

## **Blue-throated Macaw *Ara glaucogularis* Project Summary File**

### **History:**

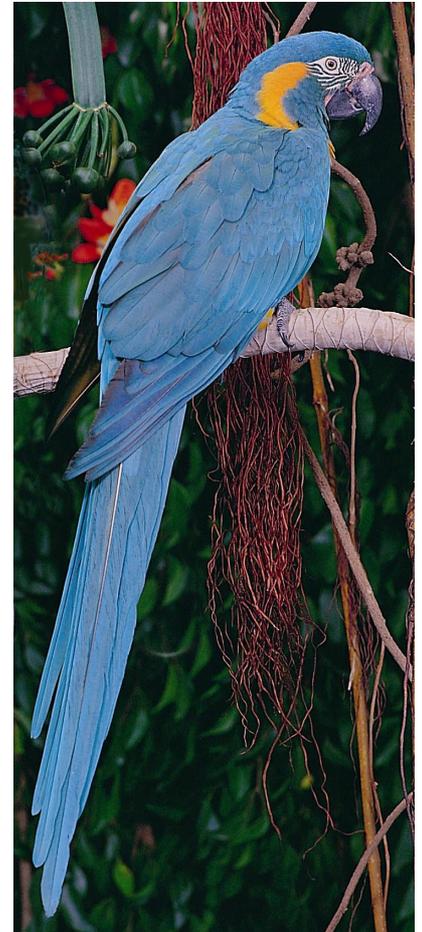
Soon after the eventual scientific discovery of the species in Beni, Bolivia in 1992, a research expedition initiated by the volunteer organisation Earthwatch to work on the species' biology led to the establishment of the Bolivian NGO Asociación Civil Armonía. From 1995, the Loro Parque Fundación and Armonía have conducted the Blue-throated Macaw Conservation Programme, with the LPF as principal donor.

Armonía is the national partner for Bolivia of BirdLife International, and its Executive Director, Bennett Hennessy, is director of the project.

The government agency which regulates the activities of NGO's and research organisations in Bolivia is the Directorate General for Biodiversity, Ministry of Sustainable Development.

The Prefecture of the Department of Beni, Bolivia is the agency facilitating local initiatives.

The Federation of Cattle-ranchers of Beni (FEGABENI) is important because virtually all of the Blue-throated Macaw's habitat is owned by private ranchers.



### **Implied territorial areas (states, regions):**

To the present date, the species is only known from the lowland savannas of Beni (Llanuras de Moxos), Department of Beni, north-east Bolivia.

### **Implied protected areas:**

The 5,500 ha Barba Azul Nature Reserve, owned and managed by Armonía.

It has been reported that the species might occur in the protected areas mentioned below, but none of the reports have been confirmed to date:

Biological station Beni (Responsibility: Reserva Biosfera UNESCO-MAB) and Forest Reserve Itenez (Responsibility: Superintendencia Forestal).

### **Official status of the species:**

IUCN Red List – Critically Endangered (CR); CITES Appendix 1.

### **LPF funding to the active project:**

Funding for the active project in 2013 will be US\$106,000, bringing to US\$1,271,669 the total funding contributed by LPF to the project

### **Summary of the project - Objectives and execution:**

Almost all conservation projects need a medium to long period of time to demonstrate successes. The situation and characteristics of the Blue-throated Macaw have made it especially difficult to discover and collect the information necessary for management actions to be formulated and implemented. All indications are that the species still has a small wild population (best current estimate of 350 macaws, or slightly more), which is increasing and is known to exist in the lowland savannas (the Llanuras de Moxos), of the Department of Beni, north-east Bolivia. The area of these savannas, 213,654 km<sup>2</sup>, is very large, which means that even finding Blue-throated Macaws can consume a disproportionately high amount of effort and resources. There is also the difficulty of access to sites which require searching, caused by the seasonal flooding of the savannas.

### **Objectives:**

***Install in Trinidad the base of operations for the Blue-throated Macaw Conservation Programme, and develop the infrastructure to administer the project.***

Before 2002, the Blue-throated Macaw Conservation Programme had to be coordinated from the headquarters of Asociación Armonía in the city of Santa Cruz. Financial constraints in those years prevented the establishment of a base of operations in the city of Trinidad, capital of the Department of Beni, and 400 km closer to the known area of occurrence of the species. The same financial limitations also dictated that there could not be a team of people dedicated exclusively to this programme. However, with increased support from the LPF, and a re-structuring within Armonía, the objective to install a base of operations in Trinidad was achieved in 2003. This operational base, located near the centre of the city, also functions as a project office which receives visits from the public, especially land-owners in the region, and school groups, and makes available relevant literature and videos on the premises. Now based in Trinidad is a small team of people dedicated to the project. Administrative support is provided by the Armonía headquarters, and the project is directed by the Executive Director of Armonía.

***Create a Species Recovery Plan and submit it to the responsible authorities in Bolivia.***

Armonía compiled all available historical and current information, both published and anecdotal, about the Blue-throated Macaw. This has included biological data collected by Armonía and others, and non-biological information relevant for the conservation planning process. In direct

collaboration with Loro Parque Fundación, the information has been analysed and ordered, and used to produce the Species Recovery Plan for *Ara glaucogularis* (Loro Parque Fundación / Asociación Armonía, 2003), which was submitted in 2003 to the Directorate General for Biodiversity, Government of Bolivia. Following its subsequent approval by the DGB, the Plan is now in implementation. In accordance with the approved process, Armonía has helped to organise and has participated in two workshops, with the Prefecture of Beni, to define the roles of the entities concerned in the conservation of the species. It also maintains a previously developed collaboration with the Technical University of Beni in Trinidad, and informs the relevant technical personnel of the DGB about the project activities.

***Define the current geographical occurrence within the entire verified and possible geographical distribution of the species. Using appropriate census methods, estimate the current population size.***

Between the years 1995 and 1999, field personnel from Armonía regularly surveyed a series of sites in Beni for Blue-throated Macaws. During this period there were constraints on being able to survey additional sites, but in any case there were no indications received of the presence of this species in areas outside of those which contained the surveyed sites. On this basis, the geographical range was estimated to be 2,508 km<sup>2</sup> (Hesse & Duffield, 2000).

Since 2002, an improved level of resources has enabled the field team to visit more areas and sites, and as more people in the region have become aware of the project, more reports of Blue-throated Macaws have been received. Another effect on local people has been for them to help in protecting nests in an indirect way by paying more attention to checking the incursions of other people (potential nest robbers) onto the land that they own or work on. The result has been an increase in the number of sites with Blue-throated Macaws present, and an increase in the geographical range over which the active sites extend.

In 2003/2004, further searches were made in 85 different localities in the southern and northern areas of the supposed previous geographical range of the species, finding new sites for the Blue-throated Macaw, and increasing the known birds in the wild. Until the end of 2004, it was considered that the species no longer occurred west of the Mamoré river, but then Armonía discovered a cluster of active sites more than 100 km west of the river. As a minimum those finds doubled the previous estimate of geographical range.

Field surveys previous to 2003/2004 had estimated a wild population between 50 and 130 individuals of this Critically Endangered species. With the individuals recorded at the new site cluster to the west of the previous current distribution, the wild population was estimated in 2004 to be 200 birds.

In the northern and southern zones 36 more sites were searched in 2005/2006, and four new sites confirmed for the species in the south. In 2007, a search for new potential Blue-throated Macaw sites in the north-western portion of its range identified eight new sites, making a

total of 203 sites searched to the end of that year. One of the new sites contained 70 birds, which is the highest concentration of this species anywhere. The key ranches were later purchased to create the Barba Azul Nature Reserve (see below) specifically to protect this important concentration of the species. The population estimate was increased to 280+.

In 2008 searches in the south-east of the range of the species did not find any additional sites, but in 2010 and 2011, respectively 90 and 100 Blue-throated Macaws were counted in the Barba Azul Nature Reserve. The total wild population in 2013 is estimated at 350 individuals, possibly slightly more.

***Regularly monitor the presence and numbers of *Ara glaucogularis* at each of the known locations of occurrence.***

This monitoring activity is conducted in parallel with expeditions to search for new sites. To date there has been no discernable trend in persistence or disappearance at the sites. Some sites register presence on 100% of the visits, and others register periodic absences, but none during a time period sufficiently long to indicate local extinction. However, more years of monitoring will be required to determine if abandonment and re-colonisation of sites occurs on a natural basis.

***Map the habitat types in Llanos de Moxos region, with presence and absence of Blue-throated Macaws. Map the occurrence of plants important for the Blue-throated Macaw.***

To date, the habitat defined as typical for *A. glaucogularis* comprises the so-called 'palm islands'; the relatively small areas of forested land slightly elevated above the remaining savannah, where the forest is dominated by the motacú palm *Attalea phalerata*. However, observations made especially during the earlier years of the project have demonstrated that this is not the only habitat of occurrence for the Blue-throated Macaws, and that there are localities where the birds frequent additional habitat types. To gain a better understanding of the principal determinants of the presence or absence of Blue-throated Macaws, the distinct habitats at all sites are described, and the tree and other plant species known from direct observations to be used for nesting and food are recorded.

***Discover information about the behavioural ecology, reproduction and natural diet of *A. glaucogularis* useful for its conservation.***

On all possible occasions, the field biologists have made direct observations of Blue-throated Macaws feeding on the natural food items in the wild. To date plant species observed as food have included four of the family Palmae (*Attalea phalerata*, *Acrocomia aculeata*, *Syagrus botryophora*, *Astrocaryum vulgare*), one each of Anacardiaceae (*Astronium fraxinifolium*), Euphorbiaceae (*Hura crepitans*), Cholospermaceae (*Cholospermum hybiscoides*), Sapindaceae (*Sapindus saponaria*), Myrtaceae (*Eugenia* sp.), and two of Rubiaceae (*Genipa americana*, *Calycophyllum spruceanum*). The palm nuts of *Attalea phalerata* constitute the most important component of the diet, and the macaws eat the mesocarp, as well as cracking unripe nuts

for the juice contained in them. Of all plant species used for food, the parts consumed have included the mesocarp, flower petals, entire inflorescence and leaf stems. From observations made of Blue-throated Macaws on the ground where earth or mud is exposed, it is suspected that this species might also consume earth as a source of minerals, or to help remove natural toxins from food, in the same way as many other species of Psittacidae.

The breeding season of *A. glaucogularis* starts with the onset of the rainy season between October and November and can extend through to April. The timing of the breeding coincides with the fruiting season of many tree species. The most frequent clutch size in the wild is two eggs, sometimes of only one, and three eggs in a clutch is infrequent. The eggs hatch after an incubation period of 25 to 26 days, and the young fledge from the nest about 90 days after hatching. Field observations show that Blue-throated Macaws preferentially select dead Motacú palm trees for nest sites. Other tree species are also used for nesting, but only where a nest cavity of at least 30cm in diameter can be established. To date, nests have been found in ten species of trees: *Attalea phalerata*, *Acrocomia aculeata*, *Copernicia alba* (Palmae), *Sterculia striata* (Sterculiaceae), *Vitex cymosa* (Verbenaceae), *Calycophyllum spruceanum* (Rubiaceae), *Gallesia integrifolia* (Phytolaccaceae), *Hymenaea courbaril* (Cesalpinioidae), *Tabebuia* sp., *Chorisia* sp. (Bombacaceae). Nest cavities, which range in height above ground ranges between 5 and 20m, are natural crevices and also active excavations by the Blue-throated Macaws.

Direct observations have been made of Blue-throated Macaws competing with Blue and Yellow Macaws *Ara ararauna* for nest cavities, with the frequent result that the larger *ararauna* can displace *glaucogularis*. Toco Toucans *Ramphastos toco* have also been observed to disturb nesting Blue-throated Macaws, and may predate the young in the nest. The Common opossum *Didelphis marsupialis*, a known predator of macaw chicks in nest cavities, is also commonly observed in the region. Longer-term studies will be necessary to determine the survival rate of young and their recruitment into the reproducing population. However, the information already gained about the ecology of this species provides a firm basis for conservation actions.

***Pursue methods to create protected areas within the Blue-throated Macaw's range.***

***Encourage landowners to help with key habitat protection and avoidance of disturbance.***

The low density of Blue-throated Macaws and the discontinuous distribution present difficulties for an official, government-recognised reserve to be established. A single-species approach is not viable, and justification to create a protected area must include several aspects additional to the presence of *A. glaucogularis*, in particular that the reserve will protect a high proportion of the biodiversity representative of the region. Each year the project has encouraged landowners to manage defined portions of their land as private reserves which protect the Blue-throated Macaw and favour the increase of its wild population.

In 2008 the project acquired (with additional support from World Land Trust – US and the American Bird Conservancy) ranches of 4,254 ha, later extended

to 5,500 ha, located in the province of Yacuma, northwest of the city of Trinidad, where the high concentration of Blue-throated Macaws occurs. This property, now the Barba Azul Nature Reserve, is a protected area which will permit the study of the Blue-throated Macaw and the ecology of the grasslands of the region.

In 2009 the development of the management plan and the scientific-technical document for the legal declaration of the acquired ranch as the “Barba Azul” Private Reserve was undertaken. A survey was made of the reserve’s flora and fauna by the University of Glasgow and local scientists in order to develop the reserve’s biological profile.

In 2010 a field station was built for eight people on the site which will facilitate national and international research on the Blue-throated Macaw. The on-going Glasgow University research high-lighted the presence of threatened wading birds wintering from North America, which helped to obtain some reserve management equipment and materials from the USF&W through the Migratory Birds Act.

In 2011 the project created 76 km of firebreaks, protecting the perimeter and keeping cattle out of the northern part of the reserve, and in 2012 extra firebreaks were established to protect the forest islands.

***Identify one or two locations judged appropriate for long term research activities and/or integrated conservation strategies.***

With the creation of the Barba Azul Nature Reserve, a protected area containing Blue-throated Macaws now exists, and long-term research and conservation activities can be undertaken there. However, good relations with private landowners continue to be important, such that future research and conservation activities might be conducted on their land where the species occurs.

***Create new nesting sites (nest-boxes) where indicated likely to be necessary for *A. glaucogularis* to nest.***

In the Loreto area of the southern distribution of the Blue-throated Macaw, a survey of cavities in trees indicated a shortage of suitable nest-sites for Blue-throated Macaws. In most areas efforts are made to repair nest cavities which have become unsuitable due to damage, but this is not always possible. Therefore, in 2005 a total of 30 nest-boxes were installed in the southern Loreto area, with entrance holes of diameter designed to exclude most *A. ararauna*.

By the end of 2006, 40 artificial nests had been installed in the southern zone, including some modifications in design better suited to the Blue-throated Macaws. They were installed on tree species used for natural nests by the macaws. From the beginning the nest-boxes have been occupied by many different species of cavity-nesting animals, especially Blue and Yellow Macaws, and at best only 10% are occupied by Blue-throated Macaws.

In 2008, 50 artificial nests were installed in the new Blue-throated Macaw Reserve and in 2009, 46 artificial nests were monitored of which two were occupied by Blue-throated Macaws. Observations show that they prefer to enlarge the entrance hole, which makes impossible the exclusion of the larger Blue and Yellow Macaw.

2010 - 85 nest boxes were monitored, with breeding success of three Blue-throated Macaw pairs in the southern area, and in 2011, 98 artificial nests were maintained, and again three pairs of Blue-throated Macaws bred. 100 native Bolivian Royal Palms (*Mauritia flexuosa*) were planted in the reserve as future breeding sites. In 2012, 58 artificial nests were monitored in the southern area with four Blue-throated Macaw pairs breeding, and 50 nest boxes in the Barba Azul Nature Reserve, but none have yet been used by Blue-throated Macaws.

**Create the necessary institutional and public support important for future conservation efforts to save the Blue-throated Macaw.**

**- Conduct extensive outreach and education programmes**

Over the last ten years, environmental education programmes, and the dissemination of relevant information related to the conservation of the Blue-throated Macaw in the Beni, has been carried out by the Armonía field team in as many different locations as possible. Children, farm workers, teachers and local authorities have been informed about the ongoing conservation project and its objectives. Basic classroom materials, ecological encyclopaedias and informative material related to general environmental education of the public and the protection of the Blue-throated Macaw have been donated to schools and families working on cattle farms in the region. Additionally, a 15-minute video was produced showing various aspects of the biology, the habitat and the current threats to the Blue-throated Macaw survival. Copies of the videos were distributed among local and national authorities, FEGABENI, and the Technical University of the Beni to promote joint efforts for the conservation of the species.

With the establishment in 2003 of the project base and office in Trinidad, the opportunities for diffusion of information have improved. The schools and general public in the city have easy access to the information, and the visits made to rural communities now include a powerpoint presentation. For example, during 2004 over 300 adults in rural communities and ranches received the presentation. Workshops, including representation from the Prefecture of Beni, are held on the possibilities for local people to actively participate in the conservation of the environment and the Blue-throated Macaw. In 2005, 34 educational workshops were held in the Provinces of Cercado, Yacuma, Moxos and Mamoré, and an additional 31 education presentations were made within ranches. The important medium of communication in the region is radio, and therefore the project has been promoted throughout the Beni Department via the FEGABENI-operated radio station "El Ganadero", and through Radio Banderas, FM 98.5 and Radio San Ramón.

From 2006, the educational workshops carried out in the different communities in most of the provinces of the Beni have where possible been in collaboration with the Natural Resources and Environment Unit of the Prefecture of the Beni. In addition to local people, these workshops encourage the participation of village leaders, mayors and cattle ranchers. The project is also present with a stand annually in various regional fairs, including the Santa Cruz FEXPO (a major regional fair with several hundreds of thousands of visitors each September), the ExpoBeni in the city of Trinidad, the Cattle Fair in Santa Ana del Yacuma and the National River Turtle Fair in Camiaco.

In 2006, to improve the project's education exposure there was the creation of two modest interpretation centres in important bottleneck towns to the area, Santa Ana de Yacuma and Santa Rosa. 29 rural communities were visited, with the participation of 1,000 persons. In 2007, 32 ranches and 37 rural settlements were visited in the northwestern zone to conduct informational talks and workshops. Including visits to towns, there were more than 2,600 participants in total. In 2010, over 3,000 people visited the interpretative centre in Santa Ana during the year, and 41 presentations were made via radio and at fairs. In 2011, over 2000 people visited the interpretation centres in Santa Ana and Santa Rosa, and there were 100 presentations to communities, workshops and press releases. In 2012, there have been 39 educational visits made to rural settlements.

**- Educate inhabitants of Santa Cruz de la Sierra about *A. glaucogularis* via exhibition of the species in the Zoológico Municipal de Fauna Sudamericana, Noel Kempf Mercado.**

With more than 1 million people, Santa Cruz de la Sierra is the biggest city of the eastern half of Bolivia, and the Zoológico Municipal de Fauna Sudamericana Noel Kempf Mercado is very well located to receive a large number of visitors every year. From 2005 the Blue-throated Macaw project has entered into collaboration with the Santa Cruz Zoo for environmental education. The zoo has captive Blue-throated Macaws, and the education activities emphasise the importance of this species in Beni and Bolivia, and also the conservation of biodiversity in the country. The activities include the installation of a large information panel for *A. glaucogularis* and smaller panels for other species threatened with extinction, as follows: *Ara militaris*, *Ara rubrogenys*, *Ara maracana*, *Amazona tucumana* and *Pauxi unicornis*. Other educational materials are also provided with information about these species and *Harpia harpyja* and *Vultur gryphus*.

**- Disseminate information about the Blue-throated Macaw Conservation Programme, especially by publishing aspects of the programme in scientific journals and popular magazines.**

Each year the Blue-throated Macaw project produces on average 12 local and 4 national media articles in Bolivia, and several international media articles, plus television, radio and newspaper interviews regarding the project and the importance of the conservation of this species.

- **Maintain cooperation between Armonía and key project players**

Armonía has maintained regular contacts with FEGABENI, individual landowners, the central government biodiversity office (DGB), the governmental authorities in Beni (Wildlife Unit, Prefecture of Beni, Trinidad), and other local contacts. A memorandum of cooperation with FEGABENI dating from 1998 has been renewed.

**Actions related to anti-trafficking:**

In 2005, with the collaboration of the Environmental Management and Biodiversity Unit of the Beni Prefecture the project strategically placed four signs (3m x 2m) at key road check points in the region. Each sign describes Bolivian law regarding illegal hunting and transportation of wild animals. At the same time, the project conducted awareness-building specifically for personnel of the road networks and police and forestry controls in Beni.

Commencing in 2006, there was monthly monitoring of wildlife trafficking at the Los Pozos market in the city of Santa Cruz de la Sierra to determine if Blue-throated Macaws were still openly traded. This was extended in 2007 to include the main market in the city of Cochabamba.

In 2008, in the two markets 26,714 parrots were recorded but Blue-throated Macaws were never seen. In the same year, the project conducted a National Campaign for the Conservation of Wild Birds, with the name "Extinction is Forever", which was based upon the results of monitoring the trade of wildlife in the markets. In the city of Trinidad, seven signs were placed along roads stating that it is illegal to transport wildlife. This message was also presented in banners at airports across the country.

In 2009 the project put on a photographic exhibit in various localities in the Beni which was targeted at reducing the illegal trafficking of wild birds. By 2010 the local pride campaign had been very successful in almost completely halting the illegal trade of the Blue-throated Macaw. Open illegal trade is not a problem for the Blue-throated Macaw, and therefore the yearly trade market monitoring was stopped, but with the option to resurvey the market in 3 to 5 years, to compare to the present state. On the illegal traffic campaign, the project started working directly with CITES Bolivia, assisting in their national workshops and helping with their informative panels.

**Cultural uses of macaws in the Beni- alternatives for Machetero headdresses:**

In 2006 the project addressed the cultural uses of macaws by the native peoples of the Beni, in particular, the traditional dance known as macheteros ("machete men"), and could show that Blue-throated Macaws are hunted for use in the creations of costumes. Project personnel examined approximately 90 headdresses for the macheteros dance, and two of them had central tail feathers from Blue-throated Macaws. The project initiated a competition to find the best alternative to using natural macaw feathers. In

2007 this developed into a region-wide contest for alternative machetero plumes.

Over the course of 2009, the project held four workshops on the making of artificial feathers for use in traditional Machetero folkdance headdresses, with the goal of reducing macaw hunting for feathers by more than 80%. In 2010 there were three workshops of artificial feather production, taught by a member of the indigenous city council of Trinidad City, and with the participation of at least 1,200 artisans interested in making artificial feathers.

The official launch was made of the Machetero Kit containing 30 artificial feathers, and the project conducted the third "Festival del Plumaje Alternativo de Machetero".

10 alternative feather headdress creation workshops were conducted in 2011 in indigenous communities throughout the Blue-throated Macaw's range. The mayor of Trinidad purchased 100 headdress kits. Programmes were conducted with indigenous communities to create stuffed toys of the endemic Blue-throated Macaw and the Pink River Dolphin. In 2012 workshops continued for training indigenous people how to create alternative feathers in 10 communities, and working with the communities on their business management to reinvest profits for future alternative headdress materials.

***Establish guidelines for sustainable and responsible tourism.***

Ecotourism occurs in the Beni region, including specifically to see Blue-throated Macaws. It is limited to very few farms, where the landowners gain some financial benefit from the visits of the tourists. Some of this ecotourism is done without the permission of landowners, which causes conflict. The situation requires guidelines so that all parties can benefit. The supply of tourists for this specialised tourism will remain relatively modest, and therefore it is especially important is to avoid creating an expectation by the landowners which cannot be fulfilled.

In 2008 the project collaborated with the Beni Tourism Unit of the Departmental Prefecture to develop and promulgate a Technical Directive that establishes the guidelines for sustainable Blue-throated Macaw tourism.

***Assist in the strengthening of governmental legislation for the conservation of the species.***

The Loro Parque Fundación and Asociación Armonía provide information on the project to the central and regional government, which is available to be used to improve legislation to conserve the Blue-throated Macaw.

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