



BIRD CONSERVATION

# BLUE JEWELS OF THE PANTANAL

Deep in the heart of the world's largest tropical wetlands, a Brazilian biologist is climbing trees, braving killer bees, and courting wary ranchers to save the world's biggest parrots.

BY SUSAN MCGRATH/PHOTOGRAPHY BY JOHN HUBA



South America's Pantanal is one of earth's most biologically diverse wetland systems. A vast network of rivers, grasslands, and forests, it is 17 times the size of the Everglades. Preceding pages: A pair of hyacinth macaws keep close company. From the moment they fledge, these highly social animals are never alone.

IT'S EARLY IN THE RAINY SEASON IN WEST-CENTRAL BRAZIL, and the grand, green alluvial plain that was once an inland sea is slowly filling. Rivers rise, slipping over their banks. Seasonal ponds called *baías* expand and merge. Rain turns the ragged grasslands to paddies, and below the standing water lies a fine red mud that sucks your wheels down, axle deep. ¶ The roads are passable still, but there aren't many roads into the Pantanal. To our destination, a hummock of trees called a *capão*, there is no road at all. The Toyota truck just sluices right across the flooded grasses, throwing up an impressive russet bow wave. We passengers brace inside as if isometric tension could propel us over the stickier patches.

It seems to work, because we sail along, unstuck, past cattle, jabiru storks, roseate spoonbills, tiger herons, and a rhea herding a dozen leggy young of assorted sizes.

The *capão*, when we reach it, appears to be a particularly well-fortified one. Native bromeliads form a palisade of bayonets around its perimeter. Ornithologist Neiva Guedes is not a woman to be cowed by a few sharp bushes, however. She looks the *capão* over, swings the truck to face it, guns the engine, and neatly bulldozes an opening into the thicket. "We call this cleaning up," she explains, with the apologetic air of someone found dabbling at spilled tea with a hankie. "More effective than machetes." She backs up and has at it again, crushing the armored succulents to slime beneath our wheels. She backs out a last time and switches off the engine.

In the sudden quiet, we can hear a distant Klaxon. Neiva's habitual smile broadens. Louder, nearer, a *crescendo*, and two cobalt-blue giants sweep into view. For a moment they festoon the sky, swooping by in tandem with the slow, balletic grace of synchronized swimmers. We can see their chain-cutter beaks, their golden eye rings and cheek stripes, their heavenly blue plumage. Then they glide on into the *capão*. *Diminuendo*. They are gone.

**T**HE TWO BIRDS ARE HYACINTH MACAWS—*Anodorynchus hyacinthinus*—three feet long, the largest of the world's parrots. The macaws are endangered, primarily because of the international black market in exotic pets. A report on that black market was issued in October 2001 by a highly regarded nonprofit group based in Brasília called the National Network to Fight Traffic in Wild Animals, or RENCTAS. Its findings: Animal smuggling is a multibillion-dollar global business. Brazil provides a significant percent of the animals that make up this trade. In fact, taking into account those that die during capture, holding, and transport, millions of animals a year—from insects to mammals—are removed from the wilds of Brazil to supply pet, laboratory, and pharmaceutical markets in Brazil and abroad.

Among those stolen animals are hyacinth macaws. Wildlife authorities calculate that in the 1980s alone, illegal trappers took 10,000 hyacinth macaws out of the wild,



The Pantanal covers an estimated 42 million acres, including parts of central and western Brazil, eastern Bolivia, and northern Paraguay. The red dots in the map above represent the nearly 500 nests monitored by ornithologist Neiva Guedes and her team.

including the entire Paraguayan population of the species. Neiva Guedes and other macaw experts estimate that there are no more than 6,500 wild hyacinths left. A small population of perhaps 150 of these lives in eastern Bolivia, no more than 1,000 in northeastern Brazil, and perhaps 1,500 in the Amazon. The remainder, the largest extant population of hyacinth macaws, live in the Brazilian Pantanal, the nearly roadless, 54,000-square-mile upper watershed of the Paraguay River.

It is here that Neiva Guedes runs Projeto Arara Azul (Hyacinth Macaw Project). Her base is a southern Pantanal ranch and a pioneering ecolodge called Refugio Ecologico Caiman. I have come to Caiman with photographer John Huba and his assistant, Andrew Tingle, to see the macaws and to observe the project's work. We trail behind as Neiva; the project's second-in-command, Douglas Kajiwara; and a veterinary intern named Juliana Aranha scoop their gear out of the back of the truck and





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follow the pair of araras into the capão.

Once we're through the bromeliads, we see that the capão is an open woodland topped by a feathery canopy of *acuri* palms and tropical hardwoods. "You can see that cattle come in here," Neiva says. "They definitely have a negative impact on the vegetation. They trample the young palms. On the other hand, they eat the palm nuts, digest the husk, and regurgitate the hard-shelled kernel. That makes life easier for the macaws, who otherwise have to tear away the husk to get at the kernel. And cattle keep the grass cropped, reducing fire danger. For araras, I think, cattle are generally a good thing."

**T**HE ORNITHOLOGISTS LAY THEIR GEAR OUT at the base of a sizeable *manduvi*, a native softwood that is the nest site of choice for macaws. Neiva uses a slingshot to send a line over a branch, then pulls a rope up after it, clips on, and starts to climb, puffing a little as she goes. Two dozen feet up is a hole the size of a salad plate. The owners of this cavity are out of sight but hardly out of mind: We can hear them nearby, raising an anvil chorus of avian protest.

Suddenly: "Oh! Beautiful! Marvelous! Wonderful!" The cool-headed scientist in the climbing rig has reached the nest. "A beautiful youngster! Oh, you little *dôce de côco*. Coconut candy! Douglas, prepare to receive the bucket; she's coming down."

Short of a blood test, it is impossible at this stage to determine a hyacinth macaw's sex. The gender of the adults, too, is virtually indistinguishable, except during the breeding season, when an incubating female's tail becomes bedraggled and curved from being shoehorned into the nest for 30 days. Despite this mild handicap, Neiva and her crew name the nestlings for various Pantaneiros the team has met. "Does this one have a name? No? Then she is Susan." A radiant smile from above. It is my name.

Douglas retrieves the bucket from on high and transfers its contents onto a tarp. Susan is about 45 days old, according to Douglas's notes, and almost a foot long. She has no flight or tail feathers yet, and her belly bears only a scant gray-brown down. Nevertheless, she already exhibits those characteristics that inspire collectors to pay big bucks—as much as \$12,000 in some parts of the world—for one of her kind. Her head, wings, and back are a glorious ultramarine blue, her pale eye rings and cheek stripes hinting of the deep gold they will show in full adulthood. Unbelievably docile, the baby lies where she is placed, bright-eyed, befuddled-looking, and redolent of coconut bonbons,

**Just 57 days old and not ready to fledge, a hyacinth goes for a ride in a bucket to be measured, weighed, and checked for parasites. Its feathers are a mix of down, pinfeathers, and fully formed plumage.**

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thanks to her exclusive diet of palm nuts. Even the photographer, a jaded Manhattan sophisticate, is reduced to cooing baby talk in her presence.

Douglas slides the accommodating nestling into a homemade cardboard tube and sets the parcel on a field scale. Neiva, dangling serenely above, takes the opportunity to expand on her favorite subject. “Your little namesake stays in the nest for 90 to 120 days, Susan. Then she remains with her parents, learning the things macaws need to know, while the adults feed her for another six months. These macaws are highly specialized animals. They have to learn from other wild macaws when they are young. This is why it’s so difficult to reintroduce captive-born hyacinths.

“Nonbreeding macaws band together in loose groups of as many as two dozen, eating acuri and *bocaiúva* palm nuts, and roosting together in ‘dormitory’ trees. At around age seven they mate—for life. And it’s a long life; data from captive birds suggest that wild hyacinth macaws may live to at least 50.”

Douglas and Juliana complete their work with the uncomplaining chick and bucket her back up to Neiva, who takes a last, heady whiff of coconut before decanting her into the nest. Neiva rappels down, we pack up the gear, and it’s off to the next nest site. We may have to wade this time.

**T**HE WORLD’S LARGEST TROPICAL WETLANDS lies principally in the western Brazilian states of Mato Grosso and Mato Grosso do Sul; including the areas that spill over Brazil’s border into Bolivia and Paraguay, it covers 80,000 square miles. Its name derives from *pantano*, a word meaning “swamp” in Portuguese and Spanish. Still, for much of the year, the Pantanal is no wetlands at all, just a vast savanna intersected with rivers and ponds, long fingers of gallery forest, and the smaller copses, the *capões*.

Ninety-nine percent of the land here is privately owned, most of it in immense cattle ranches called *fazendas*. Sharing the land with the hump-backed zebu cattle are giant river otters, tapirs, jaguars, giant anteaters, capybaras, anacondas, crocodilians called caimans—some 30 million of them—and 652 species of birds, including 15 kinds of parrots and 3 kinds of storks. Ranching has proven to be relatively benign in the Pantanal, perhaps because you can graze only so many cattle when your land is under water four months out of the year. However, the northern Pantanal is suffering from “downstream” effects of the soybean and corn plantations that increasingly occupy the sandy highlands along the Pantanal’s edge. These huge farms, according to Bernadette Lange, coordinator of World Wildlife Fund-Brazil’s Pantanal Forever program, are causing pollution and sedimentation and disrupting river channels.

Looming like a shadow over the whole region is Hidrovia, a project to dredge and straighten the upper



Neiva Guedes, assisted here by veterinary intern Juliana Aranha, measures the tail of juvenile hyacinth No. 226. Neiva, an ornithologist, is one of the first women to work in the Pantanal. Opposite: Douglas Kajiwara scales a *jatobá* tree to monitor an artificial nest.

Paraguay River to allow year-round shipping. An international outcry persuaded the Brazilian government to shelve the project officially in the late 1990s, although for a time work continued piecemeal: “a small port here, a little dredging there,” says Lange. In 2000, acknowledging the arguments of concerned citizens and Brazilian nongovernmental organizations, the government froze permits for all new projects pending a region-wide environmental-impact assessment.

“For the first time, it has been officially recognized that the Pantanal is more than just a region for transporting soy; it is a region hugely important for tourism, water quality, and the health of the environment. This is cause for—well, perhaps not optimism,” Lange says with a laugh. “That would be too optimistic. But there is cause for hope. There has been more understanding of the impact of these agricultural activities and dredging projects in recent years. Brazilians are becoming less passive, learning to use their rights as citizens. And they are coming to see the Pantanal’s value as a wild place.”

Critical to this nascent awareness are Neiva Guedes and Projeto Arara Azul. For 12 years Neiva has traversed the Pantanal in wet season and dry, following hyacinth macaws on foot and horseback, by boat, tractor, and truck. She has documented the birds’ nest sites, compiling a data bank of statistics on eggs and young; experimented with artificial nest boxes; toured with groups of schoolchildren; and hobbled herself with television crews to bring Projeto Arara Azul into homes all across Brazil.









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From the start, Neiva has acted as the birds’ goodwill ambassador to the people of the Pantanal, a self-appointed job that has required more skill and patience than the fieldwork—which, after all, involves only heat, humidity, snakes, ticks, killer bees, dengue fever, hip-high water, heights, and long days far from home. The Pantaneiros are, as a group, polite but reticent. Communicating with “outsiders” is a painful ordeal best avoided. And so, in the early days of the project, cowboys would examine their boots when Neiva mentioned hyacinth macaws. Though people were courteous, little information was forthcoming.

Neiva took her time. She chatted about the macaws’ behavior. She emphasized that few places outside the Pantanal can boast of being home to these charismatic and coveted birds. She inquired after people’s children. She shared cow-horn cups of *terréré*, a sort of iced maté that is the peace pipe of the Pantanal. Slowly the Pantaneiros came to accept her. Today Projeto Arara Azul monitors 483 nests on 42 ranches. Cowboys hail her from horseback to report nests. “Having an arara azul nest on your property amounts to a status symbol these days,” one *fazendeiro* told me, only half joking.



Says Lange, “Neiva’s work has shown another side of the Pantanal to Brazilians, really helping raise public awareness that there are beautiful animals here, worth saving. She has shown that the araras azul are more than just pets; they’re a valuable asset that people come from all over the world to see in the wild.”

**H**OW NEIVA GUEDES, 40, CAME TO BE WHAT Refugio Ecologico Caiman’s owner, Roberto Klabin, calls “a warrior for the hyacinth macaw” is a simple love story of old-fashioned virtues—courage and hard work. Growing up in a small Mato Grosso town, Neiva knew, from the earliest age, what she wanted to be in life: a doctor. But at the end of her first year in pre-med, her father died suddenly, leaving his wife pregnant with the couple’s sixth child and no means of support. Neiva, the eldest girl, dropped out of college and went to work as a secretary. “For more than a year things were very black,” she

**When he created Refugio Ecologico Caiman 15 years ago, landowner Roberto Klabin (above) was the first to claim that ecotourism would be the salvation of the Pantanal. Left: An 81-day-old juvenile hyacinth.**



Hump-backed zebu cattle have coexisted with the wildlife of Mato Grosso do Sul for centuries. The sight of herds driven by hard-riding cowboys is a common one in the Pantanal. Pantaneiros were once indifferent to the hyacinth macaws; now they are the birds' protectors.

says ruefully. Eventually she saw a possible way out. She started to take night classes toward a biology degree so that if she ever had the opportunity to go to medical school, she would have completed the necessary science courses. She did so well that at 26 she won a scholarship to a master's program in biology, quit her secretarial job, and renounced her dreams of medicine forever. Neiva was hooked on science.

One June day Neiva and her environmental-education class visited Refugio Ecologico Caiman. In a tree the group saw a noisy flock of big, ultramarine birds. "Those?" said the professor. "They are hyacinth macaws. There aren't many left. I imagine they will become extinct in our lifetime." It must have been the kind of thunderbolt poets describe. No, Neiva remembers saying to herself. That cannot be allowed to happen.

She managed to get a grant from the World Wildlife Fund. A biologist taught her how to climb trees and band chicks, and the forestry police loaned a soldier to work alongside her in the field. "He was sure his job was to protect me," Neiva recalls. "He would insist on preceding me into every capão, armed to the teeth." Today the University of the Pantanal, the World Wildlife Fund-Brazil, and various other nonprofit and corporate donors have enabled the project to hire full-time staff and extend their efforts across the southern Pantanal. Although the project still faces funding challenges, it has been a huge success for the hyacinth macaws. In 1990, when Neiva began her work, there were an estimated 1,500 araras in the entire Pantanal. Now there are 3,000 in the state of Mato Grosso do Sul alone. "The Pantaneiros used to call me the arara azul girl," Neiva says contentedly. "Now, 12 years later, I am the arara azul woman."

**A**FTER FIVE DAYS AT CAIMAN, NEIVA, DOUGLAS, and I hire a small plane to take us deeper into the Pantanal, to Fazenda Rio Negro, owned by Conservation International and inaccessible by car in the wet season. At Rio Negro the ground is lower. The inky black river snakes past the lodge, and there are brackish pools called *salinas* as well as the marshy *baias*—relics, perhaps, of the ancient sea that once filled this basin.

The fieldwork is different here, as well. The first nest we check at Rio Negro is inhabited by laughing falcons, the next two by native bees. We are twice caught in the open jeep, miles from shelter, in downpours of biblical proportions. Our rain ponchos are needed to protect the gear.

The fourth nest is in a capão untrammelled by cattle. It requires two hours of hacking the undergrowth before Neiva can get a line over a branch with the slingshot. The nest is high and very deep, and may have bats in it. Neiva has the lantern sent up, then a mirror, and finally a long-handled soup strainer, which the ornithologists use to lift up the chicks when the cavity is too deep or the inhabitant of uncertain parentage. This nest is also empty. Neiva is philosophical: "Caiman was like this, too, in the early days."

At a neighboring fazenda, we exchange pleasantries with the foreman, an immense man known as Bugio who is tinkering with a tractor. Neiva asks him if macaw populations are on the rise around here. He thinks they are. "The old problem was trapping, wasn't it? There's a Swiss guy hereabouts who used to take araras azul back to Europe," Bugio offers. "Two macaws equaled one Volkswagen bug, he used to say. Now the ranchers don't allow it, and the people around here aren't so poor that they need to risk it. Not like in the northeast." He reports having seen 23 hyacinths in a tree nearby, and he points out a couple of likely capões.



His spectacular tail streaming, this adult hyacinth macaw uses deep, slow wing beats to carry him to his nest at Caiman. Three feet long, with a wingspan of four feet, these macaws are highly specialized and must learn their survival skills from older birds when they are young.

“Neiva, I’ve been hoping to ask you,” Bugio continues. “The bocaiúva palms around here are getting trashed by the birds, and we don’t have many. Can we plant them?” Neiva advises him on the transplanting of finicky young bocaiúva from inside the capões. “Why do you want more bocaiúva?” I ask, thinking the answer is probably cattle feed. Bugio looks at me as if searching for some visible sign of my obvious mental deficiency. “For the araras, of course.”

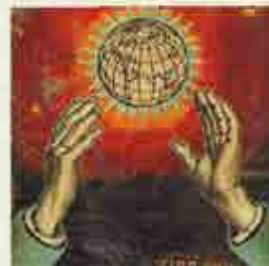
We say our goodbyes and move on. Not 500 yards from where Bugio is working is a manduvi. Douglas goes up this time, and down comes the blue bucket with a fist-sized, naked chick. Neiva scoops it up in her hand. “Wonderful! Marvelous!” she cries. She drops her face into the unlovely pink baby, which promptly poops on her shirt. “Ah,” she says mistily, “if there were a perfume called Scent of Baby Arara, that would be mine. I’m going to name this handsome little fellow Joacilei.” It is her husband’s name. Then she straightens suddenly, changing her mind. “Oh, no I’m not. He’s going to be Bugio.”

The next morning the small plane that will take us out of the Pantanal alights on the capybara-dotted landing strip. As we fly south, sun glints off the water on grassland that was dry just four days ago. The old inland sea is reinstating itself. I look down and think of my little namesake, Susan, snug in her—or is it his?—manduvi nest. If all goes well, she’ll marry a handsome blue fellow, live long, and raise many little bonbons of her own. I choose to think she will. After all, as Bernadette Lange put it, optimism might be too optimistic, but there is certainly cause for hope. 🌿

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SUSAN McGRATH lives in Seattle, but she spent eight years of her childhood in Brazil. Her most recent Audubon article was “The Last Great Wilderness” (September–October 2001).

#### WHAT YOU CAN DO



**Visit the Pantanal.** It’s the best place to see the birds and big mammals South America is famous for—and really observe them, not just glimpse a rump disappearing into the brush or a shaking branch overhead. Eco-tourism can provide an incentive to

the Brazilian government and local landowners to preserve the region. A number of airlines fly between the United States and the Pantanal. I took Varig to São Paulo and on to Campo Grande, the jumping-off place for the southern Pantanal. I stayed at Refugio Ecologico Caiman ([caiman@caiman.com.br](mailto:caiman@caiman.com.br)) and Fazenda Rio Negro ([rionegro@conservation.org.br](mailto:rionegro@conservation.org.br)) and recommend both highly. A guidebook can steer you to other places.

**Don’t buy wild animals.** Hyacinth macaws are endangered primarily because of the illegal pet trade. Before you buy a bird, reptile, or other undomesticated animal, do your research. Be sure the animal was captive-bred, not taken from the wild. If you must buy a macaw or parrot, be aware that these are highly social animals, never found alone in the wild, and that your pet may outlive you—by 20 years. For information on the pet trade, contact Traffic ([www.traffic.org](http://www.traffic.org)). **Don’t buy products made of wild-animal parts.** Although plumed headdresses, capes, and other objects have been made for centuries in South America, historically they were ceremonial objects meant to last the lifetime of the wearer. Today native tribes also make plumed souvenirs; 20 to 30 macaws may be killed for a single tail-feather headdress. **Support Neiva Guedes’s work.** Send a tax-deductible donation to Projeto Arara Azul, Fundação Manoel de Barros, Rua 26 de Agosto, 83-Centro, Campo Grande-MS, 79002-080, Brazil. —S. M.