

Barba Azul Nature Reserve May 2020 Update Report



Blue-throated Macaw breeding pair discovered during 2020 search expedition: Tjalle Boorsma

Bolivia and the world have come to a standstill due to COVID-19. In the midst of this crisis, the isolated Barba Azul Nature Reserve is not only a safe haven for wildlife, but also for our staff. Patrolling, monitoring and maintenance activities continued and resulted in the highest ever counts of the Critically Endangered Blue-throated Macaw in the month of February (36), March (60) and April (57). In February and March Armonía also explored for the second time the flooded savannas in search of breeding Blue-throated Macaws to better understand where and how the Barba Azul birds breed. We discovered 10 Blue-throated Macaw nests, 3 previously unknown breeding sites, found 100 birds and confirmed breeding requirements to be tall dead Moriche palms as a nesting tree near Motacu palms as an easy food source.

Conservation and development of the Barba Azul Nature Reserve in 2020 is supported by:



ARTIS



A grant from the
Neotropical
Migratory Bird
Conservation
Act



Project photos can be downloaded from:

www.flickr.com/photos/128583429@N05/albums/72157657123371838

Barba Azul Nature Reserve

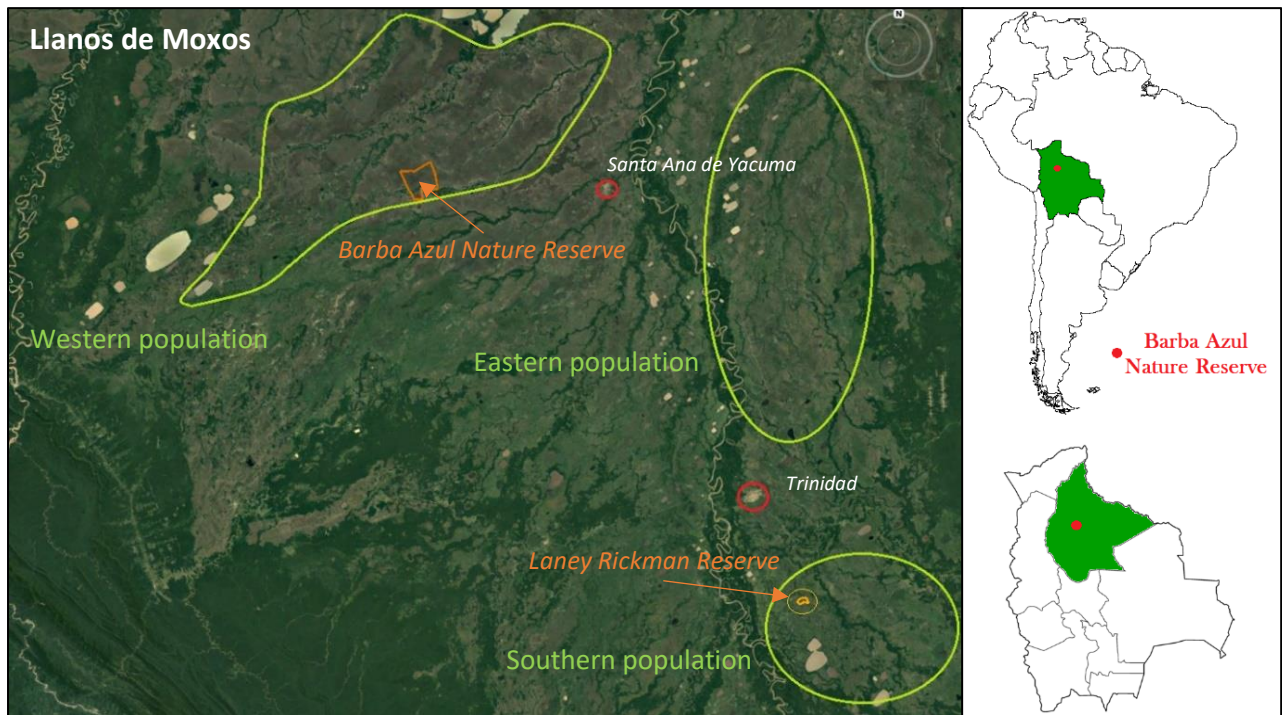


Figure 1. The Barba Azul Nature Reserve is located in the north of the Llanos de Moxos, 75 kilometers west of Santa Ana de Yacuma and 213 kilometers northwest of the Laney Rickman Blue-throated Macaw Reserve. Armonía protect vital Blue-throated Macaw habitat in 2 isolated subpopulations (estimated Blue-throated Macaw subpopulation range indicated in light green circles).



Figure 2. The Barba Azul Nature Reserve is subdivided for two main land-use zones: Barba Azul (5,000 ha) designated for ecotourism and conservation; Barba Azul East (6,000 ha) designated for sustainable cattle ranching and conservation. The Barba Azul lodge is located south of the river Omi containing 4 private cabins, field station and dining facility. The Barba Azul Ranch is located north of the river Omi where all ranching activities are implemented.

Barba Azul Nature Reserve 2020 goals

For 2020 we will continue to conduct protection, research, monitoring activities and working towards the sustainability of the Barba Azul Nature Reserve. We have set the following goals to ensure a continuous development of Barba Azul:

1. Complete raised firebreak system with backburns (Barba Azul North & South)
2. Improve and create Blue-throated Macaw breeding habitat (penthouse nestboxes)
3. Barba Azul Nature Reserve declared Natural Heritage Private Reserve
4. Complete cattle ranching infrastructure (Barba Azul East)
 - Complete worker house, deposit area and roofed tractor parking
 - Complete corral improvements (gathering pens & gates)
 - Establish a total herd of 1,000 head of cattle
5. Fenced exclusion zones in regeneration deprived forest systems
6. Complete trail signage and create Barba Azul hiking map
7. Buff-breasted Sandpiper research
 - Migration monitoring
 - Cattle stocking rate experiment studying foraging habitat preference
8. Research
 - Continue savanna habitat research
 - Camera trap monitoring of each habitat type



Greater Rheas on the Barba Azul "Cerrado Trail" where they can easily search for food with their new-born chicks: Asociación Armonía

Introduction

The isolated 11,000ha (27,181ac) Barba Azul Nature Reserve finds itself at the end of the rainy season where six months of heavy rain is finally coming to an end in May. Flooding was significantly less than last year, however, elevated water levels in the Beni savanna, locally known as the Llanos de Moxos, will continue until July. All rainwater from the northern half of Bolivia is drained through this flat grassland ecosystem to the Amazon river to finally meet the Atlantic Ocean. This annual flooding is a key factor maintaining this unique grassland ecoregion where only elevated soils can hold trees, home to the Critically Endangered and Llanos de Moxos endemic Blue-throated Macaw (*Ara glaucogularis*).

Key Personnel: Armonía is ready for a full year of development and habitat protection in Barba Azul where most of our key personal remains unchanged. Bennett Hennessey supervises the Barba Azul project with Tjalle Boorsma (Conservation Program Director). Tjalle is assisted by Luis Miguel Ortega Barbosa (Assistant Program Coordinator) coordinating ground activities. They also both coordinate habitat protection activities in the Laney Rickman Blue-throated Macaw Reserve. Carlos Roca is our Barba Azul park guard and [Keeper of the Wild](#). Yuri Vaca manages the field station and attends to visiting tourists and staff. She is

partially supervised by Laura Velarde (Tourism Coordinator). Barba Azul East cattle management program is coordinated by Edson Lopez and field activities are conducted by Enrique Flores. Assistant park guards are hired during peak season.

COVID-19: Bolivia entered in a full country lockdown since march 22nd and will most likely continue through to June. All patrolling, maintenance and monitoring activities continued as normal with a small break at the end of April to purchase field food. Multiple trips were planned by Luis Miguel Ortega and Tjalle Boorsma at the end of March to visit Barba Azul but had to be postponed due to travel restrictions. An urgent trip was needed to replace Barba Azul's water pump and train new staff. This was cancelled and will be postponed until quarantine restrictions are lifted.



Barba Azul Park Ranger Carlos Roca in search of Blue-throated Macaws:
Marton hardy

Given the situation, all reservations of visitors to Barba Azul have been cancelled. We had also planned three visits by groups interested in supporting our conservation activities in Barba Azul and in Beni, all of which had been postponed. This is a severe blow for the reserve sustainability as the revenues cover operational expenses for Barba Azul next year.

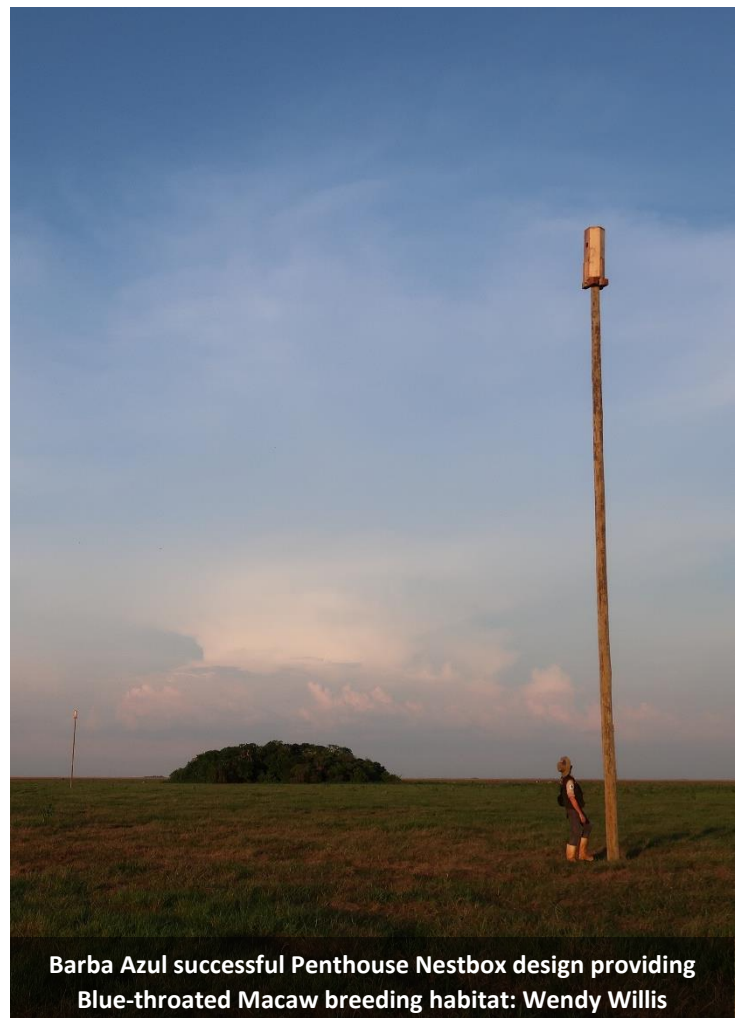
Barba Azul 2020 development and conservation plans.

Fire management: Through the support from World Land Trust, Barba Azul can purchase important firefighting equipment that will help us build necessary backburn systems around our firebreaks to fully stop manmade fires affecting key habitat for threatened species. With the implementation of low fuel areas (50-meter buffer of burned grass) around our maintained firebreaks, we are in full control of fire. Twelve kilometers of backburns will be installed in Barba Azul North (5.5 km) and South (6.5 km). Also, with the equipment we can now manage old growth savanna grasslands to create a heterogenic savanna of different age classes supporting a wide range a savanna bird species.

Penthouse nestboxes: We are getting closer and closer to offering what the Blue-throated Macaws need to feel safe breeding in Barba Azul. Through our research discovering 15 tall nests, we know what kind of nesting cavities Blue-throated Macaw prefer in the western population. Two pairs were very interested in the boxes last year until the lightning strike. For 2020, thanks to the support from ARTIS Royal Zoo, we will raise another 10 penthouse nestboxes, and place two taller lightning rods to protect them throughout the year. We will also experiment with open top nest boxes, and look into ways to deter bees from the other closed boxes.

Natural Heritage Private Reserve: In the last 8 years, the government in power did not create any new private reserves. With the change in government this option has opened again. We presented all the paperwork to the national government in 2015, were it sat on a desk until now. We can finally apply to have Barba Azul Nature Reserve declared a Natural Heritage Private Reserve. Special thanks to Ben Olewine to support this process. We are still searching for match to meet this goal.

Barba Azul model ranch: In order to complete important reserve development for long term sustainability, we aim to meet in 2020 and 2021 the completion of the Barba Azul model ranch. Not only will the sales of ecofriendly produced



Barba Azul successful Penthouse Nestbox design providing Blue-throated Macaw breeding habitat: Wendy Willis

beef help long-term economic stability and therefore becoming more independent from donations that are prone to global crisis, it will show other ranchers how to produce ecofriendly meat with higher productivity while protecting habitat. The model ranch will become the example to change traditional ranching to ecofriendly ranching, assuring landscape scale conservation beyond the reserve borders.

Wildlife exclusion zones: Now that we have completed important development programs within the reserve (read [2019 Barba Azul annual report](#)), we can push our efforts towards studying the impact of cows and wildlife on their habitat. We will place 4 exclusion zones in cerrado forest habitat and small motacú dominated forest islands to study best management measures to restore regeneration deprived forest systems.

Barba Azul trail signage: Barba Azul has received incredible support from American Bird Conservancy (ABC), International Conservation Fund of Canada (ICFC) and March Conservation Fund in the development of eco-tourism as means for long-term reserve sustainability. With the completion of the dining facility, cabins and having a tourism coordinator on Armonía's team, we can now focus on details like trail signage through Barba

Azul and a map for visitors where they can see the Big "Bird" Five of Barba Azul.



Buff-breasted Sandpipers on their long migration journey visit the Barba Azul Nature Reserve: Teodoro Camacho

Buff-breasted Sandpiper Research: Though the 10 years of incredible support from the Neotropical Migratory Bird Conservation Act (NMBCA) program from the US Fish and Wildlife Service we have gathered important long-distance migratory data from many sandpiper's species, but in specific the near-threatened Buff-breasted Sandpiper (*Calidris subruficollis*). We will continue monitoring their migration in Barba Azul but also start experimenting with different stocking rates of cattle to study the preferred stopover foraging habitat for the Buffies. Now that we are managing our own small herd of 137 head of cattle which we aim to increase to 1,000, we are able to manage cows for conservation.

Continues research: We hope to continue tall grass savanna research where we study the impact of cows and fires on grass diversity, savanna structure and species closely related to this grassland system. Now that we have 6 camera traps placed in different habitats within Barba Azul, we will continue gather long-term data on mammal diversity and abundance.

2020 Results

Barba Azul Nature Reserve Blue-throated Macaw monitoring results

Blue-throated Macaw monitoring in Barba Azul, presented in figure 3, resulted in the highest number of Blue-throated Macaw ever counted in the month February (36 individuals) and March 2020 (60 individuals). Previously, the highest counts during these two months were 15 macaws in 2019 and 20 macaws in 2018 respectively. In April Carlos counted up to 57 Blue-throated Macaws, slightly higher than the 53 in April 2019.

Carlos Roca has systematically gathered data for almost 2.5 years on Blue-throated Macaw abundance at the species late afternoon congregation site at their favored foraging site (Isla Barba Azul; IBA). Every week, Carlos crosses the river by boat from the field station to position himself at a very strategic spot to count the macaw. This species has a very peculiar behavior of gathering daily between 17:00 and 18:20 at the tip of their main foraging forest island before they are flying to their roosting site. When they gather, it is hard to count the birds. But little by little small groups will fly to their roost over the open savanna habitat, so they can be counted easily. Sometimes they all leave at once, and then it requires experience to properly count the numbers.

Every year we see numbers increasing and every year be hope to break the highest ever count of 155 individuals observed in September 2017. It is very exciting to see the population growing, demonstrating the recuperation of the species through our conservation efforts.

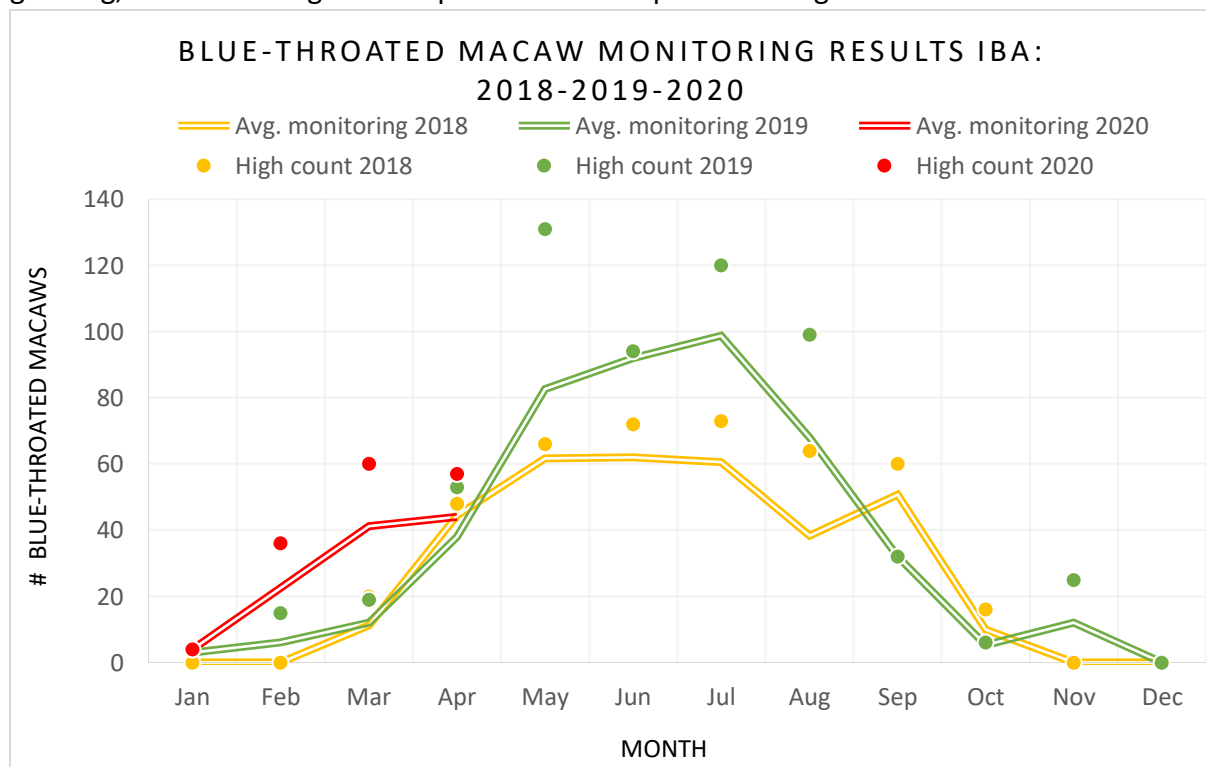


Figure 3. Blue-throated Macaw monitoring results from 2018, 2019 and 2020, systematically collected at Isla Barba Azul in the Barba Azul Nature Reserve. The colors lines represent average Blue-throated Macaw numbers per month for the given years based on weekly Blue-throated Macaw monitoring. Dots represent the highest single count per month for the given years (yellow 2018; green 2019; red 2020).

Barba Azul Nature Reserve camera trap results

In January 2020 camera trap footage was collected from 6 different cameras located within the Barba Azul Nature Reserve that have been running for three months. We have placed the traps strategically at a natural saltlick, waterhole, along newly created trails and within motacú forest islands.

In 2019 we created a new hiking trail through the cerrado forest that is located between an elevated motacú forest and vast open savanna. We directly spotted many tracks of different mammals on the trail system, which triggered us to place camera traps to discover its diversity. Three months of data showed that several predator species like Maned Wolf, Puma and Ocelot patrol along this trail. But we also spot new generations of wildlife born in the protected Barba Azul Nature Reserve.



New generation of Ocelot patrolling the Cerrado trail with its parent in Barba Azul North: Asociación Armonía

Search expedition finds unknown Blue-throated Macaw nesting sites

Before 2017, nearly all Blue-throated Macaw observations in the northwestern subpopulation were known from the dry season (May to November). As most of the Llanos de Moxos savanna habitat floods during the rainy season (November to May [flooding continues until July]), almost all access to the region is prevented and therefore severely limits field observations. The rainy season coincides with the Blue-throated Macaw breeding period. In order to protect the species through its complete life cycle, knowing where they breed is vital.

Therefore, Armonía through the support of American Bird Conservancy and Cincinnati Zoo organized in February 2017 the first rainy season search expedition based on anecdotal information of a possible breeding Blue-throated Macaw north of Barba Azul. Five nests were found and Armonía discovered their breeding habitat in the northwestern subpopulation.

Based on the knowledge obtained in 2017, potential breeding habitat was mapped and three teams set out between February 4th and March 17th 2020 to survey 5 different sites simultaneously in the northwestern Llanos de Moxos to find breeding Blue-throated Macaws. We completed a search through 26 ranches (survey area ~307 km²) of 566 km on horseback through flooded savanna.

We discovered 10 nests, 3 previously unknown breeding sites and confirmed approximately 100 Blue-throated Macaws remain northwest of Barba Azul during the rainy season. This is a tremendous result, as previously only 5 nests were known for the northern population, discovered by Armonía in 2017 (click [HERE](#) to read the full discovery story).

We confirmed breeding requirements appear to be tall dead Moriche palms (*Mauritia flexuosa*) as a nesting tree (9 out of 10 discovered nests), but they must be near Motacu palms (*Attalea princeps*) as an easy food source. All nests were found within a radius of 2.7 kilometers from the nearest motacú palm stand. With this knowledge, we can now imitate penthouse nestboxes meeting these requirements.

In the northwestern Blue-throated Macaw range, Armonía has contacted 35 ranches of which 21 received the best practices ranching booklet promoting eco-friendly cattle management to protect the Beni Grasslands ([Best Practices Cattle Ranching Guide for the Beni Grasslands](#)).



Blue-throated Macaw breeding pair on their moriche palm nest: Teodoro Camacho

More mysteries of Blue-throated Macaw revealed through tracking study

In September 2019, Lisa Davenport, Lucas Carrara, Luciene Carrara and Tjalle Boorsma finally succeeded to capture four Blue-throated Macaws of which three received transmitters before being released. Carrying off the transmitters with them, these birds provided long-awaited information on their movements and migration route.

What we have learned through this geotracking study: During the September foraging period, when the macaws are on-site at Barba Azul, their flight radius is less than 10 km. Once the macaws left Barba Azul at the end of September, they travelled between 40 and 80 km to new locations, again settling for a stationary period, which lasted through the rainy season,

their breeding season. Interestingly, they again stayed within a range of under 10 km radius. While they are long distance fliers, the Blue-throated Macaws are not constantly covering great expanses of territory. We would like continue studying Blue-throated Macaw movement patterns as this information is vital for better understanding the species biology and help proper conservation decision making. (click [HERE](#) to read the full tracking story).



Lucas Carrara, Luciene Carrara and Lisa Davenport safely placing the geotracker on a Blue-throated Macaw: Tjalle Boorsma

Armonía's published the first ever Blue-throated Macaw population estimate

In 2015, Asociación Armonía organized the first ever systematic Blue-throated Macaw survey through the species entire home range. We surveyed 11 sites across the three known subpopulations simultaneously over a 23-day period during the dry season to estimate the species population size. Population size has long been estimated between 115-125 individuals based on unsystematic population counts and not taking into account Barba Azul Nature Reserve and the entire northwestern subpopulation.

Our results show a conservative estimate of at least 312 and 455 Blue-throated Macaws in the wild, dispersed over the 3 isolated subpopulations. The northwestern subpopulation is significantly higher than the two other subpopulations where in September 2017, 155 individuals were counted within the Barba Azul Nature Reserve. Armonía's results are published in Bird Conservation International and was accepted April 15th 2020. Please read the full article: "[Blue-throated Macaw Global Population Estimate](#)".

Oldest man-made forest island discovered in the Barba Azul Nature Reserve!

More than 10,000 years ago humans started practicing agriculture in the Llanos de Moxos of northern Bolivia. Archaeological research partially carried out at Barba Azul found evidence of oldest domesticated cassava, squash and maize within the reserve.



Javier Ruiz-Perez, Luis Miguel Ortega and Geraldine Fernandez in Barba Azul Nature Reserve excavating the oldest know forest island in the whole of Amazonia: Tjalle Boorsma

This doctorate study was executed by Javier-Ruiz-Perez in 2017 and was assisted by Armonía's Barba Azul coordinator assistant Luis Miguel Ortega. Umberto Lombardo published these results April 2020 in Nature: Early Holocene crop cultivation and landscape modification in Amazonia (read more [bbc.com/news/science](https://www.bbc.com/news/science)).

Announcement

Tjalle Boorsma wins Future for Nature Award. Read more how this donation will help safe the Critically Endangered Blue-throated Macaw:

[Future for Nature Award helps protecting Blue-throated Macaw breeding habitat](#)

TJALLE BOORSMA



MARIA FERNANDA PUERTO CARRILLO



IRORO TANSHI

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