

## Red-fronted Macaw Conservation Program Annual report 2022



Red-fronted Macaw (*Ara rubrogenys*) foraging on Soto seeds in the dry Andean valleys of the Torotoro National Park: Wilder Calahuma

Armonia extended in 2022 their Red-fronted Macaw Conservation efforts to new areas, and we are now active in the Torotoro region (Rio Caine population), in El Palmar National Park (Rio Grande population) and the Red-fronted Macaw Community Reserve (Rio Mizque population). We proudly published the 2022-2032 Red-fronted Macaw Action Plan presenting conservation strategies to prevent its extinction. With 23 active nests in the Red-fronted Macaw Community Reserve, we are protecting Bolivia's most important Red-fronted Macaw breeding cliff together with local Quechua communities. After two years of covid, 2022 was highlighted with the highest number of tourists ever in the Red-fronted Macaw Community Reserve, directly supporting local conservation. We placed 50 nestboxes in El Palmar National Park and monitored 10 nestboxes in the Red-fronted Macaw Reserve. Will 2023 be the year the macaws discover our nestboxes?

**The Red-fronted Macaw Conservation Program in 2022 was supported by:**



Project photos can be downloaded from:

<https://www.flickr.com/photos/128583429@N05/albums/72157657466293166>



## Introduction and 2022 goals

The Red-fronted Macaw (*Ara rubrogenys*) is one of the two Bolivian endemic macaws and can only be found within a small region of Inter-Andean dry valleys in the heart of Bolivia. Sadly this macaw is Critically Endangered with a population of around 1,200 individuals (Armonía's 2021 Population Census; read article [HERE](#) – Bird Conservation International, August 2022). The species is threatened by the destruction of native dry forests and desert habitat, persecution by local farmers because they eat crops (maize and peanuts), and poaching to supply the illegal pet trade.

Asociación Armonía started working with the Red-fronted Macaw in 2003 and gathered key distribution and breeding location data. We found the macaws in four Departments (Cochabamba, Chuquisaca, Santa Cruz and Potosí) with their core reproductive sites situated along the Mizque, Grande, Caine and Pilcomayo River basin (fig. 1). Most Red-fronted Macaws breed in cavities within tall rock cliffs at these main river basins as well as surrounding smaller tributaries.

Our efforts stopped the illegal trade of the Rio Mizque Red-fronted Macaw population over a four-year period (2006) through an intense education program, tourism development, and community agriculture development programs. This success we are now replicating throughout the species distribution in 3 of the 4 populations. Read more about our Red-Fronted Macaw program [HERE](#).

### To protect the Red-fronted Macaw we had the following goals for 2022:

1	Increase Red-fronted Macaw breeding habitat at the Red-fronted Macaw Community Reserve (nestbox project)	Achieved
2	Increase Red-fronted Macaw breeding habitat at El Palmar National Park (nestbox project)	Achieved
3	Publish and present the Red-fronted Macaw Action Plan	Achieved
4	Increase tourism at the Red-fronted Macaw Community Reserve	Achieved
5	Initiate a country-wide anti-trafficking campaign	On-going
6	Improve community living standards in the Caine region to halt trafficking of macaws	On-going
7	Monitor Red-fronted Macaws at the Red-fronted Macaw Community Reserve	On-going
8	Increase and restore Red-fronted Macaw native foraging habitat	To be fundraised for



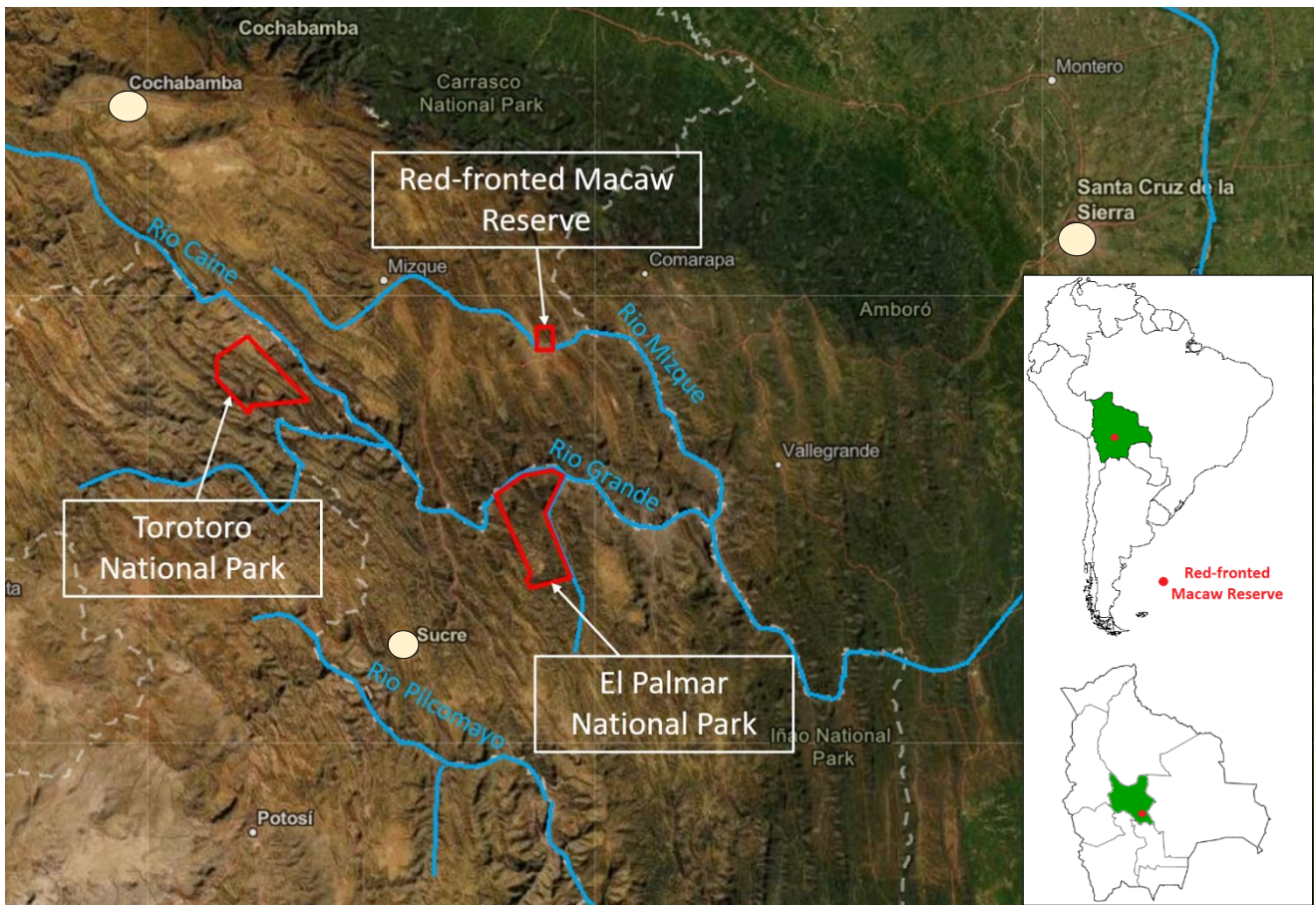
Romeo Rojas (Armonía's Red-fronted Macaw Project Manager)

Guido Saldaña (Armonía's Red-fronted Macaw Program Coordinator)

Park Rangers of the El Palmar NP together with Armonía's core team monitoring the Red-fronted Macaw nestboxes



## Armonía's Red-fronted Macaw Conservation Work Areas



**Figure 1.** Armonia currently works at three locations within the Red-fronted Macaw distribution to prevent its extinction: Torotoro National Park, Red-fronted Macaw Community Reserve, and the El Palmar National Park. The Red-fronted Macaw is endemic to the Bolivian dry inter-Andean valleys in four Departments (Cochabamba, Chuquisaca, Santa Cruz and Potosí). The core reproductive sites are along the Mizque, Grande, Caine and Pilcomayo River basins.





## Program Results 2022

### Protecting Bolivia's Most Important Breeding Cliff

The Red-fronted Macaw Community Reserve is the most important reproductive site with annually at least 20 breeding pairs (12.5% of entire reproductive population) using cavities within rock cliffs along the Mizque river. Since Armonia created this reserve in 2006, this site has maintained to be the most important breeding location based on the results from the 2021 population census. To protect this breeding cliff from poachers, Armonia in 2022 continued to support community tourism, trained local park guards to monitor nests, placed nestboxes, and restored native habitat.

#### **Tourism:**

Covid-19 hit tourism globally and the Red-fronted Macaw Community Reserve visitor numbers plummeted in 2020 and 2021. But we were extremely happy to see tourism revive in 2022 and the Red-fronted Macaw Community Reserve welcomed the highest number of visitors ever (94 tourists). This resulted in a profit dispersed to the three local communities of US\$ 15,315 of which one quarter is reinvested to maintain the lodge and enhance promotion.

**Table1.** Red-fronted Macaw Community Reserve tourism statistics from 2019 to 2022.

Tourism Results Red-fronted Macaw Community Reserve				
	2019	2020	2021	2022
Number of visitors	35	8	24	94
Number of tourist nights	61	17	36	155
Income (USD)	9,195	1,379	2,588	22,444
Costs USD	2,161	934	1,278	7,129
Costs (%)	23%	67%	49%	32%
<b>Total Community Profit (USD)</b>	<b>7,033</b>	<b>445</b>	<b>1,310</b>	<b>15,315</b>

Please see our Red-fronted Macaw Community Reserve Tourism Video: [HERE](#)



Tourist at the Red-fronted Macaw Reserve ready to photograph the macaws at the breeding cliff: Guido Saldaña

### **Red-fronted Macaw Nest and Nestbox Monitoring:**

In 2021, we placed 10 wooden nestboxes along a 70-meter-tall cliff at the Red-fronted Macaw Community Reserve mimicking natural nests. Thanks to the support from the Cougar Mountain Zoo, we monitored in 2022 the nestboxes monthly, and a team of climbing experts abseiled down to the nestboxes to search for breeding evidence. We found 4 boxes to be occupied with Mitred Parakeets (1), endemic Cliff Parakeets (2), and American Kestrel (1). The Red-fronted Macaw did not occupy these new cavities during the first breeding season after the installment of the nestboxes. However, once they discover this breeding option and proven to be successful, we aim to place these nestboxes throughout the region to increase breeding options.



Inspecting Red-fronted Macaw nestboxes for breeding activity: Guido Saldaña

In 2022 we trained and contracted Simón Pedrazas from the San Carlos community as Red-fronted Macaw Community Reserve Park Guard. Simón together with Guido Saldaña (Program Coordinator) have been monitoring the Red-fronted Macaw nests. During the 2021-2022 Red-fronted Macaw breeding season we found 23 active nests and 7 nests that were sporadically visited by the macaws. This is an increase of 2 active nests in comparison to 2021 (data from population census). During the 2022-2023 breeding season we have identified 20 active nests so far. The Red-fronted Macaw Community Reserve breeding cliff remains the most important breeding site for this species.

**Table 2.** Red-fronted Macaw breeding activity at the red-fronted Macaw Community Reserve from 2021 to 2023.

<b>Red-fronted Macaw Nest Monitoring (Red-fronted Macaw Reserve)</b>			
	<b>2021</b>	<b>2022</b>	<b>2023</b>
Active nests	21	23	20
Possible nests	1	7	1
Active nestboxes		0	0
Total Pairs	22	30	21





Red-fronted Macaws foraging on peanuts in the Red-fronted Macaw Community Reserve: Camera trap Asociación Armonía

### **Habitat Restoration:**

Through several years of trial and error in restoring dry forest habitat, in 2020 with more financial support we finally were able to create a goat-free enclosures where barren soil is reforested with native trees that are preferred by the Red-fronted Macaw as food source. We now manage a 0.5 ha agroforestry plot where we have planted 200 native trees together with peanuts which increase the nutrient levels of the soil. The peanuts are used by the Red-fronted Macaw as an additional food source and large numbers come down to feed on this easy snack. A total of 78% of the trees that were planted in 2022 survived and are well beyond their critical survival stage as drought has been the most complicated factor to overcome. Thanks to Zoo Dresden and the Mohamed Bin Zayed Species Conservation Fund we have established a water tank and manage our agroforestry system in the Red-fronted Macaw Community Reserve.



Guido Saldaña (left) together with Simón Pedrazas (right) proudly showing the survival success of recently planted trees, with in the background the peanut field: Guido Saldaña



## **Halting Illegal Red-fronted Macaw Trafficking in the Caine Region**

The Caine River watershed in Bolivia's third most important Red-fronted Macaw breeding area. Due to rapid agricultural growth, most native habitat has been destroyed and is converted to agricultural fields. Peanut and corn producers are in direct conflict with the Red-fronted Macaw as they feed on corn and peanut because their native food source has been decimated. Based on local information, the Caine region is the main area where macaws are currently being trafficked. Through local research, we identified the macaw/producer conflict to be at the root of the trafficking problem.

Armonía succeeded in stopping the illegal trade of the Rio Mizque Red-fronted Macaw population through intense education programs, ecotourism and community agriculture development programs. Armonía won the Illegal Wildlife Trade Challenge Fund (IWT) grant of the United Kingdom, and started in 2022 a three-year program to halt the trafficking and killing of Red-fronted Macaws in the Caine region and Torotoro National Park.

### **Macaw friendly agriculture:**

Armonía developed 40 macaw friendly agroforestry plots and developed 40 experimental plots in already existing agricultural field where ecofriendly plague control methods are implemented, preventing the use of pesticides. This project is benefitting 80 families at 11 different communities in the Caine region. These experimental plots aim to demonstrate sustainable agroforestry models with peanut together with Avocado and Ceibo, and maize together with Peaches and Apples (among other trees). We provided community members with 978 fruit trees and 354 kilos of corn and peanut seeds. Armonía contracted eco-agricultural experts who organized workshops, provided continuous management support and trained the local producers. We aim to brand and promote these sustainable products to secure a fair price for biodiversity friendly products.



Armonía providing community member in the Caine region with trees and seed for macaw friendly agricultural systems: Asociación Armonía



### **Supporting community tourism:**

Community based tourism showed highly successful in the Red-fronted Macaw Community Reserve where ex-macaw trappers turned into guardians, showing the macaws to visitors and generating alternative income. This model we aim to replicate in the Torotoro region focusing on national tourism. We organized 3 workshops and started to train local community guides who can show the natural splendors of the Caine region including its endemic biodiversity. We are now in the process of creating two Red-fronted Macaw birding routes. We are also working closely with the Torotoro National Park to improve their environmental education signs along already existing tourism routes.



Training local community members on bird tourism: Romeo Rojas

### **Alternative income through beekeeping:**

As part of the sustainable development actions aimed for the Caine region, Armonia provided 60 beehives to 30 families at 6 communities. We are experimenting with regular bees (50) as well as native stingless bees (*Melipona sp.*) (10). The high-quality honey from the stingless bees is used for medicinal purposes and can be sold for a much higher price. Also, these bees pollinate native trees and are not affected by pesticides. Armonia aims to brand and promote these sustainable products.



Beekeeping workshop at Quechua communities in the Torotoro region: Romeo Rojas



## Red-fronted Macaw National Awareness Campaign

### Red-fronted Macaw Action Plan Published:

Armonia proudly published the 2022-2032 Red-fronted Macaw Action Plan in June 2022 with the support from Bioparc. This has been a long awaiting product and is the guideline to prevent the Red-fronted Macaw extinction for the following 10 years. The results from the 2021 census (published in August 2022 in Bird Conservation International) were used as baseline population numbers to evaluate our conservation progress over time: 160 known nests and a minimum population size of 1,200 individuals. The Red-fronted Macaw Action Plan has been delivered to Red-fronted Macaw Conservation partners but will be distributed throughout the species distribution during a large antitrafficking campaign Armonia is implementing in 2023.



Ilse Prado (middle - Armonia representative) hand the Red-fronted Macaw Action Plan and Collaboration Agreement to the director of System of National Protected Areas and Torotoro director: Asociación Armonia

### Book “Captives” Published in Bolivia:

Armonia supported the publication of the book “Captives” (Cautivos), produced by Daniel Alarcón Arias and David Grunbaum Nagiel, demonstrating the impact of having parrots from the wild in captivity. Armonia provided conservation texts for both the Red-fronted Macaw and Blue-throated Macaw explaining the urgent need to halt the trafficking of wild caught parrots. Leonardi DiCaprio provided the forward for this book supporting the conservation cause.





### **Red-fronted Macaw in the movies:**

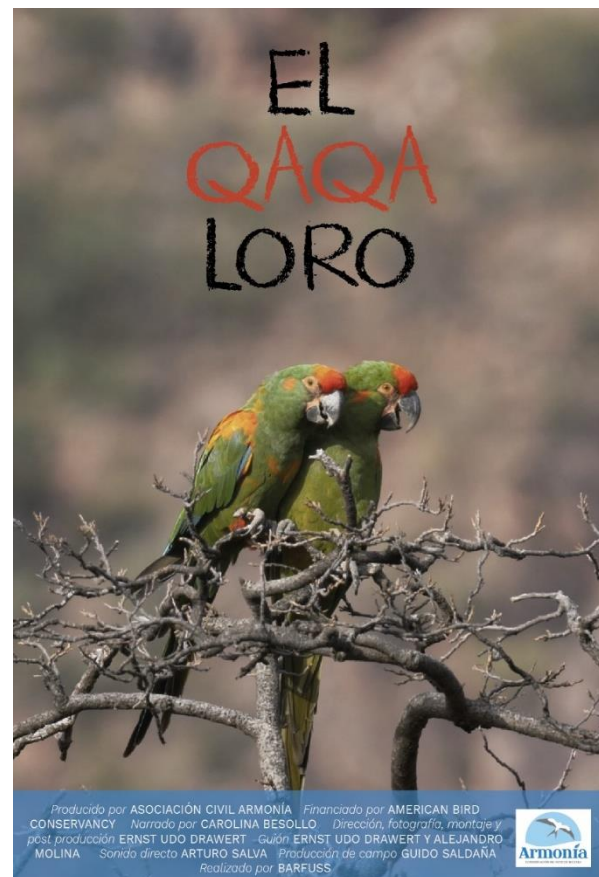
In 2020, Armonia created a Red-fronted Macaw antitrafficking educational documentary (see [HERE](#)). This documentary was selected by “Cine Verde” (nature and conservation movie festival) in October 2022 to be shown during the festival at the main square at Santa Cruz de la Sierra. This festival was organized by Fundación Amigos de la Naturaleza and our Red-fronted Macaw documentary won the “Best Short Film Production Award” during this festival. We created a Movie Poster that was shared online to promote the documentary.

### **Red-fronted Macaw documentary series:**

Currently we are working on a Red-fronted Macaw Conservation miniseries focusing on the conservation efforts in the Caine region and Torotoro in specific. We will present 4 chapters that will be used for environmental education purposes in the region. Chapter 1 and 2 are about the be released but can be previewed here:

**Chapter 1:** [WATCH](#)

**Chapter 2:** [WATCH](#)



### **Omereque & Saipina environmental education:**

With the financial support from Bioparc, Armonia increased local environmental education efforts beyond the borders of the Red-fronted Macaw Community Reserve and towards the Omereque and Saipina municipality within the Mizque region. We were able to organize a workshop with 124 teachers of 28 educational units to include Red-fronted Macaw information in their educational programs. Together with these educational units and local authorities, Armonia organized two

festivals in Omereque and Saipina to put the Red-fronted Macaw conservation needs on the radar.



Red-fronted Macaw inspired theater in action: Guido Saldaña

In Saipina we organized the first “Student Festival for Song and Poetry” inspired by the Red-fronted Macaw. During this event, educational information was shared with 1,675 students. A similar event was organized in the Omereque municipality where Armonia helped organize the first “Festival of Poetry and Theater”. Approximately 90% of all poetry and theater focused on protection of the Red-fronted Macaw.



### Protecting the Palm Breeding Red-fronted Macaw population

During the 2021 Red-fronted Macaw population census, Asociación Armonía found 7 Red-fronted Macaw nests in the endemic "Bolivian Mountain Coconut" (*Parajubaea torallyi*) at El Palmar Protected Area located in Chuquisaca. It is the only place where the Red-fronted Macaw breeds in palm trees, as they are normally found breeding in rock cliffs. For this reason, Armonia installed for the first-time nestboxes at palm trees to increase the availability of nest cavities in order to facilitate the reproduction of this Critically Endangered Macaw. This project was supported by Fondation Segré through IUCN-Save Our Species and the Mohamed Bin Zayed Species Conservation Fund.



Red-fronted Macaw pair breeding in the endemic Bolivian Mountain Coconut at the "El Palmar" National Park. Dirk Dekker

**Nestbox Program:** We placed a total of 50 nestboxes in El Palmar National Park in close collaboration with park rangers and local community members who helped transport these nestboxes (100 X 40 X 40 cm) through the mountains of El Palmar National Park. We will have to wait until the 2023-2024 breeding season to evaluate the use of these nestboxes by the macaws. We know from our Blue-throated Macaw nestbox program that when the macaws learn to use the nestboxes, this assisted breeding method will be highly successful.



50 nestboxes were placed in El Palmar National Park: Romeo Rojas



**Nestbox Monitoring Training:** Guido Saldaña (Armonía's Program Coordinator), and Romeo Rojas (Armonía's Project Manager) trained park guards on Red-fronted Macaw monitoring, creating and placing nestboxes, monitoring nestboxes, patrolling and firefighting. These trainings were given during 3 field visits to the different project locations and through 2 workshops given at Armonía's Laney Rickman Blue-throated Macaw Reserve. Five Park guards from El Palmar, 3 from Torotoro and the 1 from the Red-fronted Macaw Reserve visited the Laney Rickman Reserve.



To support the nestbox monitoring and patrolling efforts, we provided El Palmar National Park with binoculars, GPS's, a digital camera, cell phones and camera traps. Red-fronted Macaw monitoring data is stored in an application called KOBO which directly create a database where both the National Park and Armonía have access to.





### **Protecting the Endemic Bolivian Mountain Coconut Palm Forest:**

The Bolivian Mountain Coconut forests within the National Park are heavily impacted by free-roaming livestock and fire. In 2020 a large area within the National Park was burnt, further degrading the poor soils that are already impacted by livestock. This palm is not only important for the Macaw, it is also an important food source for the Andean Bear (*Tremarctos ornatus*) and the palm nuts are commercially used by the local Quechua communities. El Palmar Park Rangers have been successfully experimenting with palm nurseries. Armonia bought 3,200 m of fencing material in order to create 18 ha livestock free area that is reforested with palm seedlings in early 2023. We aim to increase our effort to restore the Bolivian Mountain Coconut Forest in the future to continue our conservation efforts in the El Palmar National Park.



## **Red-fronted Macaw 2023 Program Goals**

For 2023, we will continue our conservation efforts in the Torotoro region, El Palmar National Park and the Red-fronted Macaw Community Reserve. We have set the following goals to increase our conservation impact to save the Red-fronted Macaw from extinction:

1. Implement a country-wide anti-trafficking campaign
2. Improve community living standards in the Caine region to halt trafficking of macaws
3. Monitor Red-fronted Macaws at the Red-fronted Macaw Community Reserve
4. Monitor Red-fronted Macaw nestboxes in El Palmar National Park
5. Restore Bolivian Mountain Coconut forests in el Palmar National Park
6. Restore Red-fronted Macaw native foraging habitat in the Mizque population
7. Extend conservation efforts to the Pilcomayo Red-fronted Macaw population