

>> BIRDING AT THE CUTTING EDGE HARPY EAGLE

The Harpy Eagle in Ecuador: the rainforest 'air spirit'

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This article takes us into the domain of the Harpy Eagle, the largest raptor in the Americas, and gives us a privileged insight into work to unravel the mysteries of its existence.

Below an impressive ceiling of vegetation towering more than 35 m high and amidst 90% permanent humidity, the humid Amazon forests hide most of their biological diversity from the casual human eye. Shadows and branches interlace to create a refuge for thousands of species that live their lives out of human sight, often unknown to science. However, I dare to suggest, it is these very characteristics that makes the pursuit of rainforest knowledge, its

proclamation and preservation, brim over with passion.

The Harpy Eagle *Harpia harpyja* is a Near Threatened species and one of the poorest-known denizens of this world of lianas and huge trees. Nevertheless, for the indigenous cultures that share its forested terrain, this eagle is one of the most important spirits of the rainforest. The biggest raptor in the Americas and the most

Juvenile Harpy Eagle *Harpia harpyja*, Cuyabeno Reserve, Ecuador, February 2003 (Ruth Muñiz-López)





Claws of juvenile Harpy Eagle *Harpia harpyja* (Ruth Muñiz López). The feet and claws of the Harpy Eagle are the strongest of any bird. Each claw is as long as the author's index finger!



Tagging a juvenile Harpy Eagle *Harpia harpyja*, Cuyabeno Reserve, Ecuador, June 2006 (Javier Escribano). The team used a teflon ribbon to fix the 70 g PTT/GPS transmitter to this female. This device reveals the eaglet's movements for at least three years



Above: Measuring a Harpy Eagle *Harpia harpyja* nest, Cuyabeno Reserve, Ecuador, April 2005 (Alexander Blanco). When the team climbed to a nest, members quickly took data on the nest platform, nest tree and its branches, checked for prey remains and scanned the canopy for potential future nest trees



Left: To get a view over the canopy the team constructed high towers that allow them to discover the Harpy's secrets while sat 30 m above the flooded forest floor (Ruth Muñiz López)

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powerful in the world, the Harpy's claws can pierce the skull of a monkey or sloth—its main prey—as easily as one would expect for a weapon longer than the total length of some forest birds. Whereas we humans have to move through the forest at “machete speed”, these eagles slalom between tree branches at 80 km/h during their lethally silent hunting flights. The females—over one metre long and 10 kg in weight—can lift prey weighing more than 12 kg with little effort, tear it to pieces and carry it back to the nest. There the adult feeds the morsels to its single chick; one is raised every two-and-a-half years. The juvenile stays in its parents' territory during that period and will breed itself after six years.

Unravelling the mysteries of such a bird became a dream and a challenge for me. After more than one year of intensive searching, comprising hikes lasting several days, rowing in little canoes made from hollowed trunks, a malaria crisis, and unsuccessful visits to the most recondite of places; after enjoying and learning about the rainforest laws thanks to the Zápara, Achuar, Kichwa and Cofán indigenous communities and after establishing a solid friendship with them . . . after all that, we discovered the first active Harpy Eagle nest that came to be monitored in Ecuador. It was occupied by a seven-month old juvenile, looking at us very curiously from a branch of its birth tree. The emotion of that moment was indescribable: it will remain in our memories for ever.

And so started our work to research and conserve the Harpy Eagle and their habitat—the Harpy Eagle Conservation Programme—was born.

The programme

To find and follow the Harpies since the year 2000, we have worked with several organisations; first with support from the Spanish International Cooperation Agency (AECI), followed by the Indio Hilfe Foundation and subsequently the Ecuadorian Biodiversity Research and Monitoring Society (SIMBIOE). We also received a Neotropical Bird Club Conservation Award to further our work.

Our programme took place in two different provinces: Pastaza, the most isolated and with extensive primary forest, and Sucumbíos, where a protected area—Cuyabeno—is home to some ethnic groups.

From the outset, we were firmly of the view that the programme should involve indigenous communities and give them a livelihood from the

forest other than poorly-paid hard labour cutting vegetation to open roads inside protected areas for oil companies. We wanted to enable indigenous people to work in science and conservation, near their home, and give them tools to revalue their territories based on the importance of their natural heritage. From the very start, we ensured that we were very close to indigenous people, talking and living with them. They participated in all our activities and were integrated as “parabiologists”. This meant a process of training to enable them to record data on the activities of the eagles. Now they are able to use a GPS, a compass, binoculars and a field notebook. And, during the long time we spent together in the field, we developed our understanding of the behaviour and requirements of this impressive raptor together.

In addition to the work in the communities, we wanted to communicate the significance of the eagle to the general Ecuadorian public. We organised a festival in Puyo (Pastaza province), a town close to the forest, to tell local inhabitants about the Harpy Eagle, to explain why the bird is important for them and to discuss how we can use it as a flagship for conservation. We wrote articles in newspapers and magazines, we made documentary films that were shown in Ecuador and internationally, we travelled to national and international meetings to exhibit our work, and, in 2007 published a book of more than 250 pages, with fabulous pictures and information from years of our work¹.

Moreover, we have been using political tools to help us in our cause. We have inspired the conclusion of a Ministerial agreement to consider the Harpy Eagle the “species that represents Ecuadorian biodiversity”, whilst another Ministerial agreement—the Harpy Eagle National Strategy—will allocate the tools and set out the action plans to conserve eagles and their habitat.

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In the field, we have now found 13 nests, one in the west (the first one ever found west of the Andes) and the remainder in the Ecuadorian Amazon basin. Seven years ago, nobody would ever have wagered on such results (and some might even have bet that we would never find a nest). Instead, we have deciphered some of the mysteries surrounding Ecuador's Harpy Eagles.

We found that the "monkey-eating" eagle, as it is called by some indigenous cultures, eats more sloths than any other animal. We discovered that other raptors live in Harpy Eagle territories, even nesting inside them. We even observed the eagle that is considered a major competitor of the Harpy—the Crested Eagle *Morphnus guianensis*—perched in the Harpy nest tree when the nest was occupied by an eight-month old eaglet. We observed one case of kleptoparasitism from a Black Caracara *Daptrius ater* at a Harpy Eagle nest and we detailed how a juvenile Harpy hunted a sloth just in front of us. We were present while one of our pairs built its nest platform, shared the disappointment of their reproductive failure and delighted in their success the following year. We saw the development of the chicks from their first days to their flight out of the nest tree. We captured two individuals (a male and a female) and, for the first time in Ecuador, measured them and took some biological samples. We climbed the nest-trees and measured the nest platform and nest tree, feeling the rainforest under us and imagining what it was like to be a Harpy Eagle, prime predator and top of the food chain for kilometres around.

Today, seven years on from the start of the project, we remain resolute, energetic and enthusiastic in our work. We have received new support from Ecuador's Fondo Ambiental-Ecofund. We have taken advantage of modern technology thanks to Terra Natura Foundation (Terra Natura Biological Station-CIBIO- Alicante University, Spain) who provided us with very expensive GPS platform transmitter terminals (GPS-PTTs, effectively a radio tag). With these machines, we have been seeking to delve into the most secret recesses of Harpy life, namely what juveniles do and where they go when they leave their natal territory, how they use their new habitat, and what their daily activity routine comprises.

Since 2005, we have fitted two young Harpies with a GPS-PTT. We did so with the invaluable help of our friend and collaborator Alexander Blanco, a vet who coordinates the Harpy Eagle Project in Venezuela and who has much experience of capturing Harpies in the wild. The first bird, tagged in 2005, had a transmitter with a dud battery, so we failed to get any data. The other bird, tagged in 2006, has no such problems and provides us with regular data that we will use to help unravel, for the first time, the "hidden life of the wild Harpy".

The air spirit of the rainforest

The Harpy—"air spirit of the rainforest"—has given my team and me the possibility of sharing incredible experiences with the indigenous people. We always respect their culture and rules, and they respond by advising us on how to behave with the eagles and with their "owner", the nest-tree spirit called *Atsatábahe kukuya* in Cofán language. Each time we needed to ascend a nest-tree, we learnt to ask for permission from the tree spirit, explaining to it what we were doing and why. Before capturing a Harpy, we understood the need to speak with the shaman of the community and leave him to dream with *ayahuasca*—a strong rainforest hallucinogenic—and to speak with the air spirit. After these culturally important steps, we can carry out our work.

And through this work, through this passionate pursuit of rainforest knowledge, striving with communities, in the rainforest and for the Harpy Eagle, we hope to gain a better understanding of our natural jewels, and to reevaluate the social and natural environment where of which they and, ultimately, we are part.

REFERENCES

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