

## The endemic macaws of Bolivia

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### Introduction

There are 11 macaws (*Ara* spp.) represented in Bolivia, of which two, the Blue-throated Macaw *A. glaucogularis* and Red-fronted Macaw *A. rubrogenys*, are endemic to the country. Both species are threatened<sup>3</sup> as they have small populations and have been exploited through the cage-bird trade and in the case of *A. rubrogenys*, persecuted by farmers. Both macaws were placed on Appendix I of CITES in 1983 and thus all international trade prohibited. Further, exportation of live animals from Bolivia was banned in 1984, a ban which was extended indefinitely by Supreme Decree in 1986. Therefore in recent years pressure on these species imposed by the captive bird trade would appear fortunately to have receded. This article summarizes current knowledge concerning the distribution, status and some aspects of the ecology of each endemic, and deals with current conservation priorities.

### Blue-throated Macaw *A. glaucogularis*

No fewer than 60 individuals of this enigmatic species were exported from Bolivia in 1980, and 175 between 1979 and 1984. *A. glaucogularis* was much sought after by local trappers seeking additional income: exporters were willing to pay them US\$80 per bird as opposed to US\$50 for Blue-and-yellow Macaw *A. ararauna*<sup>9</sup>. Birds exported were destined for private collections or bird parks in both North America and Europe.

Nevertheless, until recently all that was known of *A. glaucogularis* in the wild by ornithologists was that it was distributed in the departments of Santa Cruz (from where the holotype was secured in or before 1863) and Beni, in the north-east of the country<sup>7</sup>. It seems likely that additional documented sightings from Argentina and Paraguay are attributable to the very similar and widespread *A. ararauna*<sup>5</sup>. Indeed, extensive searches by Lanning<sup>7,8</sup> in southern Bolivia during 1982 procured records of the latter species only.

Another 10 years elapsed before the whereabouts of this elusive macaw were finally tracked down. Prior investigations enabled Charles Munn of Wildlife Conservation Society to locate the species in August 1992 after only three days in the field<sup>6</sup> (see *World Birdwatch* 14(4): 3, 1992). His sightings, which included observations of a mated pair and nest cavity, were made to the north of Trinidad (Beni), well within the area described by local macaw dealers. In contrast, the simultaneous efforts of the "University of Nottingham Bolivia Project 1992" team, funded by BirdLife International, failed to find the species during a two month period in the Estación Biológica del Beni, 180 km to the west<sup>12</sup>.

Through the endeavours of Fundación Armonía, the Santa Cruz-based conservation group (and BirdLife International's Bolivian Partner organisation), *A. glaucogularis* has been found at additional sites by AJH, both to the north-east and south of Trinidad<sup>4</sup>. In consequence, more accurate population counts are



Forest island with dead palm tree in with a hole used as a nest cavity by Blue-throated Macaws *Ara glaucogularis* (Robin Brace)

now forthcoming which succeed previous indirect and differing estimates derived from exporters and trappers which suggested a total population of between 500 to 7,000 birds<sup>3</sup>. Current estimates indicate that there may be no more than 100 birds distributed over c.15,000 km<sup>2</sup>, though difficulty of access to many areas suggests that this figure will be revised upwardly in due course.

Contrary to earlier supposition *A. glaucogularis* does not appear to favour gallery forest. The habitat of the species in the humid lowlands (200-300 m) of Bolivia would appear instead to be seasonally flooded (October-April) savanna, in which are scattered both meandering ribbons and islands (islas) of forest, which are dominated by "Motacu" *Scheelea princeps* and "Totai" *Acrocomia totai* palms, and large "Tajibo" *Tabebuia impetiginosa* trees<sup>4</sup>. RCB, in the company of Marc Boussekey<sup>1</sup>, spent four days during August 1993 in the region in which Charles Munn worked; AGW visited this area during 1994. Up to eight *A. glaucogularis* were found in the particular forest ribbon targeted, whilst an additional three individuals were located in an adjacent island. Here a mated pair was in attendance at a nest hole sited approximately 10 m up in a dead palm. Within the former it was apparent that certain Tajibo trees were favoured for bill-cleaning, an activity which had resulted in considerable wear to the tips of many branches. Such trees also appeared to be favoured by *A. ararauna*, which necessarily brought the two species into close proximity though little social interaction was noted. However, late evening observations of birds in flight suggested communal roosting with *A. ararauna*, and perhaps also with Red-and-green macaws *A. chloroptera*. Strong interaction with *A. ararauna* almost certainly occurs when birds compete for access to tree cavities<sup>9</sup> at the start of the breeding season (October-November) with the slightly smaller *A. glaucogularis* being subordinate in this regard.

Distinguishing *A. glaucogularis* from *A. ararauna* at distance is not easy. Upon obtaining closer views, however, the slightly slimmer profile of the former - accentuated by a relatively longer tail - is evident, as is the slightly less bulky upper mandible. In flight the slightly higher pitched and less raucous calls of *A. glaucogularis* are separable. Whilst

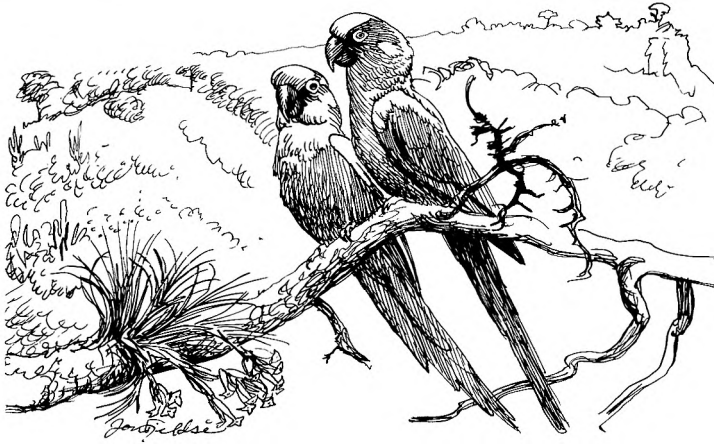
the characteristic blue throat is obvious in good light, in dim conditions or when an individual is back-lit it looks blackish and thus appears similar to that of *A. ararauna*. The bare skin at the base of the beak of *A. glaucogularis* is flesh-coloured, which contrasts with the white facial skin of its congener. Further differences lie with colour (and extent) of the patterning on the face, which is bluish-green rather than black, and of the forehead and forecrown, which is blue rather than greenish.

#### Red-fronted Macaw *A. rubrogenys*

During the early 1980s large numbers of *A. rubrogenys* were exported to western countries. One Japanese dealer in Santa Cruz was found to have over 100 birds in his possession<sup>2</sup>. The trapping of birds feeding on crops using nets was the traditional capture method.

The species is found in south-central Bolivia in the departments of Santa Cruz, Cochabamba, Chuquisaca and Potosi where, unusually for an *Ara* sp., it inhabits xerophytic mountainous terrain (1,000-2,500 m) characterized by gorges, flood plains and shrubby vegetation such as *Prosopis kuntzei* (Mimosaceae). Previous population estimates have ranged from 1,000 to 5,000 birds<sup>3</sup> but it seems likely from recent information that the actual number is not likely to exceed 1,000.

During a five day visit in August 1993 by Marc Boussekey, who had worked on the species previously<sup>2</sup>, and RCB, to the valley of the Río Caine c.120 km south of Cochabamba, an area which may be described as semi-desert steppe, the daily activity cycle of *A. rubrogenys* became readily apparent. Birds routinely flew in from their (presumed) cliff roost sites at 05h30-07h00, gliding in to feed on c.30 ha of land cultivated by the local Indians, who plant both groundnuts *Arachis hypogea* and maize *Zea mays*. The arrival of birds from the mountains was signalled by their calls (which are reminiscent of an *Aratinga* sp.), well in advance of them becoming visible. In this relatively impoverished region with sparse dietary resources, supplementing their natural diet (various seeds and fruit) with readily available crops must be extremely important for the macaws. When feeding in groups different pairs (often with accompanying juveniles) are typically segregated to some degree<sup>2</sup>. The maximum number of birds observed was in



Red-fronted Macaw  
*Ara rubrogenys*  
(Jon Feldsá)

excess of 80. They remained on the cultivated fields until c.10h00. They then flew off towards the river to drink briefly from slow moving side-streams before circling back to return to the mountains. Prior to drinking, many birds spent some time preening and resting in low trees adjacent to the edge of the river-bed. In common with *A. glaucogularis* certain trees are favoured for bill-cleaning. The macaws returned habitually to the fields again in the evening for a second feeding bout, which lasted from 17h00 to 18h30.

The species nests in holes and crevices in remote cliffs. Nest sites would appear to be well dispersed and the species is almost certainly monogamous. The onset of their presumed breeding season<sup>7</sup> coincides with the advent of rain (which only falls between November and April) thereby ensuring a readily available fruit supply.

Although persecution from trappers appears to have receded, loss of natural vegetation due to (1) agriculture and (2) the firewood gathering (required to produce sugar "cake") and charcoal (used in tin-smelting) still present a threat, albeit locally<sup>3</sup>. Conversations with our local Indian hosts in the Río Caine valley indicated that in general the species' feeding activities were tolerated. However, since we found four birds shot dead their presence is perhaps not tolerated by everyone. The use of firearms in "controlling" the macaw is apparently a very recent, but alarming development (M. Boussekey pers. comm).

#### Conservation of the endemic macaws

Now that the distribution of *A. glaucogularis*

has been mapped out in some detail, conservation efforts (currently coordinated by Fundación Armonía) can proceed apace, but such knowledge may in turn also necessitate increased vigilance. Since palm trees in particular are central to the ecological requirements of the species, it is imperative that tree clearance in the recently delineated regions of occurrence be minimized far as possible. Live *Scheelea princeps*, for example, produces an abundance of fruit whose fibrous mesocarp is attractive to macaws, and decaying or dead trunks in particular offer cavities favoured as nest holes. The latter especially may well be a limiting resource for macaws in general<sup>11</sup>; in Beni many are cut down by the local people for firewood. One valuable management suggestion (Fellmann Cuéllar pers. comm.) to increase the number of such sites in an area, is to cut off the tops of a number of palms which results in subsequent decay and hollowing-out of the upper portions of trunks.

Another essential approach to reducing the vulnerability of both macaw species is through education. The ultimate guardianship of these macaws lies with the rural peoples of the areas concerned. Having realized this, Armonía are promoting awareness through informal talks given to groups such as *éstanca* personnel and school children. Ecotourism also seems likely to have a major role to play in the conservation of many New World parrots<sup>10</sup>, and moves are already underway to help safeguard *A. glaucogularis* using this approach. Also, in the Río Caine valley at least, ecotourism may be appropriate for *A. rubrogenys* since road access is currently be

ing improved to the Torotoro archaeological site in Potosi, just c.20 km distant.

### Concluding Comment

Anybody wishing to see Blue-throated Macaw *Ara glaucogularis* in Beni is strongly advised to contact Fundación Armonía (Tel: 591/3/52-29-19; Fax: 591/3/32-49-71), who can offer logistical support and access to a guide.

### Acknowledgements

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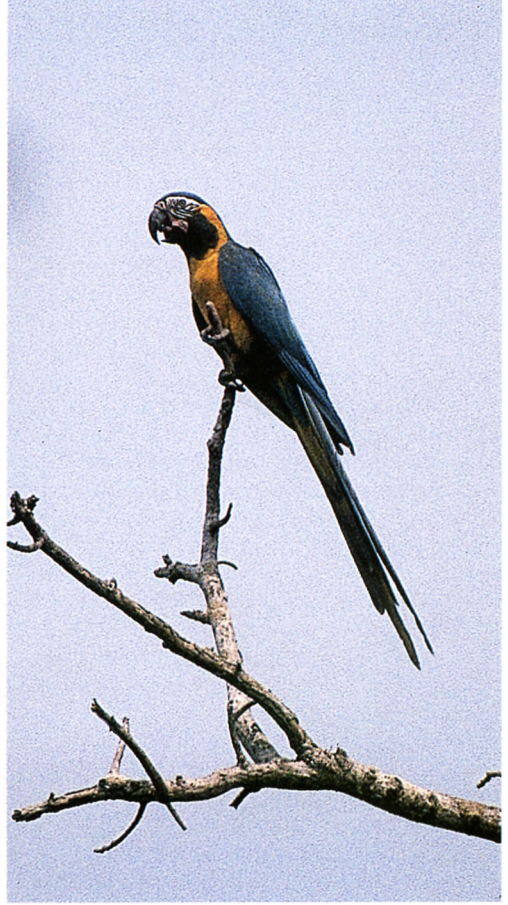
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Chestnut-headed Nunlet *Nonnula amaurocephala*, Jaú National Park, Amazonian Brazil, January 1994 (André Carvalhaes) (see p48)



Tilled fields in the Río Caine valley, August 1993 (Robin Brace) (see p27)



Blue-throated Macaw *Ara glaucogularis*, Trinidad, August 1994 (Jeff Blincow) (see p 27)



Red-fronted Macaw *Ara rubrogenys*, party in flight over the Río Caine valley, August 1993 (Robin Brace) (see p27)