

The Hyacinth Macaw Project: Piaui, Brazil

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he Hvacinth Macaw. Anodorbynchus hyacinthinus, was at one time widely distributed through Brazil, Bolivia, and Paraguay. However, a more recent survey has estimated their total numbers to be between 2500 to 5000, in three distinct populations. These populations are located in the rainforests of Para, Brazil, in the seasonally dry, rocky valleys of northeastern Brazil (Tocantins, Piaui, Maranhao, and Bahia), and the Pantanal wetland of Brazil, Bolivia, and Paraguay (Guedes et al, 1995). At this time the most studied population had been that one located in the Pantanal, leaving these other two to be further examined. The

Hyacinth Macaw is currently considered rare to endangered, and at a definite risk of becoming extinct if the causal factors continue to operate. To this day trapping and international trade, hunting, agriculture, logging, and hydroelectric projects considerably insult their survival (Guedes, 1993).

The objectives of the Hyacinth Macaw Project 1996/1997 field season were to assess the area of southern Piaui, located in northeastern Brazil, and the population of Hyacinth Macaws located there for future studies. This is a completely separate population from that one located in the Pantanal wetlands with different nesting habits. These birds nest in cavities located in the large cliffs of this region. We were to collect information concerning their diet, and study the physical condition of chicks. In addition, we intended to collect preliminary data concerning nest cavity temperature and relative humidity, nest dimensions, and nest distribution in the cliffs.

During the study I worked closely with three parabiologists. This team was headed by Mr. Lourival Lima, an ex-trapper in the area. These people now act as wardens, patrolling and protecting this area and have prevented trapping of the macaws during the last two years. Working with them was particularly useful as they have extensive knowledge concerning scouting

nests and climbing cliffs, as well as a thorough knowledge of Hyacinth Macaw chicks. This work would have been very difficult, to impossible without their expertise. Mr. Lima and his colleagues have an extreme interest and pride in sharing their knowledge of the Hyacinth Macaw, as well as of the other birds in the area.

To evaluate the previous trapping situation and the current population of Hyacinth Macaws in the area, several ex-trappers were interviewed separately and repeatedly. Consistent reports of trapping an average of 80-100 Hyacinth Macaws per year were obtained. This included chicks and reproducing adults. Approximately 70% of the nests were exploited, the remaining 30% were reported as inaccessible to humans (L. Lima personal communication, 1996). The current total numbers were difficult to assess accurately as I worked in a small area as compared to the reported habitat for these birds. However, they are assumed to be severely depleted due to decades of trapping. In addition to Hyacinth Macaws, several other psittacine species were trapped in the area. These included Green-Winged Macaws Ara chloroptera, Blue and Gold Macaws Ara ararauna, and previously, Spix's Macaws Cyanopsitta spixii.

Several criteria had to be met during evaluation of the diet of the Hyacinth

Initial Studies Concerning Fruits Consumed By the Hyacinth Macaws, Anodorhynchus hyacinthinus, in Piaui, Brazil 1996/1997 Field Season				Initial Studies Concerning Body Condition and Feather Quality of Eleven Hyacinth Macaw, Anodorhynchus hyacinthinus, Chicks in Piaui, Brazil 1996/1997 Field Season		
				Chick #	Body Condition Score	Feather Quality
Fruit	Time of Year Available	Peak Season	Portion Consumed	1	3/5	excellent
Chule*	year round	Sept - Feb	nut & mesocarpus	2	3/5	excellent
Pia Caba	year round	Feb - July	nut & mesocarpus	3*	2.5/5	few stress bars
Buruti	year round	Oct - Feb	ripened fruit: oily	4*	3/5	few stress bars
			substance, just beneath outer surface	5	4/5	excellent
			green fruit: nut & mesocarpus	6**	3/5	few stress bars
Tucun	year round	Oct - Dec	nut & mesocarpus	7**	2/5	few stress bars
Sapucaia	July - Dec		nut & mesocarpus	8	3/5	no down, little feathering
Clay from cliffs and inside nest cavities				9	3/5	excellent
				10	3/5	excellent
				11	4/5	excellent
*Chule(pronounced catolay) was by far the most abundant during my study				*/** these chicks were siblings, housed in the same nest		

Portions of fruits and plants consumed by the Hyacinth Macaws in southern Piaui during the 1996/1997 field season

Table 1.

Body condition evaluated by pectoral muscle mass and feather quality of eleven Hyacinth Macaw chicks in southern Piaui



One of the macaw wardens rappelling to enter a Hyacinth Macaw nest. These men climb with bare bands and feet and no harness. They are extremely gifted climbers.

Macaw. Each fruit had to be found in the nest cavity, dropped just outside the opening, or be seen eaten by one of these birds. In addition, several extrappers in the area were questioned separately and repeatedly concerning their diet. Only consistent reports were interpreted as truth. Due to the fact that during the nesting season these birds are considerably spread out, it was very difficult to actually visualize a Hyacinth Macaw eating each fruit. Therefore, this information should be interpreted with this in mind.

Hyacinth Macaws were found to consume several fruits which were abundant in the area (Table 1.) These included chule, pia caba, sapucaia, tucun, and buruti. At this time only the Brazilian names for these fruits are known. I am currently working with several botanists and palm specialists to ascertain the scientific and common English names of these fruits. Different portions of these fruits were consumed and they are available in peak numbers at different times of the year. In addition to these fruits, the Hyacinth Macaws were reported to consume clay found in the cliffs and nest cavities. Other psittacine species have been found to consume clay on a regular basis as well. The current leading explanation for this is detoxification of other items ingested and cytoprotection of the gastrointestinal tract (J. Gilardi, unpublished data).

Data regarding the physical condition and body measurements were collected from 11 Hyacinth Macaw chicks. This was done by performing thorough physical exams and assigning a body condition score based on pectoral muscle mass to each bird. The average body condition score was a 3.04/5 (3/5 being excellent body condition). This is very good as compared to many Hyacinth Macaw chicks of approximately the same age evaluated in captivity in the United States (unpublished data, H. L. Bowles, 1996/1997). Most birds were found to be well hydrated and have full crops that contained chunks of food of a

hard consistency. The feather quality of most nestlings was excellent, with little evidence of stress bars or retained feather sheaths. One chick was significantly less developed than the others, most likely hatched later in the season. This particular chick had little down and retarded feather development as compared to most nestlings of this approximate age. The entrance to this nest cavity was considerably larger than that of the other nests. This may have exposed this chick to adverse weather conditions such as wind or rain and result in developmental abnormalities.

Most nests were found to contain only one chick, although two egg clutches were reported to usually be laid. Interviews with several ex-trappers yielded consistent reports of early mortality (< day 14), of the smaller chick of most clutches of most nests. This is consistent with data gathered from studies of other nesting populations of large macaws (Munn et al, 1987). Two nests studied contained two chicks. These birds were somewhat thinner, with an average body condition score of 2.62/5, as compared to an average of 3.42/5 of nests containing a single chick. A few stress bars were found in the feathers of each of these chicks as well. This may represent an increased level of stress in rais-





Cliffs where the nest cavities are located in southern Piaui, Brazil. This is a completely separate population of Hyacinth Macaws from those in the Pantanal wetlands of Brazil.



Hyacinth Macaw chick of a two bird clutch with a few stress bars. This may signify some level of stress in raising two chicks in a single clutch.

ing two chicks at one time.

Further research is definitely necessary in this area, as much information is needed regarding the Hyacinth Macaw. This should include population size, nest dimensions, distribution, and nest cavity temperature and relative humidity. In addition, an extended reproductive study from incubation to weaning with regard to physical condition, weight gain, and mortality would be useful. Clinical research could include crop sampling to evaluate nutrient content of the diet fed to the chicks and evaluation of gastrointestinal bacterial flora. Phylogenetic studies, such as those currently being performed by Dr. Benny Gallaway of LGL Genetics, Inc. looking at interrelatedness of pairs of Hyacinth Macaws, would allow us to assess the genetic diversity of this population (Gallaway, 1997). This information could be compared to results of those birds in captivity as well.

The Hyacinth Macaw Project has

the unique opportunity to combine conservation work and research of these birds in their natural habitat, with clinical studies that could potentially benefit their relatives in captivity. It is my sincere hope that through the continued support from the International Avicultural Society, World Parrot Trust U.S. and U.K., Bird Clubs of Virginia, Mid-Atlantic States of Avian Veterinarians. Harrison Bird Diets, and the Kaytee Avian Foundation as well as future support from other organizations, we will be able to perform further studies on this extraordinary bird.

References

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Hyacinth chick (full crop): Most chicks examined had full crops containing solid chunks of food.