

Discovery of the home of the Indigo Macaw in Brazil

with notes on field identification of "blue" macaws

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Introduction

THE INDIGO MACAW, *Anodorhynchus leari*, has long been regarded as one of the biggest South American ornithological mysteries. This macaw, described more than 100 years ago, has been known only through specimens which appeared very rarely in the commerce with living birds. It was not possible to obtain further information concerning the origin of this macaw than simply "Brazil." The birds were offered for sale, e.g., in Belém, Pará, and exported to Europe or the United States. The Indigo Macaw was always the pride of the wealthiest public and private zoos in the world.

The fact that the Indigo Macaw is one of three quite similar species of all-blue macaws (Hyacinthine, Glaucous and Indigo Macaw), has been the source of much confusion, even among scientists.

The splendid Hyacinthine, *Anodorhynchus hyacinthinus*, Latham, 1790, from interior central and southern Brazil (and adjacent eastern Bolivia — R. S. Ridgely, pers. comm.), the biggest (total length 93 cm) of all macaws, is the only blue macaw which is well known. It is frequently displayed in aviaries and collections around the world.

The Glaucous Macaw, *Anodorhynchus glaucus*, Vieillot, 1816, is the smallest (68 cm) of the blue macaws. In the last century it was common in certain parts of Paraguay and adjacent regions, e.g., on the Paraná river. The last living specimen to have been seen by a scientist seems to have been an individual checked by Jean Delacour in the Jardin d'Acclimation, in Paris, between 1895-1905 (pers. comm., Delacour to Sick, 1974). Recent surveys in Paraguay have revealed no evidence that this species still exists (R. S. Ridgely, pers. comm.).



Indigo Macaws, *Anodorhynchus leari*, in flight. Photo/Dante Martins Teixeira.

The Indigo Macaw, *Anodorhynchus leari*, Bonaparte, 1856, is medium-sized (71 cm).

There is still a fourth blue species, the Little Blue Macaw, *Cyanopsitta spixii* (Wagler, 1832), ranging in interior north-eastern Brazil. It has very little similarity to the true macaws, but can confuse people who know only prepared specimens; it lacks yellow on the face (see below).

The difficulty of distinguishing the blue macaws has been felt very strongly by the senior author. No one knew the problem well, and the literature dealing mainly with plumage is not clear. Only after having checked most of the material of *glaucus* and *leari* existing in museums, and after having studied carefully most of the Indigo Macaws living in captivity in Europe and the United

States, did Sick feel sure about the problem, and could he inform colleagues who were especially interested, such as J. M. Forshaw (1973).

THE ESSENTIAL FINDINGS concerning (1.) appearance, and (2.) zoogeographical conclusions, are the following:

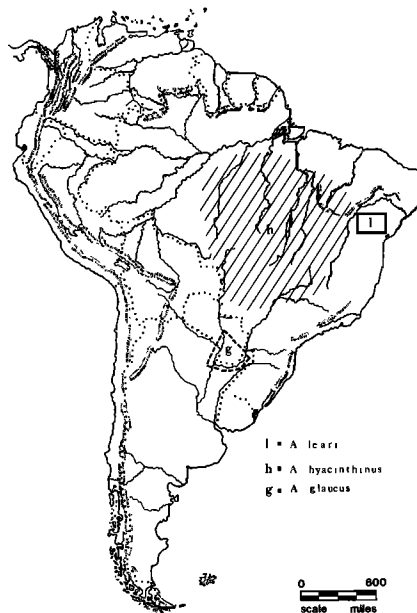
(1.) The most important morphological character of these macaws is the bare yellow area at the base of the mandible ("lower" mandible), useful only in living specimens (the Glaucous we did not see alive, but there is no doubt that it is, in this respect, very similar to the Indigo). Whereas the Hyacinthine has a small band, turning narrowly around the mandible, the Glaucous and Indigo Macaws have a big and nearly triangular yellow area. All three have a yellow periophthalmic area. The color of

the plumage, used as a primary criterion (in addition to the size of the birds) by museum workers up to now, is only slightly differentiated and is difficult to describe.

(2.) The Glaucous and Indigo Macaws are closely related, and are geographical representatives of a superspecies. They are geographically widely separated, the area between them is occupied by the Hyacinthine which may possibly be a younger offshoot of the group. The relationship of the Glaucous and Indigo Macaws seems also to be revealed by their ecological anomalies: the Glaucous Macaw nested in river banks (Sanchez Labrador 1767, Azara 1805, d'Orbigny 1835), the Indigo Macaw in canyons. However the Hyacinthine also nests in cliffs in northwestern Bahia and in Piauí.

Even the approximate range of the Indigo Macaw remained uncertain until finally Olivério Pinto (1950) found a specimen in captivity in the interior of Pernambuco, which was said to have come from Juazeiro, northern Bahia. On a trip with R. S. Ridgely in 1977 (Sick had passed there in 1964), we realized that in the area of Juazeiro no macaws could possibly occur. The Indigo mentioned by Pinto was apparently purchased in Juazeiro, where we were told Hyacinthines were also offered for sale.

Reflecting the general feeling that it was indeed strange that no one could find the Indigo Macaw in the wild, Voous (1965) developed the bold theory



that the Indigo Macaw was not a "good" species, but rather a hybrid between the Hyacinthine and the Glaucous Macaws. This idea is now known to be unacceptable, on both morphological and distributional grounds.

Research in the field

THE PUBLICATION OF Voous was the strongest challenge for the senior

author to find the Indigo Macaw in nature. But several years passed before the necessary arrangements could be made. Sponsored by the Academia Brasileira de Ciências, we visited, in search of the Indigo Macaw, during 1974 and 1976 some of the remaining tributaries of the rio São Francisco in northwestern Bahia. However, all we could find were the Hyacinthine, which there and in Piauí reaches its easternmost limit. There, too, occurs (very locally) the Little Blue Macaw.

In 1977-78 we came to the conclusion that the only place where the Indigo Macaw could have remained undiscovered was the Raso da Catarina in northeastern Bahia. Our doubts, however, were very great. Could it be that this region was so completely overlooked by scientists, and that there could hide, for more than a century, a bird as large as a macaw? It was hardly believable.

The "Raso" is a white spot on the map of Brazil: no settlements, no roads, dried-up rivers. It is a plateau, cut by canyons. Most of the area is covered by deep loose sand and dense "caatinga": a low, frequently thorny vegetation, adapted to the extremely dry climate. The "Raso" was supposed to be impenetrable. It certainly is inhospitable, owing to its tremendous heat and the lack of water. Apparently it remains one of the least known parts of Brazil.

In Brazilian history the "Raso" has a very bad reputation: it was the scene of the Canudo civil war (most of the soldiers died of thirst), and the hiding place of the infamous "cangaceiro" Lampião (who could not be captured).

We left Rio de Janeiro on December 18, 1978, accompanied by Luiz A. Pedreira Gonzaga, working with us in the Museu Nacional, Rio. On December 29 we obtained the first actual material of the Indigo Macaw: flight feathers of a specimen shot some weeks before by a local hunter. It had been eaten. Two days later we ourselves finally met the no longer mysterious macaws in the field: three relatively small dark creatures with a big yellowish area at the base of their mandible, their voice amazingly weak for a macaw.

During succeeding weeks we observed up to 21 Indigo Macaws flying overhead in a single flock. We obtained information about its food, at that time particularly the small nuts of the licuri-palm



Indigo Macaws on a canyon ledge in the "Raso" de Catarina, Bahia, Brazil. Note the large (yellow) mandibular patch, which can clearly be seen in flight.

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(*Coccyz sp.*), which the birds sometimes obtained by walking on the ground. They undertake long flights in search of their favorite foods. We reached roost-



A canyon in the rugged "Raso" country, from above.

ing places of the macaws, situated in hollows in the upper part of the grotesquely eroded walls of the canyons. In such a place, where the birds arrive just before dusk, we counted up to 18 individuals. Here we could study completely undisturbed, as they climbed on the vertical rock face and defended themselves against the dense swarms of flies flying around them. On the ground we obtained additional molt feathers of the macaws. We recorded the voice and took photographs. The hollows in the canyons serve also for nesting (later in the year). For the preservation of the macaws it is important that these places remain completely inaccessible to people.

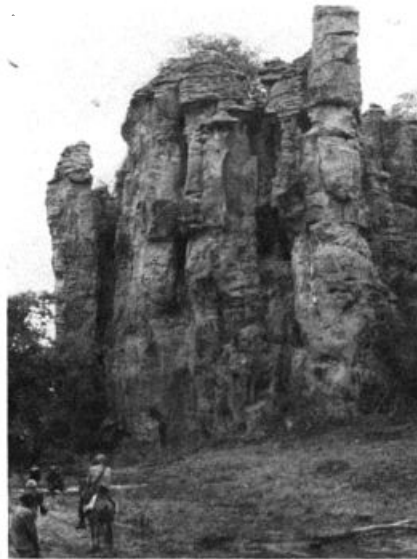
TO DEFINITELY PROVE our findings, we collected one specimen (January 16, 1979), a wonderful adult male, the

first Indigo Macaw specimen from the wild with full data in a museum collection (Museu Nacional, Rio de Janeiro). We stayed nearly a month in the area of the "Raso," sufficient time to completely delimit the range of the Indigo Macaw. First we worked in the southern part of the area, later we approached the region from the northeast.

The Indigo Macaw is the only macaw which lives in that region. Neither the Hyacinthine, nor the Little Blue Macaw, nor any true macaw of the genus *Ara* seems to reach the "Raso," where in fact only a few Psittacines occur.

Our stay in the "Raso" was successful only through the constant help of our local guides. During a certain interval, a tractor was the only vehicle able to negotiate the deep sand. Ultimately we had to go on horseback (without saddle!) and to walk.

In a more detailed paper we will deal with several other aspects of this area, such as the fauna in general and the flora of the "Raso." This will provide further details concerning the existence of the Indigo Macaw, which has now



Members of the expedition below a typical "leari" cliff.

been proven to be an endemic restricted to northeastern Bahia.

Preservation

IT IS A FORTUNATE coincidence that a federal Reserve, the "Estação Ecológica do Raso de Catarina," established some years ago by S.E.M.A. (Secretaria Especial do Meio Ambiente, Ministério do Interior, under Dr. Paulo Nogueira Neto), includes part of the range of the Indigo Macaw. This very fortuitous circumstance convinced us not to conceal our discovery, despite our fear of possible depredations by illegal bird dealers. We suggested to the Government that they enlarge the Reserve "Raso" in order to protect still more of the range of the Indigo Macaw.

Acknowledgments

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81st Audubon Christmas Bird Count

Saturday, December 20, 1980 through Sunday, January 4, 1981

A 16-day, three-weekend period