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## blue-throated macaw

10 years

ANSWERING THE QUESTION of “How many Blue-throated Macaws are there?” is not an easy one. Their habitat, the seasonally flooded savannah in northern Bolivia, is difficult to access and birds can be spread out over relatively large areas despite their limited distribution. Still, attempts have been made to assess their numbers based on surveys of known birds. In the early 80’s information from local people yielded population estimates ranging from 500 to 1,000 individuals.

However, by the late 1980’s the birds had all but disappeared. In 1992 Jordan and Munn discovered a small population which provided the starting point for hopes to expand the species range. Since then, independent surveys have revealed consistently low numbers of observed birds and population estimates between 120-200 individuals. While it is difficult to use limited census data to determine population size across years and between different sites, there is sufficient evidence to show the critically low density of the Blue-throated Macaw, thus confirming the Critically Endangered status of this species, and making it certainly one of the rarest of all parrots.

Since 2002, preserving the remaining wild population of *Ara glaucogularis* has been the focus of an intense ongoing World Parrot Trust project. This project has developed into a complex conservation program, comprised not only of population surveys and searches for additional Blue-throated Macaw sites, but also components of habitat investigation, direct protection of wild nests and outreach with local and national groups.

The World Parrot Trust has had a team in the field in Bolivia since 2002 - working to preserve the Blue-throated Macaw, a critically endangered species. Above, project leader Igor Berkunsky checks the health of a nestling.



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## Threats and Actions

Our existing Blue-throated Macaw conservation project focuses on direct conservation actions aimed at providing long-term solutions. But first we had to identify the threats facing the Blue-throats and devise plans to address each of those limiting factors.

**Wild bird trade** | Trafficking is a threat to many parrot species, which are particularly vulnerable to over-harvesting due to their low reproductive rates. The potential of the wild-bird trade to quickly destroy the last remaining wild population of Blue-throated Macaws is a serious issue warranting immediate attention.

The intensity of trade in Blue-throated Macaws during the late 1970s and early 1980s is likely the main factor responsible for the current low population numbers. Thankfully, recorded incidents of active trade during our time in the field have been minimal, likely due to the species' low numbers, its protected status in Bolivia, and our presence throughout their nesting territories.

**A shortage of cavities** | Quality natural cavities proved to be a very basic limiting factor identified early for the Blue-throats. Over time we have experimented with a variety of nest-boxes to determine what the birds would accept and use successfully. We have tried an assortment of materials, orientations, shapes, sizes and opening dimensions. Macaws curiously investigated all models and in the end they laid eggs mostly in wooden, vertical boxes with large entrance holes. We now have nest-boxes in all the areas we know Blue-throats are breeding.

Since 2007, 4 pairs have used nest-boxes in eleven different attempts. Not only do nest-boxes fill a necessary void for the wild birds, they are also safer than most natural cavities. Boxes don't flood, a major problem with many natural nests, and they are less prone to predation. Bees are also less of a problem with artificial boxes, especially those made of PVC, because bees tend to abandon the boxes after a few months. Nest boxes are also easier and safer for scientists to protect and access, minimizing disturbance around the nest.

**Nest failure** | Nests fail for a variety of reasons. Predation has historically been our #1 problem. The quest for solutions is challenging, as it can be difficult to identify the predators. Anti-predator defenses are now installed at all nest sites. These can be as simple as metal flashing wrapped around tree trunks and branches pruned back from cavities to abate climbing predators. Maintaining a high level of daily monitoring by volunteers is also a great defense against predation. We have also installed surveillance and trap cameras inside nests to identify visitors. We catch a surprising number of visitors around nests – the most frequent being enormous cockroaches, along with frogs and bats.

In order to help the parents defend their nests we also sought to reduce the time they needed to be foraging far away. We did this by offering bunches of motacú palm nuts, a favourite natural food, near some of the active nests. Because of this, 2010 was the first year in the history of Blue-throat nest monitoring with zero predated nests.

**Flooding** | The rains can at times be relentless – with some seasons being plagued by days of downpours. In the past, some cavities have filled with water at the expense of either chicks or eggs. Fortunately we have identified all those nests prone to flooding and created drainage holes or roofs to protect the birds from this significant natural hazard. To our delight, no nests have flooded since 2008.

**Botflies** | When botfly eggs hatch on a macaw, their parasitic larvae burrow under the skin. They are generally benign, especially for larger species. However, we have lost very young chicks (~5 days) to botflies. We have also had older chicks (~45 days) infested and in this case, it is possible for us to remove the larva without harming the chicks.

**Brood reduction** | A natural phenomenon limiting the Blue-throat's recovery is known as brood reduction. It is a common result of the normal hatching asynchrony in parrots. It

From the top:

Chicks nearly ready for fledging; the day of fledging from a natural nest; a plump, healthy chick at 2 months; success with nest-boxes; installing a PVC box takes teamwork.

blue-throated



happens when those chicks that hatch first and are larger and stronger, outcompete the smaller, later-hatching chicks (see photos pages 4 & 6). While fledging only one chick might work for other species, it is not sufficient for recovery in this case! As a response, we monitor nests daily, identify any chick(s) that need a boost, and help them by hand-feeding. Thanks to our hands-on management, since 2007, no chicks have died because of brood reduction and we have increased the average number of fledglings per nest from one to two.

## Plans for the Future

The reality is that the Blue-throated Macaw is now a “conservation dependant species.” That is, we believe the population cannot recover without significant proactive conservation action. Actions include, but are not limited to, all the tactics we have employed over the last decade to increase nest site availability, protect active nests against predators, increase nestlings’ survival, and establish protected areas.

In addition we will focus attention on some new efforts in the coming years.

a) To ensure long-term genetic variation of *Ara glaucogularis* in Bolivia we have been setting the stage for a captive breeding and release program. Birds will be raised at an in-situ breeding and release center and released on protected government land with approval of the Bolivian government.

b) To determine priority release sites and candidate birds for each site, we will be analyzing genetic variability in wild and captive individuals and identifying potential release sites based on the quality of available habitat and current threats.

c) To better understand how this species is using the habitat we will use telemetry and satellite tracking. The Beni savannahs remain flooded for six months every year, making it impossible to follow the flocks during the non-breeding season. As a result, we have no information about bird movements. To know where the birds are during the

rest of the year will help us to propose protected areas for Blue-throats.

d) To increase awareness and advocacy for the species within Bolivia and internationally, we will develop and distribute print and online materials, articles in popular press, and survey the materials’ effectiveness.

Through this decade-long sustained and collective effort, many important discoveries have been made about the Blue-throated Macaw’s habitat, its unique nesting ecology, and the issues limiting its recovery. Key factors include the protection and management of wild nests, the restoration of select habitat areas that have been affected by cattle ranching, and the education of local stakeholders in determining long-term land management strategies.

The future of this species will be determined by the actions we undertake within the next few years. Timing is urgent and the need is great. We appreciate and welcome your support in helping to save this critically endangered species.



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*(Ara glaucogularis)*

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**Status:** Critically Endangered. Found only in the seasonally flooded savannahs in northern Bolivia.

**Wild Population:** 115-120 known individuals

**Reproductive Activity:** 10-15 breeding pairs per year

**Project Focus:** The species was rediscovered in the wild in 1992. Since 2002 intensive conservation work has been conducted by World Parrot Trust biologists in order to identify and solve the critical parameters delaying the population’s recovery.





# blue-throated macaw

## stories



In late 2005, we were closely watching one of the few successful pairs of Blue-throats. They nested in a unique cavity with an unusual gap in the side and multiple entrances, and their chick was in superb condition, a week or two from fledging. Normally after parrots feed their chicks mid-morning, most will fly a long way off to feed, preen, rest, etc. But on this one day, the adults stuck close to the nest. It was fascinating to watch them relax and preen one another and evidently just enjoy each other's company. At one point, the female leaned into her mate and rested her head on his shoulder and they both perched motionless. To complete this captivating scene, the parents could actually see their chick in the nest ... and the chick could see them.

We may never know what motivates parrots to form these powerful pair bonds – and to sometimes stick with them for decades. And while it's generally unwise to project human emotions onto any animal, I was just thrilled to have had this brief and enchanting peek into the intimate world of a wild parrot family. I came away thinking that there was something about the adults' calm satisfaction with their relationship, their nest site, and their chick which gave me hope that these critically threatened birds may yet make it back from the brink of extinction.

*-Jamie Gilardi, World Parrot Trust Director*

It wasn't a normal day. A technician of the National Natural Resources Agency was supervising our work in order to approve our Rescue Center. We decided to visit a site where we usually have good luck finding macaws. We approached on foot, walking behind some palm trees when we heard a group of Blue-throats behind the pens.

The first thing we noticed was the voice of juveniles in the flock. Sure enough, the first group we spotted was a family of five – the parents and three juveniles! Through the scope the birds were so beautiful in the sunrise light! We looked closer and YES! all three juveniles were leg banded, their bands shining in the sunlight.

We were excited. There can't be a better scene to show, especially for the visiting technician's first sighting of Blue-throated Macaws!

We started to scan the tree and found more birds! To our surprise they were also leg banded! In a single tree we had seven leg banded birds plus another adult pair! Then we



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The 2007-2008 breeding season was the best on record with the unprecedented survival of 2 and 3 chicks per nest. Below is the first family of five wild Blue-throated Macaws ever recorded (January 2008).



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Photos © Toa Kyle, Sarah Faegre and Igor Berkunsky





© José A. Díaz Luque

heard another call 100 m away and there, perched in one of the artificial nest boxes, was another pair.

I can't imagine a better situation that could summarize all our conservation efforts with the Blue-throated Macaws. All those leg banded birds we had taken such care of - some we have fed, some were infected by botflies which we removed. And those adult pairs using the nest box... it was so beautiful. -Igor Berkunsky - Blue-throated Macaw Project Leader since 2007



© José A. Díaz Luque

When I joined the Blue throated macaw project in 2008, all I had in mind it was an incredible passion for the parrots. I was really excited to be involved as a volunteer with the team in Bolivia.

That first season was hard with unfavorable conditions causing few parrots, including blue-throats, to breed anywhere in the area. I was so happy to return in 2009. We all had high hopes for the new season. Sure enough, things got exciting right away. We found nests as soon as the season started.

Two out of three eggs hatched from the nest I was monitoring. At first the parents fed both chicks but soon, the small chick's development began to fall behind. The possibility that the chick would die was high. Its was a critical moment - we needed to assist the chick by feeding it formula. If we didn't, it would die.

However, if we assist these small chicks during that critical period, the parents usually start to feed them again. That's exactly what happened!



© Steve Millpacher

I remember the first time we flew a Blue-throated Macaw outside! They are magnificent flyers and wonderful additions to our educational shows. They truly eat up the sky as they soar high over the theater.

They are also the most destructive of all the parrots in our collection! They chew anything and everything. The browse, wooden perches, and toys we provide are modified or destroyed in minutes! The nest boxes for the breeding birds have to be replaced each year. But, the most amazing thing to me is how fast a Blue-throat can take apart its cage. For the Blue-throats, the special screws holding their cages together are little more than a mildly challenging enrichment item. Almost all the pairs in our shows know how to remove the screws. One pair removed over 20 screws in less than an hour! We now modify their cages so the screws are all on the outside. Still, that doesn't stop them from getting their beaks through the wire to work on the screws or to unlock a clip and open the door.

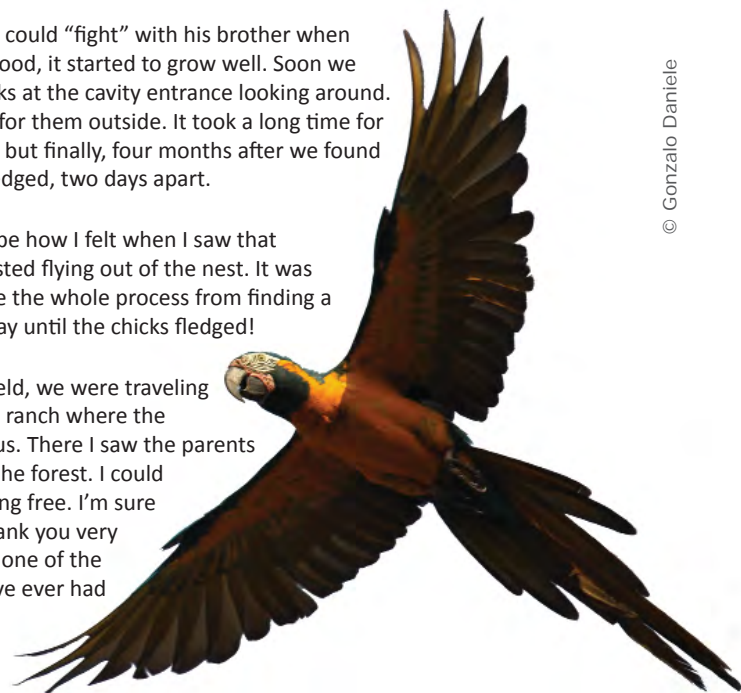
Blue-throats also have a tendency toward aggression after a few years. They are difficult parrots, that's for sure. But, they are incredibly beautiful, intelligent and spectacular in flight. I so look forward to the day when our birds return to their native homeland and eat up the sky over Bolivia. - Steve Martin, Natural Encounters, Inc.

As soon as the little one could "fight" with his brother when the parents came with food, it started to grow well. Soon we started to see both chicks at the cavity entrance looking around. There was a new world for them outside. It took a long time for them to be comfortable but finally, four months after we found the eggs, both chicks fledged, two days apart.

It's impossible to describe how I felt when I saw that small chick that we assisted flying out of the nest. It was wonderful to experience the whole process from finding a nest with eggs all the way until the chicks fledged!

On our last day in the field, we were traveling on horseback to a cattle ranch where the airplane would pick up us. There I saw the parents and both chicks fly out the forest. I could see all four of them, flying free. I'm sure they were telling us "thank you very much." It was definitely one of the best moments that I have ever had doing field work!

-José Antonio Díaz Luque, Field assistant, Blue-throated Macaw Project



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