken by Daniel Alarcon.

Protection

Establishing impenetrable firebreaks

This year has been a very extreme dry year due to the lingering effects from El Nino. Cattle ranchers have expressed their concern to the government as cattle were dying due to a lack of food resources. This allowed ranchers to burn their pasture lands without the necessary control from governmental bodies, increasing the man-made fires throughout the Llanos de Moxos savanna eco-region. To ensure a quick re-sprouting of grasses that generate a short term beneficial effect on food availability thousands of man-made fires were lit.

Ecological and long term effects of these fires put the Llanos de Moxos savanna ecosystem and local people in danger. Not only does the savanna lose vital ecosystem services, we also contaminate the atmosphere and local people with deteriorated atmospheric conditions. The burning of the top soil during the dry season destroys the micro-fauna of the soil, affecting its fertility. After heavy rainfall, ashes and other burnt matter are flushed to river systems affecting water quality and aquatic ecosystems.

Figure 3: Self-functioning fire break at Barba Azul South. These fire breaks aren't finished yet as the grass residue on the ploughed areas could cause the risk of fires smouldering over the fire break to the other side. Picture taken by Tjalle Boorsma.

Small fires do occur naturally in savanna habitat each year, mainly during the wet season as the skies are filled with thunder weather, and each light bolt producing a small fire. During this season these fires don't get out of control neither affect the micro-fauna of the top soils. Large natural fires are expected to occur only at a rate of every 20 years. Man-made fires with a frequency of almost twice a year during the dry season, deteriorate the ecosystem, and endanger its biodiversity.

Due to the extreme drought and the uncontrolled burning by neighbouring ranches we have had several fire threats in the reserve. However, this is the first year that our self-made fire breaks have been fully successful. Now we must focus on extending firebreaks to ensure full protection of all tallgrass habitat in the reserve. As shown in picture 2, firebreaks are still not optimal due to grass residue on top of these firebreaks causing the possible risk of fire smouldering from one end to the other.

With help from March Conservation Fund and American Bird Conservancy who we presented our concerns in fully protecting the reserve from fires, we are able to purchase an additional tractor implement in 2017 that will ensure grass free fire breaks. This Hydraulic Scraper is an implement that can be placed behind the John Deere tractor which will clean firebreaks from grass residue. This implement can also raise soil from one side to the other which is useful to create elevated trail/road systems throughout the savanna. With this tool, we will be able to establish parallel raised firebreaks, where we can back-burn the grass in-between to ensure resistance to the most destructive fires coming from the prevailing winds of the North-west. We can also create a trail system that is sufficiently high enough during the wet season. This trail system can be used to explore the tall-grass savanna habitat throughout the year. But more important, it creates a trail that can be patrolled on bicycle in the wet and dry season. A quick way of movement throughout the reserve.

Tourism

Complete tourism infrastructure

All four cabins at Barba Azul Nature Reserve have been successfully improved with extended roofing and improved mosquito netting closing all entrance possibilities for bugs and critters. This project was part of the long-lasting support we obtain from the American Bird Conservancy. With the increased roofing, we also ensure a cooler climate as no direct sunlight is entering the cabins. We also improved the cabins with self-made tables and shelves, as well as hangers for clothing and door springs to make the cabins more comfortable.

In November 2015, all cabins as well as the field station were provided with portable windows built by Andele Boorsma (Barba Azul Nature Reserve coordinators' father) to ensure a quick and highly successful method to prevent rain from entering the field station. After a full year of usage, no maintenance was needed and the idea is adopted by neighbouring ranches as well.

We also decided to fully improve the mosquito netting of the field station to ensure a bug free dining area to guarantee a comfortable area for tourists, investigators, and students to have their meals. Additional maintenance activities to fully improve this part of the Barba Azul Nature Reserve's infrastructure are planned for 2017.

Figure 18 & 19. Cabin 4: Before and after cabin improvements. Improvements are extended roofing, smaller mesh mosquito netting and portable windows. Pictures taken by Tjalle Boorsma and Oscar Yabeta respectively.

Management

Completing cattle ranching plan and infrastructure

The sustainable cattle ranching model that we would like to establish in Barba Azul East where we will present an alternative ranching model that is more productive and ecosystem friendly, has reached its next phase. Armonía with the Barba Azul Nature Reserve has won the third financial support from the March Conservation Fund in collaboration with American Bird Conservancy, where we will establish the infrastructure needed to implement this ranching model. These funds will be used to create paddocks for a rotation system as well as the full establishment of a corral where cattle will be managed. This is a big step for the economic sustainability of the reserve to ensure unrestricted funds for our conservation activities.

Tjalle Boorsma together with Armonía's executive director, Rodrigo Soria-Auza, visited the 7th cattle ranching congress organized by the Alianza del Pastizal in Virasoro in the Corrientes Department of Argentina. Prior to this congress, we travelled together with the Alianza del Pastizal, American and South American conservation players and key conservation donors through Uruguay, Brazil, and Argentina to visit ranches that are part of the sustainable cattle practice alliance. The goal of this trip was to talk about future grassland protection, experience first-hand the positive effects of the alliance and brainstorm about future steps to implement sustainable cattle management alliances throughout the Americas.

Figure 12: Tjalle Boorsma together with key grassland and bird conservation donors (Greg Butcher from US Fish and Wildlife left from Tjalle and Guy Faulks from NMBCA right from Tjalle) visiting ranches that are part of the Alianza del Patizal in Argentina. Picture taken by Alianza del Pastizal.

Fencing Barba Azul boundaries

A total of 400 fence post with an additional 20 corner posts have been purchases in July 2016 to place 2,8 kilometers of border/paddock fencing (posts every 7 meters). These posts were promised to be delivered in September in the heart of the dry season. After arrival in Santa Ana de Yacuma, they were planned to be transported to Barba Azul East to start repairing perimeter fences as well as paddock fences for the sustainable cattle ranching model. Due to lingering effects of the El Nino from 2015/2016 followed by extreme drought during the La Nina, the Beni department has been struggling with severe weather conditions causing cattle starvation, severe man-made fires, and inhibiting river transportation. Due to extreme low river levels, no transportation of posts from the South of the Beni Department to Santa Ana de Yacuma was possible until the end of November.
All 400 posts with 20 corner posts have arrived in the first week of December at Santa Ana de Yacuma where they are stored at the port as no land transportation to the Reserve is possible due to wet road conditions. A total of 14 roles of barbwire, 10 roles of wire and 20 kilos of nails have been purchased to assure enough material to fence 5 kilometers. This has been transported to the Barba Azul Nature Reserve, awaiting the 2017 dry season to be used for fencing.

To continue fencing activities at the Barba Azul Nature Reserve, we decided to build a paddock for horses right beside the field station with posts that have arrived at Barba Azul in 2015. A total of 900 meters of paddock fence have been placed, assuring an enclosed foraging area of 21 acres for 6 horses with direct access to water provided by the river Omi.

Fully reforested Tiniji forest islands

In September/October Tjalle and Marc Meeuwes (volunteer reforestation expert from the Netherlands) reforested 7 degraded forest islands in the Tiniji river system and were able to successfully finish the Motacu reforestation project for Barba Azul East. This project was fully supported by World Land Trust helping us restoring this important eco-system. These small Motacu dominated forest islands lack natural regeneration due to decades of continuous cattle herbivory on trees seedlings and soil compression. These factors fully inhibited the growth of regenerating trees.

A total of 7 out of the 13 raised forest islands (possibly pre-Colombian anthropogenically made) have been completely fenced off and reforested with 100 to 150 Motacu palms depending on the size of the islands. Trees range from a size of 30 to 250 centimetres to ensure a difference in age. Trees have been excavated from the Isla Barba Azul in Barba Azul North where they naturally regenerate and were planted in a random manner on these forest islands.

Figure 7: F.L.T.R, Marc Meeuwes, Hernan Lopez and Tjalle Boorsma planting the final trees of the Motacu reforestation project at Tiniji, suported by World Land Trust. Picture taken by Esther van Nissen.

Reforesting 7 forest islands

A Total of 700 Motacu sapling have been excavated from the natural nursery at Isla Barba Azul where cattle has been absent since 2008 and where regeneration has been prolific. Motacu sapling have a large tuber where all their energy is stored, making them drought and fire resistant. This explains the fact that after a fire and when all leaves have been burnt, the saplings re-sprout in weeks as all their energy comes from this tuber.

While digging the holes, we discovered that the first 5 cm of soil was completely compacted, clearly by cattle pressure, explaining the impossibility for seedling to establish on these islands. Under this compacted layer, we found a moist and nutrient rich black soil. According to locals and our own experience in reforestation, the soil type of the forest islands and the plant specific characteristic (tubers providing drought resistance), we expect a very high success rate of the translocation of Motacu saplings.

Ringing of parasitic fig trees.

All mature Motacu trees on the reforested Motacu islands have been liberated from parasitic fig trees to prevent dying of the old stand. These trees have to survive until the new sapling become large enough to produce fruits for the Blue-throated Macaws and being used for roosting. Strangler figs up until a diameter of 50 cm have been ringed. In this case, ringing consists of the removal of part of the stem to prevent water and nutrient flow from the roots to the leaves. The upper part of the fig tree will slowly dry out and fall little by little to the ground.

Figure 9: Tjalle Boorsma demonstrating the compacted top soil inhibiting seedlings to establish themselves on the forest islands. Picture taken by Marc Meeuwes.

Additional ecosystem restoration activities

Other Motacu forest restoration activities have been undertaken to ensure the survival of this specific ecosystem, highly import for the persistence of the Blue-throated Macaw.

Seed allocation and soil preparation

Seeds have been collected at Isla Barba Azul from fruiting trees where Blue-throated Macaws have been seen foraging on. The genetic composition of these fruits is apparently attractive to the Macaws and are therefore harvested to be spread on forest islands at Tiniji. In order to ensure higher germination and development possibilities, the hard-impenetrable top soil was opened with spades to ensure easy root passage for recently germinated Motacu seedlings.

Experimental plots on forest islands used by cattle

Of all the 13 forest islands in the Tiniji area, 7 have been fenced and reforested and the other 6 are still open for cattle to use. Cattle need raised forest islands as shelter from cold fronts, storms, and to periodically dry their hooves, as they are not adapted to flooded savanna habitat. We have fenced off an area of 10 by 10 metres on a forest island used by cattle, to observe how quick the seedbank will respond, germinate, and develop when cattle are not trampling or eating recently germinated seedlings. If we observe quick response of germinating Motacu seedlings, we would like to start a project to partially fence Motacu forest Islands throughout the Beni Department. We can safely predict that most private cattle ranches will loss 90% of their Motacu Palm trees in the next 50 years, so this might be a quick and cheap method to promote regeneration for the many enormous cattle ranches. This will be cheaper than fully fencing islands, they are still open for cattle use and little by little these forest island will have a new generation of Motacu trees.

It will be a rotation system where one area of the island is fenced, seedlings are able to establish themselves until they are strong and high enough so cattle will not destroy them. If the saplings are big enough, the fence is removed and placed at another spot on the same island to assure regeneration of Motacu in the next 10 by 10-meter plot.

Figure 10: Marc Meeuwes collecting Motacu seeds. These apparent juicy fruits are placed at forest island at Tiniji. Picture taken by Tjalle Boorsma.

Research

Three student from the Wageningen University of the Netherlands have collected data from all forest island in Barba Azul Nature Reserve to compare the natural regeneration of Motacu throughout the reserve's range, relating this to soil characteristics and fruiting of the Motacu trees. The fruiting is further correlated to the presence of Blue-throated Macaws at Barba Azul. Not only are the large gallery forest islands of Barba Azul South studied, also all small forest islands in Barba Azul North and East are sampled.

The student will finish their thesis projects in the beginning of 2017 with the goal to publish all their data. Tjalle Boorsma, former Wageningen student is supervising their work, helping to set up their methodology and discussing environmental factors of interest.

For the sixth time, Glasgow students have spent two months in the reserve doing 4 different field studies. A total of 8 students have worked on collecting data of Blue-throated Macaw feeding behaviour where the birds were filmed, photographed, and studied for hours. Also, a high-tech monitoring study was executed to see whether the macaws can be studied, counted, and monitored from long distances with use of a drone. This new methodology will be reviewed to understand it productivity. The Glasgow University donated their drone to the Barba Azul Nature Reserve. A second team focused on the savanna age class study where savanna birds were counted throughout tall-grass savanna habitat in Barba Azul North and East.

Archaeological research

Umberto Lombardo from Italy, who is an expert on peoples that inhabited Bolivia approximately 10,000 years ago, is studying all forest islands at Barba Azul Nature Reserve to prove that these small circular islands are manmade. These islands have up to 3 meters of black soil with charcoal that will be analysed at a later stage to specify the exact date of occupation by ancient peoples in the Beni. Throughout the reserve all types of land use changes can be found indicating the occupation of large groups of inhabitants.

Buff-breasted Sandpiper monitoring and habitat improvement program

Not only have we had the highest count of Blue-throated Macaws at Barba Azul Nature Reserve, but also the highest record ever of Buff-breasted Sandpipers coming down to forage at the river-edge shortgrass habitat during their fall migration to the pampas of Argentina. A day count of over 1450 individual Buffies on the 8th of September at the Tiniji river system, was registered by Teodoro Camacho, one of the field team members of the annual Buff-breasted Sandpiper monitoring and research group funded and supported by the Neotropical Migratory Bird Conservation Act from the US Fish and Wildlife Service.

This year we have been adding the experimental factor to the annual data collection of Buff-breasted Sandpipers as well as searching for new potential monitoring sites within the reserve. We were also interested in the exact period of Buff-breasted Sandpiper using the reserve as their critical stopover sites. Therefore, we had 5 students from the Cochabamba University collecting vital Buffy data. One of them spent a full month (instead of the 2-week monitoring period) to evaluate to peak in foraging.

Preliminary results show that the peak of Buffies arriving at Barba Azul starts in the second week of September as well as high numbers at the end of September. It is also hypothesised that this is correlated to heavy rainfall and wind from the south. Two significant rainfall periods arrived at the reserve, showing a peak in abundance and indicating an approximate 3-day stopover period before continuing their migration to the south. We also discovered that the Tiniji watershed site is of extreme high importance for Buffies to forage, though not yet included in the annual monitoring program.

During the annual monitoring, we also collected additional data on the presence/absence and abundance of grazing animals, differentiating between area with cattle and horses. Areas were subdivided in High & Low cattle stocking rates, no Cattle/Horse presence, Horse presence and no grazing. Cattle stocking rate was related to number of animals observed as well as the number of dung piles (followed by daily counts of new dung piles in the same plot).

Preliminary results indicate that high abundance is correlated to medium to high stocking rates of cattle. Cattle keep the grass at the preferable height for Buffies to forage. We are interested in whether the dung presence has a positive effect on the food availability. We have been managing experimental plots where we mowed the grass to create that short grass favorable habitat. Though no Buff-breasted Sandpipers have been observed in these areas. Also, recently burned areas in the far north of Barba Azul North did not indicate to have a positive effect on Buffy abundance. In North America, the general assumption is that Buff-breasted Sandpipers prefer recently burned areas.

We will construct our cattle ranching model at Barba Azul East where we will establish a paddock grid where cattle will be rotated over short period to better manage the grassland, we can experiment with different stocking rates in different areas. As well as having areas with high dung availability though absence of cattle. This will better answer the question what influences the presence of Buff-breasted Sandpipers in their stopover habitat, to ensure improved management actions to protect Buffies in these crucial areas.

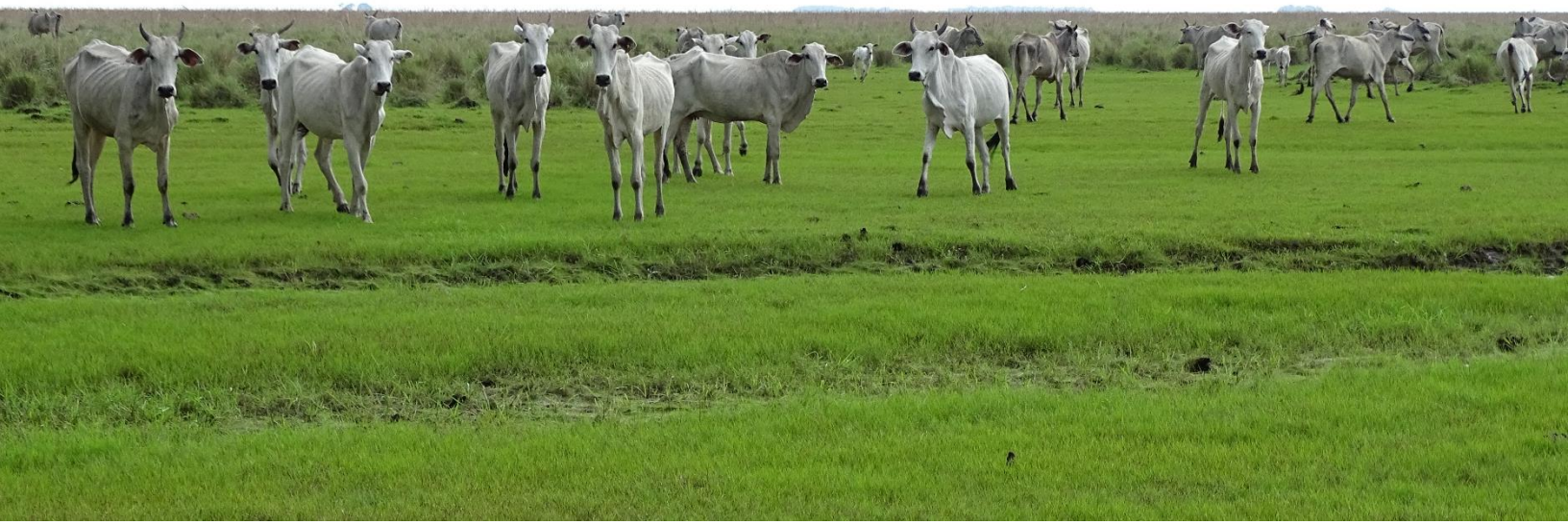

Figure 11: Cattle at the Tiniji area of Barba Azul East that we rent to a neigbour rancher. Their favorable grazing habitat is the river-edge short grass habitat, the same habitat the Buff-breasted Sanpiper use. Picte taken by Tjalle Boorsma

<u>Blue-throated Macaw population monitoring: Highest count ever</u>

The highest ever recorded number of Blue-throated Macaws has been observed in the Barba Azul Nature Reserve. While collecting vital Blue-throated Macaw data for his master thesis study, Fabian Meijer (Dutch forest and nature conservation student from the Wageningen University) counted 118 Blue-throated Macaws arriving at their roost in the far north of Barba Azul North. Fabian was collecting data on the Motacu forest islands to study which environmental factors play a role in the distributions of Blue-throated Macaws at Barba Azul. Each night he was positioned at the known roost to count the birds. The first nights he counted between 90 to 110 birds, followed by the highest ever count of Blue beards on his final night.

Many pairs have been observed with up to 2 successfully raised chicks indicating that the Barba Azul Nature Reserve population is slowly growing. It is also good to remember and to be assured that the reserve is protecting the most important foraging location and their historical roosting islands, as they return each year faithfully to the reserve. After the first on-ground search that we

have conducted at the end of January, we have discovered breeding grounds and collected crucial information on breeding birds. Detailed information will follow soon.

Figure 12. Highest recorded count ever of Blue-throated Macaws in the Beni were observed in the Barba Azul Nature Reserve by Fabian Meijer, a Dutch forest and nature conservation student executing his master thesis in the reserve. Picture taken by Sebastian Herzog,

Barba Azul Nature Reserve 2017 Goals

For 2017 we will continue to conduct protection, research, and monitoring activities in Barba Azul throughout the year. We have set the following goals to ensure a continuous development of Barba Azul Nature Reserve and its infrastructure.

1. Establish impenetrable firebreaks throughout the reserve.
    - Parallel backburn firebreaks for perimeter (60m width)
    - Grid firebreaks (20m width)

2. Complete tourism infrastructure.
    - Establish a dinner with the new design
    - Finish cabin improvements (interior and exterior design)

3. Barba Azul Nature Reserve infrastructure
    - Worker house for part-time staff and visiting construction workers
    - Present staff house improvements

4. Complete trail design through all habitats for visitors

5. Complete cattle ranching infrastructure
    - Paddock and perimeter fencing of Barba Azul East
    - Corral creation

6. Research
    - Blue-throated Macaw breeding site explorations
    - Blue-throated Macaws breeding site research project for master students
    - Buff-breasted Sandpiper habitat improvement and research

Accounting

Table 1. Friends of Barba Azul Nature Reserve expenses 2016 in US dollars

COD.	ITEM	BUDGET $US Dec-2016	EXPENSES $US. 2016 FBA1	BALANCE USD
	STAFF			
6104	Reserve Ranger	200.00	200.00	0.00
6121	Field House Manager	1,600.00	1,000.00	600.00
6105	Assistant Reserve Ranger	1,600.00	1,400.00	200.00
5101	Admin Director	3,450.00	3,450.00	0.00
	MANAGEMENT			
6202	Field Food	800.00	1,684.00	-884.00
6305	Transportation (land)	300.00	220	80.00
6302	Transportation (air)	1,000.00	2,240.00	-1,240.00
6307	Fuel	0	0	0.00
6712	Firebreak Maintenance	500	517.19	-17.19
6710	Firebreak Materials	2,500.00	900	1,600.00
	OTHER			
6711	Medicine	50	60	-10.00
7101	Overhead	3,000.00	3,000.00	0.00
6901	Contingency	0.00	355.00	-355.00
	Subtotal	**15,000.00**	**15,026.19**	**-26.19**
	DEVELOPMENT (one-off-costs)			
6424	Outboard motor	0	0	0
	Subtotal	**0**	**0**	**0**
	TOTAL ACORDING TO BUDGET	**15,000.00**	**15,026.19**	**-26.19**
	TOTAL ACORDING DISBURSEMENTS	**15,000.00**	**15,026.19**	**-26.19**

2016 expenses

At the start of 2016 we expected a similar Friends of Barba Azul Nature Reserve donation as in 2015, therefor setting up the 2016 budget for 23,000 USD Friends of Barba Azul funds. At the end of 2016 we realized that not all donation came through and had to adjust the budget drastically to 15,000 USD. Due to underspending of unrestricted tourism and cattle renting funds, these differences were accounted for. Funding from Friends of Barba Azul is of utmost importance to assure paying for managing costs that are hard to fundraise for. 2016 was an important lesson to carefully budget next years Friends of Barba Azul funds.

2017 Budget Barba Azul Nature Reserve

The Barba Azul Nature Reserve is continuously growing and in search for new conservation projects as well as expenditure in tourism and cattle business to ensure future economic sustainability. Management costs are fully covered for 2017 due to intensive fundraising by Bennett Hennessey and Tjalle Boorsma. This resulted in additional funding for development activities to bring the Barba Azul Nature Reserve to the next level. A total of 190,356 USD is fundraised for.

Last year we had additional costs due to contingencies related to fires in the reserve. This is an item we increased in our budget in comparison to last year. We also added an additional item to the budget that is related to promotion of the reserve. This should return in additional future income as tourism will increase.

Table 2. Barba Azul Nature Reserve budget 2017 in US dollars

	Ideal Budget	Basic Budget	Raised	NMBCA 2016-2018	ICFC	ABC BTM search	LARSI 3	WLT Refor 2016-2017	WLT Aliso project	WLT Motacu 2017	WLT Keepers	LPF	FBA	Cincinnaty zoo	Ganaderia	Tourism
Pending												1,000			left over 2016	left over 2016
Raised			190,356	34,833	15,000	10,700	61,910	6,500	30,904	6,675	6,257	?	15,000	2,000	577	??
STAFF																
Reserve Manager (Tjalle)	15,000	15,000	15,000			2,000	4,560	2,000	4000	1440				1000		
Reserve Ranger (Rene)	8,000	7,150	7,150	2,150							5,000					
Reserve Ranger Assistant (Hernan)	8,000	7,150	7,150		1,500	450		1000	1300	2500			400			
Field House Manager (Rosario)	6,000	5,720	5,720	2520	1,500								1,700			
Future coordinator/driver (Miguel)	8,600	5,000	5,000	1800		900			2300							
Reforestation volunteer (Marc)	1,000	1,000	1,000						1000							
BANR Assistant (Oscar)	3,000	4,100	4,100	1,658	500					942			1,000			
Administrative Director (German)	13,000	11,000	8,457	3,500	2,250						1,257		1,450			
MANAGEMENT																
Field food BANR Staff	6,400	6,400	6,400	2,150	2,500				650				1,100			
Transportation (land)	2,500	2,500	2,500		500				850				1,150			
Transportation (air)	10,000	10,000	11,447	1,500	3,000			1500	3204	243			2,000			
Communication	500	500	500		500											
Fuel (tractorcito/boat/generator)	1,500	1,000	1,000	500									500			
Fuel Tractor	5,500	4,500	4,500	1500	750				2000	250						
Tractor Maintenance	1,000	1,000	1,000	1000												
Equipment Maintenance	2,000	2,000	2,000	1000	500				500							
Horse Maintenance	500	500	1,250	1250												
Infrastructure Maintenance	2,500	2,000	2,000	1000				1000								
Fencing Maintenance	5,000	2,500	2,055	2,055												
Firebreak Maintenance	1,500	500	1,000	1000												
OTHER																
Promotion	2000	2000	2,000	1000									1000			
Insurance	200	200	200		200											
Medicine	500	500	500		300								200			
Contigency	4,000	2,000	2,000						500				1500			
Overhead	20,000	15,000	27,227	7,250		1500	7,500	1,000	6100	1300			2,000		577	
Subtotal	128,200	109,220	121,156	32,833	14,000	4,850	12,060	6,500	22,404	6,675	6,257	0	14,000	1,000	577	0

DEVELOPMENT (one-off costs)																
BTM Search	8,000		6,850			5,850								1000		
Aliso activities (nurcery)	4,500		4,500						4500							
Aliso activities (translocation)	2,000		2,000						2000							
Aliso activities (drill for posts)	2,000		2,000						2000							
Cabin improvement	20,000		0													
Cabin furniture	5,000		1,000	1,000												
Fieldstation furniture	2,000		1,000	1,000												
Tractor Implements	10,000		10,600				10,600									
Generator	1,000		400										400			
Dinner	90,000		2,500		2500											
Communication system	5,000		0													
New Fencing & Repair	22,000		25,250				25,250									
Coral construccion	20,000		14,000				14,000									
Kitchen Construction	10,000		0													
Classroom	40,000		0													
Solar System	6,000		0													
Horse purchases	2,500		0													
Subtotal	250,000	0	70,100	2,000	2,500	5,850	49,850	0	8,500	0	0	0	400	1,000	0	0
Total	378,200	109,220	191,256	34,833	16,500	10,700	61,910	6,500	30,904	6,675	6,257	0	14,400	2,000	577	0