

Sciences

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Lost and Found.(wildlife conservation in Vietnam)

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Vietnam's strange, newly recognized mammalian species endured decades of war. Now biologists wonder whether the animals can survive the peace

VIETNAM IS A LAND OF STRANGE, surreal vignettes. Peddlers on city streets hawk Zippo lighters and "official" dog tags of lost American soldiers. The wreckage of American warplanes lines museum halls. The country's most popular chain of bars, decked out in a late-1960s war motif, operates under the name Apocalypse Now. As Vietnam opens its doors to foreign investment and Western tourists, the entire country, at times, seems to be a fun-house version of the conflict known here as the American War.

But that is not what I came to see. My journeys took me away from the cities and battlefields, far from the well-worn tourist trail. In a place like Vietnam, however, back-country travel isn't easy: even Cat Tien National Park, only ninety miles from the heart of Ho Chi Minh City, is not a destination for the faint of heart [see map on opposite page]. For the first three hours I rode in a van with just enough space on the floorboard and aisle to cram forty-five passengers. As an endless backdrop of rubber plantations and rice paddies rolled by, I chatted with a couple of Vietnamese biologists who were also on their way to Cat Tien. We were dropped off at Tan Phu, a collection of roadside buildings about fourteen miles from the park entrance.

The last time I had bargained for a fide on my own, I'd found it hard to make myself understood. I'd wound up pulling out a pocket calculator, punching in a figure and handing it to the driver--who would punch in a counteroffer and hand the calculator back. This time, fortunately, the two biologists negotiated rides for all three of us, and soon I was clinging to the back of a motorcycle, skirting ducks, muddy puddles and peasants toting dogs to the meat market for sale. When we arrived at the park's boundary, we were soaked and covered with red mud.

And we still hadn't reached our destination. Before us lay the broad and turbulent Dong Nai River, swollen with monsoon rains. The river seemed to act as a moat between the settled farmland and the untamed forest that lay beyond. We waited for an ancient army landing craft that was serving as a ferry, clambered aboard, then

watched as the craft dodged branches and uprooted trees floating in the swift current. When we reached the other side, I had at last entered the domain of the rhinoceros, and one of the prime centers of Vietnam's unparalleled biological diversity.

My excursion was part of a backpacking trip I made in the autumn of 1998 along the length of Vietnam, from Hanoi to Ho Chi Minh City, to bear witness to a country undergoing an unprecedented zoological gold rush. Almost two centuries ago, the French zoologist Georges Cuvier asserted, "There is little hope of discovering new species of large quadrupeds." Yet here, on the eve of the twenty-first century, biologists are proving him quite wrong. Five new species of large mammals have been discovered in Vietnam in the past decade--odd-looking beasts, and some that seem to defy categorization. Other animals, such as the handful of Javan rhinoceroses uncovered at Cat Tien, have reemerged from the forests after being feared lost to extinction on mainland Asia. The zoologist John MacKinnon of the Asian Bureau of Conservation in Hong Kong, who has discovered several of the new species in Vietnam, describes the country as a "lost world" of animals awaiting discovery.

"It's the last frontier," agrees the anthropologist Colin P. Groves of Australian National University in Canberra, who is an authority on morphology and cladistics and has classified the latest findings. Isolation, disease and an inhospitable climate have traditionally shielded Vietnam's wildlife from the outside world; only now, as the country opens up to the West, are the unclassified species of large mammals becoming accessible to biologists for the first time. And tantalizing hints of more new treasures have come to light in village cooking pots and traditional medicine stores. "Vietnam is the place to be since all the discoveries," says Groves. "Every new animal makes you think, What else is out there?"

VIETNAM'S REPUTATION AS THE LAST frontier of mammalian zoology dates back to 1992. In that year a team of biologists, led by MacKinnon and Do Tuoc, a field biologist with Vietnam's Ministry of Forestry, surveyed a tract of the remote Vu Quang forest in the Annamite Mountains along Vietnam's border with Laos. In an isolated village the biologists stumbled across some hunting trophies in the home of a local man. The horns of one animal, smooth, black and spindly with a slight bow, were quite unlike anything known in that part of Asia. That was evidence enough for MacKinnon and Tuoc to identify them as belonging to a previously unidentified species, an animal that local Tai tribesmen called the saola [see illustration on opposite page]. Four subsequent expeditions turned up twenty partial saola remains.

[ILLUSTRATION OMITTED]

Then, in 1994, the first live specimen of a saola came into the hands of zoologists. The animal stood a good three feet tall at the shoulders and weighed more than 200 pounds. Its coloring was chocolate brown, with striking white stripes along its flanks and face. The dark color and sturdy, goatlike features of the saola would serve it well as it browses at night in patches of wet, old-growth forest. But the saola is no goat: DNA analysis showed that the animal belongs to a new genus of bovine, the group that includes cattle and antelope. The shy saola is actually a strange ox.

The discovery of the saola had biologists packing their bags and booking flights for Hanoi, and the swarm of investigators that descended on Indochina soon turned up more previously unknown species. The giant muntjac, a kind of barking deer with long, sturdy antlers, was found in 1994; a new, smaller muntjac was discovered in 1997. A striped rabbit carcass turned up in a market just across the Laotian border; live specimens of the rabbit were later photographed in Vietnam's Pu Mat Nature Reserve, along the Laotian border just north of Vu Quang. And a set of unearthly horns, seemingly out of some mythical forest--graceful, ridged spirals some eighteen inches long, with a curl at the tip--turned up in a traditional medicine shop in Ho Chi Minh City. The animal belonging to the horns, the linh duong (Vietnamese for "mountain goat"), remains otherwise elusive. (Another specimen was captured in 1929 for use as tiger bait; its bones sat unstudied in a box in a Kansas museum until the 1980s.)

A SIMILAR AIR OF MYSTERY HAS dogged the six-foot-tall, 2,000-pound wild forest ox called the kouprey. Recognized as a species early in the twentieth century, the only kouprey to be studied in captivity starved to death in a Paris zoo during the German occupation of France. A recent expedition to capture another live specimen was halted after the team leader, the biologist Ha Dinh Duc of the University of Hanoi, was shot by a group of armed men on the border with Cambodia.

Given such unhappy circumstances, it is no wonder that little is known about the biology of these animals. Information about their life spans, behavior, reproduction and eating habits is speculative at best.

One would expect that any large animal discovered at the end of the twentieth century would be rare, and the wondrous species of Vietnam are clearly in peril. Economic pressures have led to a startlingly fast loss of forest habitat and to overhunting by local tribesmen. Some individual collectors, seeking to add to private menageries, have offered irresistible bounties for the live capture of the mammals. And so biologists have good reason to fear that Vietnam's newly discovered--or rediscovered--mammals, which have survived the effects of five wars in the twentieth century, might not survive the peace.

THE HUMAN RESPONSE TO THE DISCOVERIES--and to the precarious toehold the animals have on survival--has eerie parallels to the American War. Some biologists have proposed dropping listening devices on the Ho Chi Minh Trail to detect new species. Both the saola and the Javan rhinoceros have been photographed by automatic cameras triggered by breaking infrared beams or brushing against pressure-sensitive trip wires, the kind that in the past might have set off explosives. Most striking of all, field biologists are finding that they must win the hearts and minds of the villagers in order to protect the country's unique wildlife from poachers, smugglers and a few of their own overeager biologist colleagues.

Even now, as the memory of the war in Vietnam fades, the ecological effects are plainly evident. Seen from the air, the perfect rectangular grid of green rice paddies outside Hanoi is broken, here and there, by circular bomb craters. Khe Sanh, the site of an American garrison besieged during the Tet Offensive of 1968, still bears the scars of

napalm and bomb strikes. And though the vegetation is often lush, old growth is rare; most of that was destroyed by the estimated 70 million liters of defoliant that was dumped on Vietnam's forests in an ultimately futile attempt to root out the Viet Cong. Setting aside the toll on human life, the war was an ecological shock of staggering proportions.

So how could a herd of rhinoceroses or an undiscovered species of ox survive, undetected, through such an onslaught? What forces shaped and protected this lost world?

Some biologists think that other ecological crises, unfolding more slowly than the war but with no less disruptive power, may have created the conditions that gave rise to Vietnam's acclaimed biological diversity. One theory, set forth by the zoologist George B. Schaller, director of science for the Wildlife Conservation Society in New York City, suggests that the Annamite Mountains were a redoubt of rain forest throughout the last ice age, when climate shifts caused the forests to expand and contract. During wet interglacial periods, animal populations might readily have ranged across high, rugged areas, such as the mountains of Vietnam and Sumatra. During lengthy cold and dry spells, however, when the rain forests retreated, those populations could have become fragmented into discrete pockets, prevented from interbreeding by mountain barriers. Each pocket of rain forest animals would then have evolved independently of the other pockets.

Some support for Schaller's theory comes from the striped rabbit recently discovered in the Annamites: it is closely related to another species found in Sumatra, 1,200 miles away. The idea that Vietnam is home to the remnants of some kind of "lost world" is perhaps not far from the truth.

VIETNAM'S WILDLIFE HAS ALSO BEEN lost from a purely Eurocentric point of view. During the country's years as a French colony, no concerted effort was made to survey or protect its natural resources. Only two significant zoological expeditions were mounted to collect Vietnam's wildlife, and both bypassed the Annamite Mountains, the most ecologically diverse part of the country. The Annamites, particularly above the country's narrow "waist," were considered just too wet and too remote to explore.

There have been other forces that helped protect the "lost" species of Vietnam: some lucky accidents, to be sure, but also some keen foresight. North Vietnam began establishing national parks as early as 1962, and today the system encompasses ten national parks and sixty-three nature reserves, including Cat Tien and Vu Quang.

The man behind the parks system is Vo Quy, a former dean of biology at Hanoi University and the chairman of a state commission charged with protecting natural resources. Quy notes that Vietnam's newly discovered species survived the war partly because of the country's sheer size: more than 850 square miles of forest were destroyed, but most animal habitats remained far from combat. And steep terrain in wet, old-growth forests--the preferred environment of the saola--proved difficult to bomb.

QUY CITES A WARTIME EXPERIENCE of his own to explain how wildlife eluded destruction in the postwar period. A northerner, Quy

was conducting wildlife surveys in the south while the Ho Chi Minh Trail was still being bombed. Once, he recalls, he was leading a group of nine people along the trail when it became too dark and rainy to continue. Members of the group set up their tarps and hammocks in total darkness. When they awoke the next morning, they found that the earth around them was covered with "butterfly" mines--small, winged antipersonnel mines dropped from the air. Fortunately--after all, Quy is still around to tell the tale--the torrential rain had so softened the ground that the pressure-sensitive mines failed to go off. He smiles at the thought: none of the group had wanted to get out of their hammocks that morning.

But the mining of the forests, Quy notes, however insidious, has had a positive effect on wildlife. Many villagers are still afraid to go into the depths of bomb-strewn battle zones, and the trees are so full of shrapnel that they are worthless to lumber mills.

Cat Tien was also once a battleground; its dense forests provided cover for Viet Cong operations. Visitors are warned that live bombs remain unexploded in the undergrowth. But the danger posed by sleeping weapons is worth the risk, because Cat Tien National Park is a hot spot for biological diversity. The 300-square-mile park is home to hundreds of plant species and 120 kinds of birds. Biologists have also catalogued seventy-three species of mammals, including some of the last tigers and elephants left in Vietnam.

But the most intriguing species in Cat Tien is also the rarest. In 1988 a solitary rhinoceros was poached just beyond the park boundaries; further research established that it was part of a colony of Javan rhinoceroses, one of the most endangered mammals in the world. Before that discovery, the Javan rhinoceroses--which had once ranged as far as India--were thought to have dwindled to fewer than sixty, all of them confined to Ujung Kulon National Park in western Java. Although biologists have yet to see with their own eyes the colony in Cat Tien, a 1998 study of footprints suggests that as many as a dozen rhinoceroses lurk in the northern reaches of the park. Investigators are examining rhinoceros dung and snapping photographs with automated cameras in an effort to determine what steps should be taken to preserve the species. It may already be too late; no population with so few members has ever escaped extinction.

GERT POLET, THE MANAGER of Cat Tien, is tall and blond, with just enough of an accent to betray his Dutch roots. After lunch with a local official, during which he spoke fluently in the local dialect, Polet led a short hike into the jungle to look for tiger tracks and listen for the sounds of white-crested laughing thrushes calling in the foliage. A steady rain intensified until it chased us into a ranger cabin, where we sipped green Vietnamese tea and picked the leeches out of our socks. Polet, a technical adviser with WWF International in Gland, Switzerland, held court, occasionally flicking a leech across the room, and discussed the issues facing the park.

I expected him to talk about building up the infrastructure and services needed for mass tourism: bridges, roads, sewage systems, places to stay and food to eat, the kinds of things Cat Tien noticeably lacks. Instead, Polet said, he hopes that any physical improvements will be screened carefully to ensure that nothing is done to upset the local ecosystem. Polet sees Cat Tien's present isolation as a welcome

natural barrier that protects its fauna and flora from destruction. "If you build a road or bridge, you'll just bring in more cars and motorbikes and put more pressure on the park," he notes.

Polet and other ecologists in Vietnam face some of the same issues that plagued the U.S. Army in Vietnam decades ago: an overreliance on physical structures, concerns about the forced relocation of villagers to places outside the park boundaries, charges of nepotism, and cultural clashes between East and West. And even the best-intentioned national policies cannot work if local people do not respect the regulations handed down from the capital. "You can get all the official permits and everything else you want in Hanoi," one biologist said. "But in the field you're on your own. Sometimes you're at the mercy of a bunch of thugs."

Almost everywhere in Vietnam I heard the same rueful refrain: "The emperor's laws end at the village gate."

SUCH ROUGH, FRONTIER MANAGEMENT could lead to the one outcome that Vietnam's animal wealth--including its newfound species--can least afford: the loss of habitat. Since the end of the war, Vietnam's population has boomed, so much so that half of the population was born after the reunification of North and South in 1976. Much once-remote forest has been cleared to provide timber and cropland. Nearly 56 percent of the country's forests have been leveled in the past fifty years. Quy, for one, urges small-scale, sustainable harvesting of the forest, the replanting of trees and public education.

But Quy worries that even if the forests survive, they may be stripped clean of their rarest species. "As soon as you declare something rare," he says, "the rush begins." Already Westerners--including some biologists--pay large rewards for live specimens. One Danish journalist offered a large bounty for a live saola; in the resultant frenzy of trapping and hunting, one saola was inadvertently killed. For nearly two years the only giant muntjac in captivity lived in the personal menagerie of a Laotian general, whose compound was just across the border with Vietnam. His prize was guarded by soldiers toting automatic rifles.

The problems of a zoological gold rush cropped up again in my conversation over a bowl of the ubiquitous pho, or noodle soup, with the biologist Mike Hill of Fauna and Flora International in Cambridge, England. Hill's project, which has its field headquarters on the border of Cuc Phuong National Park, south of Hanoi, seeks to promote environmental education, and he travels to local schools to open people's eyes to the value of their natural resources. Hill recounted another example of the environmental pressures imposed by private collectors: the plight of the longhorned beetle--a large, attractive insect that can take years to mature. A well-known "ecological island" of the beetles lies on the outskirts of Hanoi, and outsiders are not allowed to gather them there. But local people are exempt from the restrictions, and so outsiders simply buy collection permits for the locals, and then purchase from them large quantities of the rare creatures for hundreds of dollars.

Of course, from the villagers' viewpoint the high bounties are a chance to make a lot of money quickly. Polet is somewhat sympathetic. "They want the things that money can buy," he says.

"A moped, a house that does not leak."

But poverty is not the only thing that drives local people to exploit their animal resources. Polet argues that the exploitation also stems in part from a relation with nature often different from the one common in the West. Some Vietnamese seem to regard national parks as primarily meant for noisy kinds of recreation, rather than conservation. "They see it as an amusement place," Polet says.

"They expect to see bumper cars here." Managing a park in such an atmosphere requires setting aside core areas where the particularly rare plants and animals live, but permitting limited, sustainable use in other zones. Polet envisions a partnership in which indigenous people can continue their traditional practices in the park, such as rattan harvesting, but with a strict limit to ensure that the supply is not depleted. The policy requires constant monitoring to ensure not only that no one abuses the system, but also that local people have a stake in the park.

Not every environmental manager in Vietnam agrees with Polet's approach; some think that the goals of sustainable development must be overruled whenever the potential exists for the loss of a species. Extinction is forever, as the environmentalist slogan has it, and Tilo Nadler, the head of a program aimed at rescuing extremely rare monkeys at Cuc Phuong National Park, takes that slogan to heart. Most of the species Nadler sees--such as Delacour's langur (a two-foot-long, black-and-white leaf-eating monkey) and the Tonkin snub-nosed monkey--are on the brink of extinction, their populations down to mere hundreds. "It takes twenty years to see the effect of an education program," he says, "and these species don't even have ten years." Nadler argues that in such cases the animals come first: "It is not the duty of a national park to provide everything to everybody. It cannot provide all resources.... Too little is spent on the nuts and bolts of ranger work, like jeeps, equipment and guns. No nongovernmental organization wants to buy pistols; they just want to buy posters."

AS BRACING AS NADLER'S CALL TO arms may be, it could have little effect in a country with the traditions of Vietnam. Rare and endangered animals are still demanded as ingredients in traditional medicines. And even the people charged with protecting the nation's wildlife have difficulty overcoming the culture of exploitation. At the endangered primate research center at Cuc Phuong, an interpreter confided to me: "The brains are the best part of a monkey."

One hundred thousand people live just beyond the boundaries of Cat Tien National Park. Polet's experience has taught him that without consensus and feedback from the local population, investment in infrastructure is wasted. Without enlisting the help of the Vietnamese themselves, particularly the people who live on the fringes of the ever-shrinking wilderness, the struggle to preserve the nation's strange and wonderful species ultimately cannot be won.

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