

Blue-throated Macaw conservation project: Increasing the availability of nest sites

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Summary

The conservation efforts of several groups that were working with the Blue throated Macaw were coordinated under the BTM Conservation Strategy. This strategy includes several NGO's and the coordination of the Biodiversity Government office (Dirección General de Biodiversidad, DGB). The main actions developed under this strategy were educational campaigns, searches of new populations and management of wild populations in order to increase their size.

Whereas other NGO's focus their work on searches of new populations, awareness campaigns, environmental education, and the supply of artificial nest cavities; our work is focusing on increasing the output of wild breeding individuals.

Suitable habitat is still available and pet trade has decreased in the past years. In this framework, some questions arise: is a natural recovery of the BTM population possible? What are the risks they face? Can conservation action reverse the declines or speed recovery? The need to increase the rate of population growth is clear. BTM confront all the risks associated with small population size as the number of wild individuals is low. With a population of 150 individuals any natural catastrophe or epidemic event could promote a natural extinction.

By analyzing information about BTM reproductive ecology we detected the main causes of reduced reproductive output, and we decided to initiate some management actions focusing on the increase of survival of offspring

During the 2008-09 breeding season we monitored 30 Blue-throated Macaw.

In this report we present work sites, management techniques and the results of the BTM Conservation Project between August 2008 and January 2009 in the Llanos de Moxos, Beni, Bolivia.

During 2008 we visited four areas (11 sites in total) looking for active nests. Field activities were conducted from August 3rd 20078 to December 20st 2008. Searches for BTM nesting activity were carried out in four regions; the Loreto region south of Trinidad and three regions north San Pedro, and east of Mamoré river (Fig 1). The study area is typical of the Llanos de Moxos possessing a mosaic of savannah, forest islands, gallery forest and Cerrado vegetation.



Artificial Nests

Various studies show that, over wide areas, the breeding densities of many non-excavating cavity-nesting birds are limited by the shortage of nest-sites. Nest-box provision has almost always increased the local breeding densities species of studies hole-nesting. Natural tree-cavities are scarce in the savannahs of Beni, for that reason since 2005 the BTM project is developing a strategy to increase nest site availability for BTM.

Types of artificial nests

Six types of nest designs were used during 2008 breeding season: three kinds of wooden nest-boxes and three models of PVC nest.



Wooden boxes

These boxes feature several modifications aimed at limiting predation and their use by other species (macaws, ducks, bees, etc). To limit access by toucans, **the entrance of the nest is angled at 45 degrees**. This is done as toucans have weak feet and in theory will have problems accessing a cavity with a slanted entrance. Macaws on the other hand are good climbers and should not have problems clinging to the entrance hole. In an attempt to prevent occupation of the nest boxes by more numerous Blue and Yellow Macaw (*Ara ararauna*) we have placed **metal plates over the nest holes** that will allow BTM inside but not Blue and yellow Macaw. The major diameter of the entrance holes is 9.8cm, a width observed in natural BTM nests that is probably excluding Blue and Yellow Macaws. The approximate measurement of the vertical box is 80 x 40 x 40cm, for the horizontal box 100 x 40 x 40cm.



PVC nest box

PVC boxes were used in several parrot studies and conservation projects. The main advantages of PVC nest are the durability of the nests, and a low affinity of bees. Measurements of PVC boxes are 1.2 m or 1.0 high, 25 cm of internal diameter and the entrance hole is similar to those of wooden nest boxes. We used horizontal, and vertical models of nests.



Where Nest boxes were installed?

A total of 36 nest boxes were employed at estancias possessing BTM nesting pairs. Most of nest boxes were installed at the beginning of 2008 breeding season. We had nest boxes in all the Estancias where we work. In general nest boxes were set up in areas where BTM nests failed in previous years. In most cases these nest failures were motacu snags that collapsed, flooded or were predated thus it is hoped that BTM will, with time, accept these nest boxes instead of low quality natural nesting sites.

Are boxes working?

Boxes were accepted by a good number of cavity nesters as macaws, parakeets, ducks, owls and bees. Only 3 of these boxes have been taken over by bees (Africanized bee, *Apis mellifera*). Only 7 boxes were occupied by



others birds, four with Black-bellied Whistling Duck (*Dendrocygna autumnalis*), one with a Barn Owl (*Tyto alba*), two with a Tropical Screech owl (*Otus choliba*). During the breeding season three nest boxes were occupied by BTM in our study site, and 4 boxes were explored by macaws, but not occupied. One box was occupied twice by same pair during the breeding season.

Nest boxes must deal with two kinds of problems. First one is the durability of materials. PVC nests are more durable than wooden boxes, but they would have isolation problems. Wooden nest boxes older than 2-years usually need to be replaced. The second problem is the occupation of nest by other species, especially bees. PVC nest does not have problems with bees, because bees do not like plastic surfaces. Wooden boxes are perfect for bees, and even better if they have an extra roof outside. To avoid the entrance of some species we performed:

1. **Construction techniques:** a) using a plastic to cover the roof of the box avoid bees to get into the box; b) An appropriate size of the entrance hole to keep bigger macaws and ducks out of the boxes; c) The use of metal plates to avoid the destruction of nest performed by other Macaws.

2. **Management actions:** a) The use of insecticide to remove bees from nest boxes (a dangerous and painful activity); and b) closing the entrance during the non-breeding season.

Future work

We consider that it is very important to continue with the monitoring of wild and artificial nests. Blue throated Macaws accepted artificial cavities, confirming that the cavity availability is limiting macaw reproduction. Simple management techniques as these could be significantly improving reproductive output of BTM.



EXPENSES

Item (£)	Budget	Spent
Nest design & construction (Materials and construction)	4,000	4,150
Nest distribution in the field (Vehicle charges, gas, etc)	4,500	3,830
Nest monitoring (Food, lodging, trips, etc)	4,500	4,850
Posters and publications	200	120
Salaries (Principal Investigator and Field Assistants)	3,250	3,250
TOTAL	16,450	16,200