



Food of Love

A MAN AND A WOMAN ARE SEATED AT A SMALL, CANDLELIT table in an elegant bistro on the upper east side of Manhattan. They flirt, they talk, their eyes meet often over the expensive French cuisine he's hoping will impress her. Though some may call this a dinner date, it's really courtship feeding. Other animals do it, too.

Much like our Manhattan man, the male roadrunner initiates courtship with a meal. "And he can't just show up with an insect," says Jim Cornett, curator of natural science at the Palm Springs Desert Museum in California, "it has to be a significant offering—a lizard, a snake, or a small rodent."

A male peregrine falcon may woo a potential mate with a fat pigeon, which he passes to her in mid-flight. Or he may land and pluck the bird clean while the female salivates nearby. Male chimpanzees at Gombe National Park in Tanzania catch colobus monkeys and then use the monkey meat to gain political influence or in trade with female chimpanzees for sexual favors.

The best anthropomorphic analogy may be the display of the male pyrochroidae beetle. During courtship he shows the female a deep cleft in his forehead that contains a small dose of poison, which will protect her future eggs from ants and other predators but won't affect her. He even lets her taste a little of the poison. If she mates with him, she gets a larger dose. Says Cornell University entomologist, Tom Eisner, "It's like he's showing her his fat wallet, and saying, 'There's more in the bank where that came from.'"

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NORTHERN EXPOSURE: Wildlife Conservation Society Field Veterinarian William Karesh (on right) helps gather critical information from one of only 31 northern white rhinos remaining in the wild.

• Rhino Relations •

Saving the extremely rare northern white rhino depends, in part, on continued protection of Zaire's Garamba National Park.

• Aye-Aye, Duke •

Duke University Primate Center learns all about breeding and rearing a rare lemur.

• Hot Shots, Part Deux •

The winners of our 1995 photo contest

• Is There a Cure for the Blues? •

The fates of Lear's and Spix's macaws, two rare blue Brazilian parrots, and nearby humans are subtly intertwined.

• Hidden Wilderness •

The world's largest trash heap makes an unlikely haven for birds and fishes.

• Kids' Connection •

Frogs and jumping spiders, snow leopards and chuckwallas, and pint-sized local conservation heroes.

• Big Little Zoo •

Primates on the prowl and other happenings at Rhode Island's Roger Williams Park Zoo.

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The winners of our 1995 photo contest.

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Cover: Art Wolfe photographed this impressive great egret at rest using a Nikon N90S with an 800mm Nikkor lens.

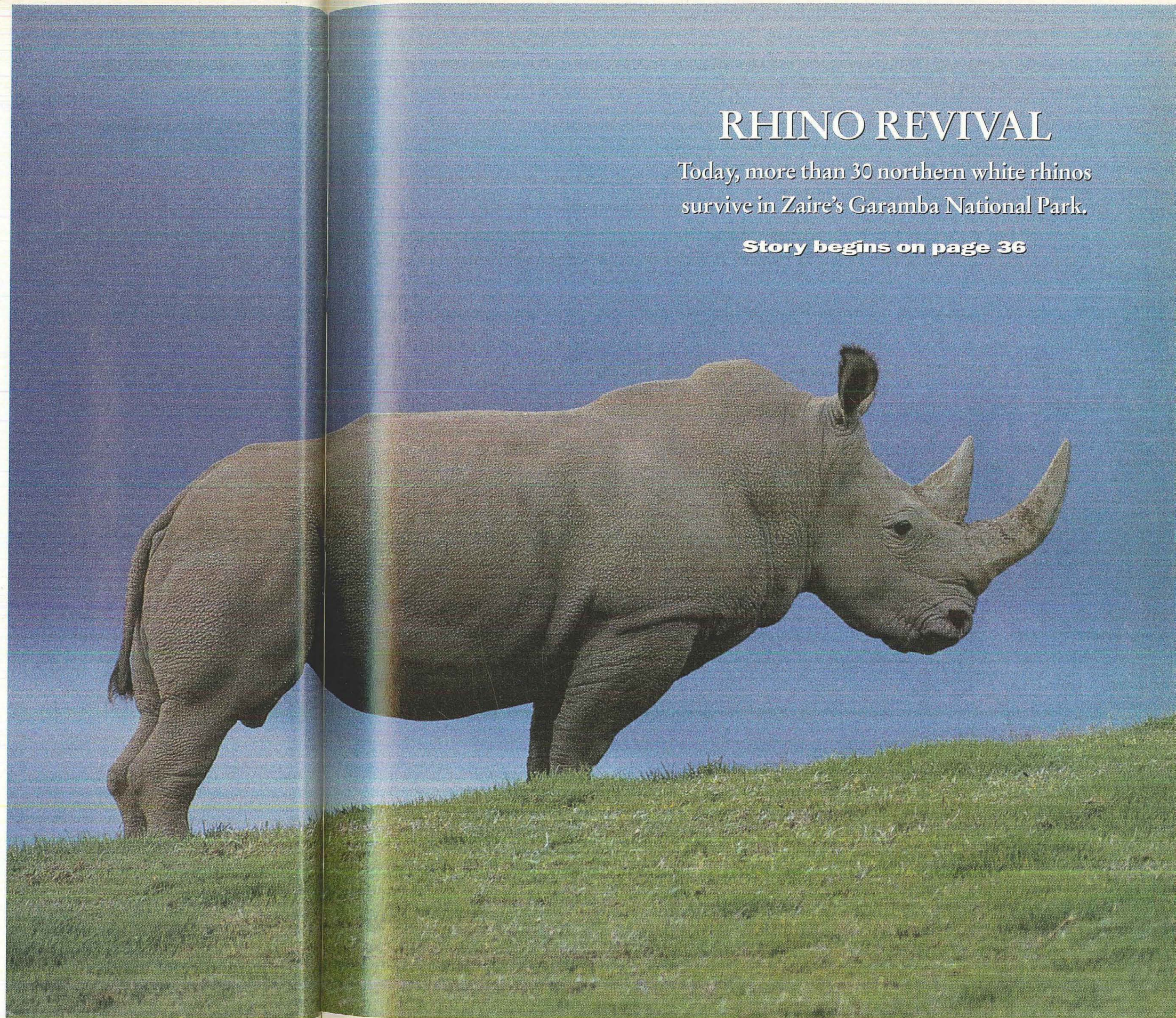
Right: This northern white rhino is one of four in a breeding program at the San Diego Wild Animal Park. Photographed by Michael Nichols.

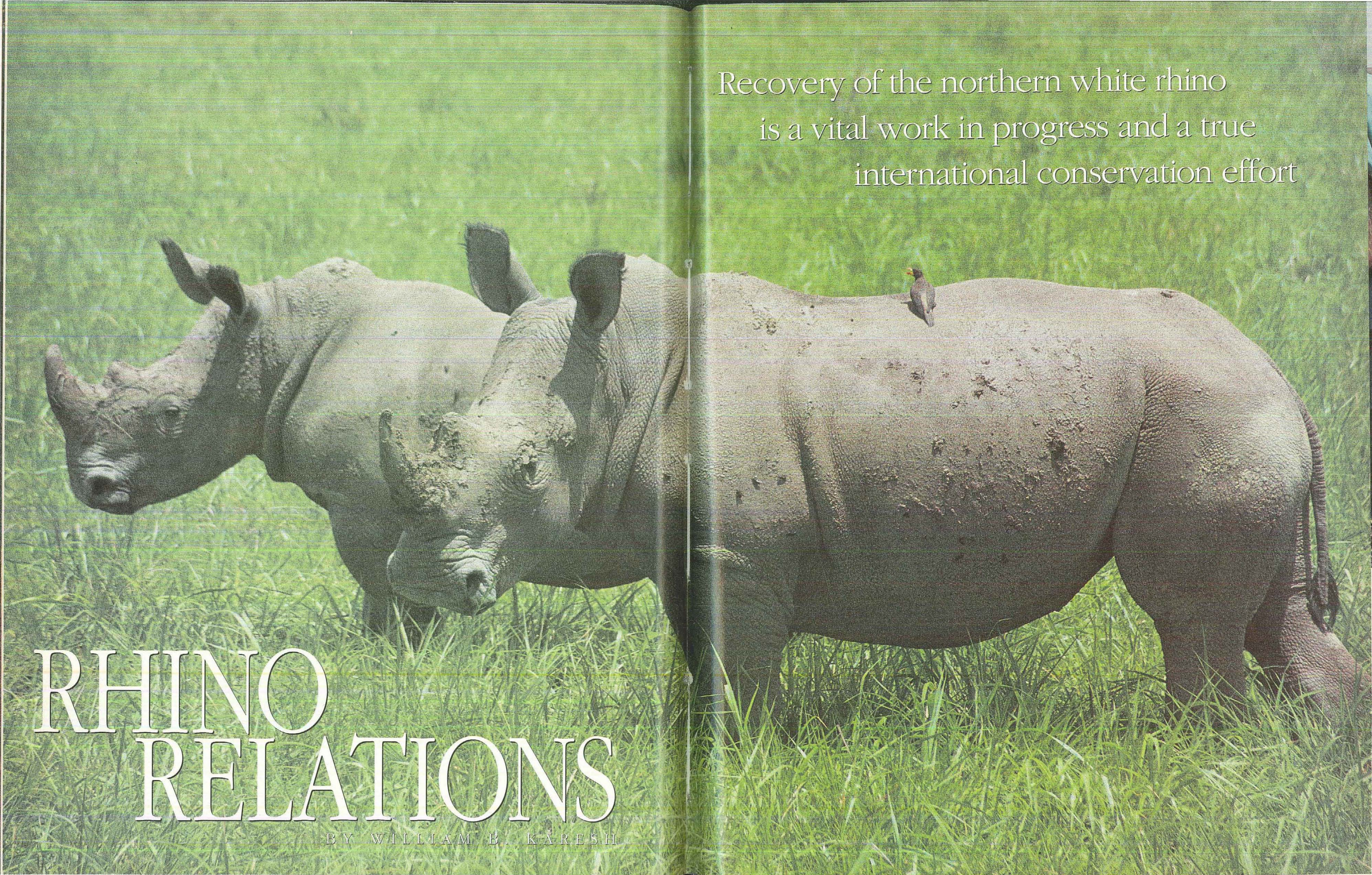
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RHINO REVIVAL

Today, more than 30 northern white rhinos survive in Zaire's Garamba National Park.

Story begins on page 36





Recovery of the northern white rhino
is a vital work in progress and a true
international conservation effort

RHINO RELATIONS

BY WILLIAM B. KARESH

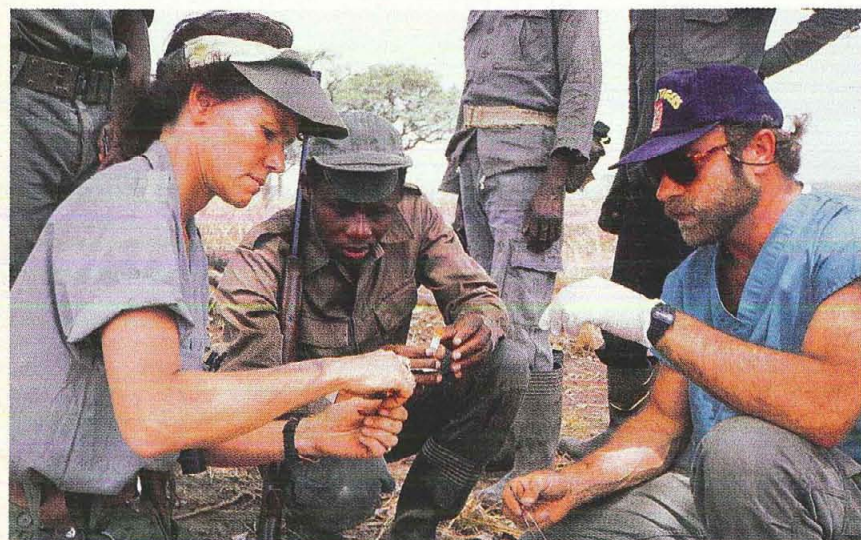
THE LONG, DRY GRASS

stems swished, crunched, and snapped as Kes Smith and I crept forward. Stopping, barely

breathing, we watched the rhinos' ears turn to catch our sounds. But the animals didn't move from their shady spot under a tree in the mid-day equatorial sun. A slight breeze was keeping our scent away from them. Slowly we inched ahead to within 35 yards. One animal stood up, acting nervous, almost suspicious. We raised rifle and crossbow, nodded to one another, and fired. Startled, the rhinos spun around and, lucky for us, ran off in the other direction. We sprinted through the grass, searching for the biopsy darts that had fallen to the ground. If all had gone according to plan, the darts carried valuable skin tissue samples from the animals, which would be used to analyze the genetic diversity among the white rhinos in Zaire's Garamba National Park.

Kes and her husband Fraser have worked in Garamba for more than ten years, redeveloping the park to protect the last population of northern white rhinos in the wild. The Smiths had asked me to help them obtain tissue samples from the rhinos in the safest manner possible—the biopsy dart, which I helped develop in 1987. Besides involving an extremely rare species, this cooperative project would forge yet another link in a chain that has connected my employer, the Wildlife Conservation Society (WCS), to Garamba National Park for more than 85 years.

It all began in 1909, when Herbert Lang of the American Museum of Natural History, Henry Fairfield Osborn, soon to be president of WCS (then called the New York Zoological Society), Theodore Roosevelt, and others were exploring the northeast part of the Belgian Con-

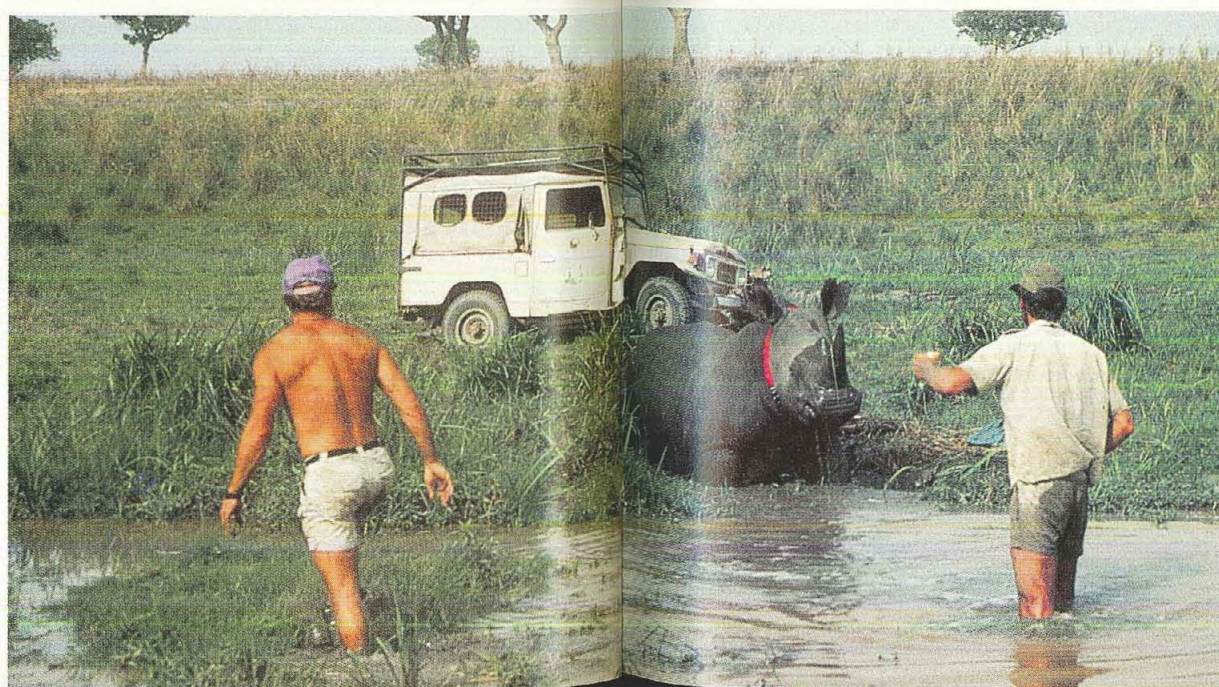


go, now Zaire. Perhaps the most significant difference between their expedition and ours was that they used bullets and spears to obtain their specimens and we used darts. We both shared an interest in the northern white rhinoceros, *Ceratotherium simum cottoni*, a rare race of white rhino. In those days more than 1,000 roamed the savannas where the Belgian Congo met Sudan and Uganda. Today, fewer than three dozen of these magnificent creatures graze there, separated 1,500 miles from their more numerous cousins, the southern white rhinos (see "The Call of South Africa," January/February 1996).

The Garamba region and its wildlife have had a convoluted history. More than a hundred years ago, King Leopold II of Belgium decided to try to duplicate Hannibal's success in training the African elephant. In order to do that, he had four trained Asian elephants shipped to the



WILLIAM B. KARESH (LEFT), KES AND FRASER SMITH (2) AND PAGES 38-37



TEAM WORK: The author (above, on right, and in photo at left) is helping to radiocollar northern white rhinos in Zaire's Garamba National Park. A vital part of the project is obtaining tissue samples from the animals (far left, Karesh with Kes Smith).

coast of East Africa and, along with 600 porters, they set out to walk to the Congo. They never made it. But the king's efforts to work with African elephants didn't end there, and by 1927 more than 50 elephants were trained and stationed at Garamba. Over the next decades these animals provided the power to maintain roads, haul goods and supplies, and cultivate the land—a virtually unheard-of concept on the continent and a perfectly appropriate technology for the remote reaches of Africa.

Trained elephants not only made the region notable, they made it manageable. In 1938 nearly 2,000 square miles of this beautiful, wild, undulating long-grass savanna were declared a national park by the colonial Belgian government. Another 3,000 square miles bordering three sides of the park were protected as wildlife reserves with sustainable use of natural resources. Of primary importance was the northern white rhino and the northern savanna giraffe, *Giraffa camelopardalis congoensis*. Garamba is still the only place these species occur in Zaire.



But times changed. Following independence from Belgium, in 1960, the new government was left to support its parks during a period of intense turmoil. Simba rebels were active in the Garamba region and to survive, the elephant trainers and their charges took refuge in the bush. When they finally returned to Garamba, the park was a shadow of its past glory, and for 20 years the staff were pretty much left to their own devices. By the second half of the 1970s, the area was thought to have 400 to 800 rhinos and between 15,000 and 30,000 elephants.

The international demand for elephant ivory and rhino horn, however, was beginning to reach even this remote site. Recognizing the threats to rhinos, the Wildlife Conservation Society sent Kes Hillman Smith, with Ian Grimwood of World Wildlife Fund (WWF), to survey rhinos throughout Africa. By 1982 the number of Garamba rhinos had

fallen precipitously, and the conservation of the northern white rhino was given highest priority by the IUCN African Rhino Specialist Group. About the same time, UNESCO (United Nations Education, Science, and Cultural Organization) recognized the importance of Garamba and named it a World Heritage Site.

A coalition of international conservation groups, led by WWF and Frankfurt Zoological Society, was organized to restore the park and protect the remaining wildlife. At the same time, however, poachers were hard at work. When Kes and Fraser arrived in Garamba in 1984 with their colleagues Charles and Jane Mackie, there were only 15 rhinos and roughly 4,500 elephants left. Spurred by the desperate situation, the Institut Zairois pour la Conservation de la Nature (IZCN) appointed a new, aggressive head of the park, Muhindo Mesi Habuye,

ELEPHANTINE PROPORTIONS:
In the mid-1980s, when Kes Smith and her husband Fraser arrived in Garamba, there were only about 4,500 elephants and 15 rhinos in the park. With Zairian wildlife officials and park guards, they began research and monitoring programs. Today, there are 11,000 elephants and more than 30 rhinos.



and a sharp, enthusiastic rhino protection officer, Mbayma Atalia. Together they built a team that began to restore the rundown buildings, train the guards and staff, and build roads, river crossings, and outposts. They started a tough anti-poaching program and began working with people in the surrounding communities. They also instituted research and monitoring programs to understand the ecology of the unique grassland and to determine the numbers and types of animals it could support. These ambitious efforts paid off. In ten years the rhino population doubled, and the elephant population increased to 11,000. Hundreds of species of birds live in the park or use it as a migration stop.

There is still a tremendous challenge to keep the park running and to protect its inhabitants. Civil disturbance and poverty have resulted in extinction of the northern white rhino in neighboring Sudan and Uganda. After 25 years of civil war in Sudan, tens of thousands of refugees and rebels in need of food live near Garamba's boundary. Park guards routinely risk, and sometimes give, their lives to protect the animals. Zaire's economy has yet to come out of its slump, and government agencies do not have the funds to protect and manage a reserve the size of Garamba. Funding from international organizations has fallen, partly in response to changes in political alliances and diplomatic issues.

Most of the wildlife in the park can only wait to see what fate brings, but some of the elephants are participating in protection efforts. Three of the four trained elephants that hid in the forest during the Simba rebellion still live and work around park headquarters. Instead of construction and agriculture work, as they did in the past, they now carry tourists safely past crocodiles and hippos to explore the wonders of Garamba. Tourism revenues help support IZCN and demonstrate the economic benefits of conserving wildlife. The fee for one tourist for one day (US \$50) covers the monthly salaries for ten park guards. Recent



threats of violence and disease have slowed the flow of foreign tourists to a trickle, but the remoteness of Garamba protects it from the human tragedies of central Africa. Adventurous tourists who come experience a piece of wild Africa unlike anywhere else.

The Wildlife Conservation Society continues to participate in the unfolding story. Efforts are under way to link Garamba with the work of Society biologists John and Terese Hart in the vast Ituri Forest to the southeast. Exchanges between the researchers and the Zairian staffs of these two areas is pushing conservation activities forward. The Society's field veterinary program provides services for both projects. We have been helping with care for the trained elephants in Garamba and with radiocollaring wild elephants to determine the quantity and quality of available habitat. We have conducted similar work on the rhinos, with



NATIONAL TREASURE: Garamba is the only place northern white rhinos (above) occur in the "wild." It also is the only reserve in which tourists can ride trained African elephants to see wildlife (left). Tourism revenues help pay the park guards (far left) and support the efforts of Zaire's wildlife conservation organization IZCN.

the assistance of Peter Morkel, a wildlife veterinarian from Namibia.

Because Garamba abuts Sudan and Uganda, it is a potential entry point for diseases. Examinations of kob antelopes, African buffalos, and elephants have provided critical information, and the Garamba staff has been trained to handle a disease crisis should one occur.

International wildlife organizations are working together to develop a long-term strategy to support Garamba and the rhinos. We hope conservation activities at Garamba National Park will continue for another hundred years. Its future, like its past, depends on the interest and involvement of people around the world.

William Karesh heads the Wildlife Conservation Society's Department of Field Veterinary Studies.

EDITORS' NOTE: The National Geographic Society will air a television special on Garamba in the fall. Look for it in your local PBS listings.