

ON THE HORNS

THE HELICOPTER CIROLED TWICE BEFORE THE PILOT found an opening to descend and drop us off beneath the towering canopy. As the blades were spinning overhead, we jumped clear and unloaded our supplies at the forest edge. I gave the pilot a thumbs-up, and he lifted straight off, disappearing beyond the treetops. He had more trips to make, shuttling men and equipment to a series of base

Can we save these rhinos?

camps before late morning rains shut us down. Staring into the sky and listening to the sound of the helicopter fade away, I thought of the teams that were already in place. After months of planning, training, and more than one sleepless night wondering if everything had been accounted for, I finally gave in to the fact that events were beyond my control. By early evening, 52 researchers and Wildlife Department staff would

be scattered in seven base camps in one of the largest and most uninhabited virgin lowland rainforests left in Borneo. We had just ten days—ten days to find out if one of the few remaining wild populations of Sumatran rhinos was still out there.

The Sumatran rhino, also known as the Asian two-horned and the hairy rhino, is the smallest, least known, and perhaps the most primitive of the world's five living rhino species. Even among the three Asiatic species, the Sumatran is physically and genetically distinct from the more closely related greater Indian one-horned and the Javan rhinoceroses. Not too many years ago, the Sumatran rhino roamed from the foothills of the Himalayas in Bhutan and eastern India through Myanmar (Burma), Thailand, the Malay Peninsula, and the islands of Sumatra and Borneo. Today, breeding populations of Sumatran rhinos are thought to exist only in a few forest pockets in Sumatra, peninsular Malaysia, and northern Borneo. Some individuals may still be scattered in remote areas of Myanmar and Thailand.

The fate of the Sumatran rhino had not been uppermost in my mind on my first visit to Borneo, in 1986. My purpose then was to survey the jungles for the elusive clouded leopard. At that time, it was already feared that the Sumatran rhino was close to extinction in Borneo. On this second trip, five

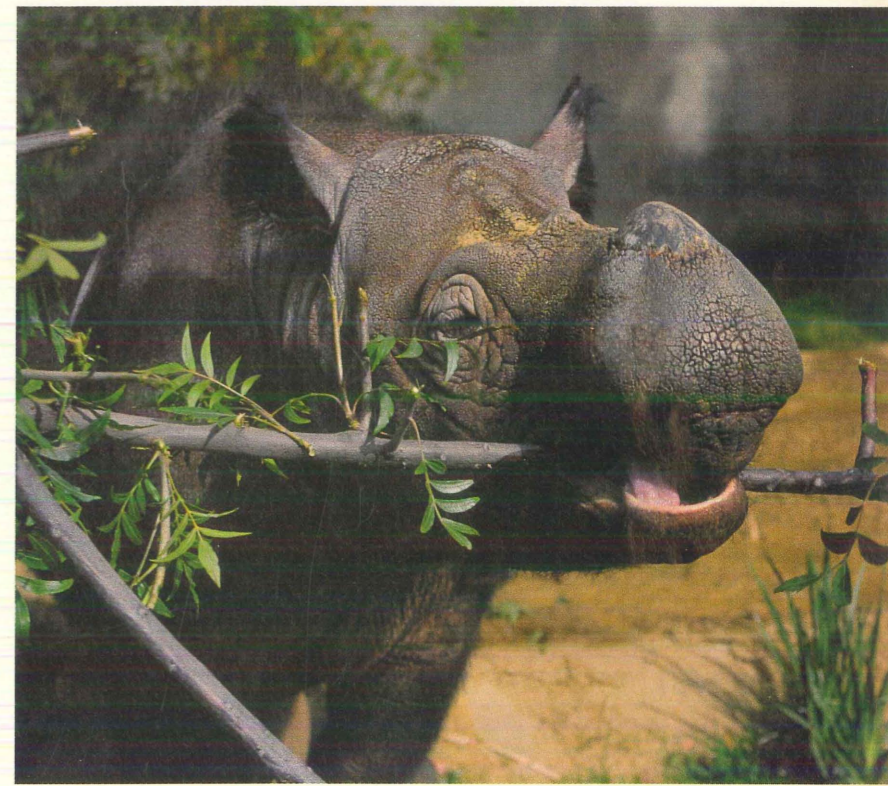
OF A DILEMMA

By Alan R. Rabinowitz





WOOLLY BUT NOT SO WILD: As the author soon discovered, seeing a wild Sumatran rhino is a rarity—mainly because there are so few of them. These close-ups in captivity show the species' distinctive long hair (left) and its habit of feeding on leaves (page 33) and saplings (below).



BILL MENG/WILDLIFE CONSERVATION SOCIETY (LEFT); KENNETH W. FINK/BRUCE COLEMAN, INC. (RIGHT); RON GARRISON/ZOOLOGICAL SOCIETY OF SAN DIEGO (PAGE 33)

years later, I was back in the Malaysian state of Sabah at the request of the director of wildlife to train the staff and to help initiate surveys of some of their most threatened species. The Sumatran rhino was top priority on the department's list.

For more than ten years, scientists and experts had believed that only two areas in Borneo contained viable rhino populations: Tabin Wildlife Reserve and the Danum Valley region, both in southeastern Sabah. The estimated number of

tection and expansion of the Danum Valley Conservation Area, a stretch of virgin rainforest administered by a quasi-government organization called the Sabah Foundation. Part of a large timber concession that had been temporarily set aside for forest research, Danum Valley was recognized internationally as one of the last areas of hope for the Sumatran rhino. The question was, were there any rhinos left there?

When asked if I would design and coordinate a rhino sur-

logistics of such a survey. Previous inventories by wildlife staff had been little more than walkabouts resulting in inconsistent and highly variable data on rhino presence. The best way to accurately determine Sumatran rhino densities is extensive patrolling of a single, large study site over a long period of time. My challenge was to organize a comprehensive survey that would cover a very large area in a short period of time. Unpredictable weather presented the biggest problem. The ground had to be wet enough so that we could find clear footprints. Continual heavy rains, however, would slow us down and wash away prints before we ever saw them. We chose September as our first window of opportunity.

Sumatran rhinos are notoriously shy and secretive. Local people who have lived and hunted in the forests their entire lives have never seen one. This makes the animal extremely difficult to find or study. Yet, even this smallest of rhinos cannot move its 700-pound body through the rainforest without leaving signs of its passing.

When rhinos use an area, they create wide and obvious "highways" along ridges and waterways, often with distinctive scrape marks and dung deposits. They follow these well-

established paths repeatedly and for long distances. As rhinos travel, they spend much of their time feeding on leaves, stems, and twigs, leaving behind broken and twisted saplings and heavily trampled undergrowth. Rhinos also use salt licks and mineral springs, which are often located close to waterways where the soft ground allows easy track identification. The large three-toed print of a rhino is the best evidence of an animal's presence and we can identify individuals through track measurements and casts.

Another distinctive rhino trait is the habit of taking mud baths several times a day. Where they travel regularly, rhinos make wallows, or depressions in the soil, that often take on the shape of the animal. These wallows are filled with a clay "broth" that covers the rhino's body with a layer of mud, which keeps the animal's skin moist and protects it against biting insects. After leaving wallows, rhinos rub their heads and bodies on trees nearby, leaving unmistakable marks.

Three days before the survey was to start, staff from the Sabah Wildlife Department and the Sabah Foundation met at the Danum Valley field research station. The participants had already been divided into seven teams, each assigned an area

Sumatran rhinos are notoriously shy and secretive.

rhinos for these two areas were pitifully low—20-plus and ten respectively—and there had been no proper surveys to verify these figures or to manage existing populations. Instead, a great deal of time and money was being spent to capture the few wild rhinos known to live outside these sites to establish a breeding program. So far, however, all attempts at breeding Sumatran rhinos in captivity had failed.

In 1991, government officials were considering legal pro-

vey for the 400 square miles of proposed protected area, I readily agreed. It was an opportunity to put into practice training techniques for the wildlife staff (see "Basic to Basics," July/August 1993) and to help the Wildlife Department standardize methods of surveying and monitoring rhinos. It was also a chance to search for one of the most endangered large mammals in the world.

Once I got over my initial excitement, I thought about the



MIRRED IN MUD: The author checks out a wallow (below). Its size and depth indicate whether it was last used by a rhino (left) or some other animal, such as a bearded pig. Unfortunately, most of the wallows surveyed in Sabah showed little recent use by rhinos.



FROM GARRESON/ZOOLOGICAL SOCIETY OF SAN DIEGO (LEFT); ALAN R. RABINOVITZ (RIGHT)

of 12 to 20 square miles to patrol over ten days. I was to head the team that would survey one of the more pristine and rugged sites in the center of the study area. There I hoped to establish a long-term base for future rhino monitoring by Wildlife Department officials.

During the first days we reviewed survey techniques, rhino behavior, and emergency medical procedures. Equipment and food were divided among the leaders, and team members

gotten the feel, the smell, the sights: Towering dipterocarp trees created a green cathedral that blotted out the sky. The odor of ripe and rotting fruits assaulted us, while the constant buzz of wildlife activity could always be heard somewhere in the distance. Bearded pigs and civets had to be chased out of our camp regularly. Elephants visited during the night. A sun bear wandered by while we were in the forest, leaving his unmistakable calling card: a pile of fresh feces.

however, around four o'clock, I would be awakened by the chill of the night and the almost unearthly silence. Curling deeper into the folds of my hammock, I would push away the sense of foreboding that grew with each passing day.

On the second day we found our first rhino wallow, but our excitement quickly dissipated when we realized that wild pigs had been the most recent bathers. As we widened our search, it became evident that most of the ridges and valleys contained something of interest: rhino wallows, salt licks, chewed vegetation, and animal trails. But all of the signs were old. Recent use was not by rhinos, but by deer, elephants, and bearded pigs. By the end of the first week, the rugged terrain and long hikes began to wear on us, especially because all the signs pointed to one fact: The rhinos that had once inhabited this area were long gone. What at first seemed puzzling took on ominous overtones when we found an old campsite and machete cuts on trees, marking a trail deep into the forest. Other people had been here before us.

It was not until the evening of the eleventh day, after all the teams had returned and been debriefed, that I started putting the pieces of the puzzle together. There was no ques-

tion that Danum Valley was biologically rich. We documented 41 species of mostly terrestrial mammals and primates and 91 species of birds. Yet, the rhino situation did not look good. All seven teams had found evidence of Sumatran rhinos having been in their areas in the past, but only two found signs of recent activity.

One of those two teams had been dropped off in the most remote site of the study area; while the other had never left the research station. Evidence of three different rhinos were found at each of these sites. If this distribution was representative of the entire forest block, there could be as many as 23 rhinos scattered throughout the 400 square miles. This was more than twice the previous estimates and should have been cause for optimism. But it was not.

As the first team arrived at its base camp, they had disturbed a group of hunters who left behind a large supply of food, clothes, and other items—a cache that indicated an extended stay. Later we realized that the hunters had strategically located their camp close to fresh evidence of at least two rhinos. Following the hunters' trail, wildlife staff found several older camps along a well-marked forest route.

Rhinos take mud baths several times each day.

met each night to review their plans and to get better acquainted. Excitement began to build. How many were out there? Which team would find the most? Who would see the first one? Bets were made. Just after daybreak the next morning, the teams set off, some by helicopter, others in vehicles, and the rest on foot.

Despite years of working in tropical forests, I had been in truly virgin, undisturbed regions only a few times. I had for-

In our daily surveys we crossed the trails of clouded leopards and encountered orangutans, gibbons, sun bears, Bulwer's pheasants, and deer. During rests along the river, I watched white-crowned hornbills soar along the water's edge and listened to the raucous clamor of wreathed hornbills. While we bathed in the evenings, small-clawed otters came to visit, only to be frightened off when our sudden splashing caught them unaware. In the early morning hours,



Flicker of Hope: As with the other four species of rhinos, habitat destruction and hunting for their horn (opposite) have decimated wild populations of the Sumatran rhino (above). The 800 that survive need active protection now.

Unfortunately, this was not an isolated incident. Every survey team found indications of human intrusion. There were wild animal remains at abandoned campsites, a barking deer with fresh gunshot wounds, empty shotgun cartridges, and machete cuts on trees to mark trails. Initially, I was surprised to learn that rhinos had been found in the forest adjacent to the research station, but now it made sense. The constant presence of scientists and tourists kept the hunters away, so the rhinos were safe there.

With small groups widely separated from each other, the long-term survival of any one rhino group was precarious. An abundance of salt licks and evidence of previous rhino presence indicated that low densities and patchy distributions were not the species' natural state. If rhinos range widely, as is currently believed, it is probably due more to hunting pressures than to ecological needs. Hunter presence in one of the only areas of rhino activity was a clear sign that such pressures have intensified.

For the first time in my career, I felt the frustration of searching in vain for an animal where it should have been abundant. I felt the sadness of standing inside a big, empty house and wondering what had become of the inhabitants.

Two weeks later, the distrustful eye of a Sumatran rhino followed me as I carefully flanked it to better estimate its size and weight. I was back in the forest, but this time a wood stockade and 30 miles of road separated this male rhino from

its natural home. Wildlife officials had captured the rhino and relocated it to a special holding facility, hoping it might breed with a young, lone female housed nearby. Such attempts had been tried before with three other males, with no success.

A high-pitched squeal instantly put me on guard as the rhino turned his head in my direction. It was a strange, almost childlike sound coming from such a large animal. Although I was in no immediate danger, I backed away slowly and left the enclosure, realizing I had been too long with this still wild, solitary beast. Anyway, I had found what I had come for. I had put a face to the flicker of hope that I had to believe still existed.

The Sumatran rhino is still out there. But those rhinos that continue to survive do so through luck or their skill at evading hunters. Large amounts of money and effort have been spent to produce gloomy status reports and to set up captive-breeding programs that have failed dismally. Truly safe havens for this species do not exist in the wild, and we lack data on the rhinos' real numbers and distribution. Unless there is concerted action by governments and international conservation organizations to monitor and protect the last few wild populations of Sumatran rhinos, we will once again sit as idle spectators in the arena of extinction.

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Rhino Realities

THE DECLINE IN THE NUMBERS OF RHINOS REVOLVES PRIMARILY AROUND A SINGLE part of the animal's anatomy—the horn. Use of rhino horn for traditional medicines in Asia can be traced back to writings as early as 2600 B.C. Even at that time, Asiatic rhinos were considered scarce in parts of their range; but the numbers of rhinos that survive today are pitiful representations of what once existed, and the species' scarcity has only increased their value.

In the booming marketplaces of Asia, there is no shortage of demand for rhino horn. A recent survey in Taiwan indicated that 77 percent of traditional pharmacies possessed rhino horn, while 41 percent of licensed doctors still prescribed rhino horn for their patients—despite the fact that the horn may be the most expensive ingredient in Chinese medicines. The price of African rhino horn averages a little over US \$1,350 per pound in Taiwan; Asian rhino horn, considered more powerful and effective than the African, sells for as much as US \$27,000 per pound.

What to do about the situation plagues conservationists. Convincing governments to ban the sale of rhino horn does not work when those same governments put virtually no effort into enforcing the law. Buying, then destroying stockpiles of horn does not serve the long-term interests of rhino conservation. International pressure on consumer nations, such as China, simply forces the market underground. This leaves two alternatives: changing people's attitudes, and breeding rhinos in captivity to guarantee the species does not go extinct.

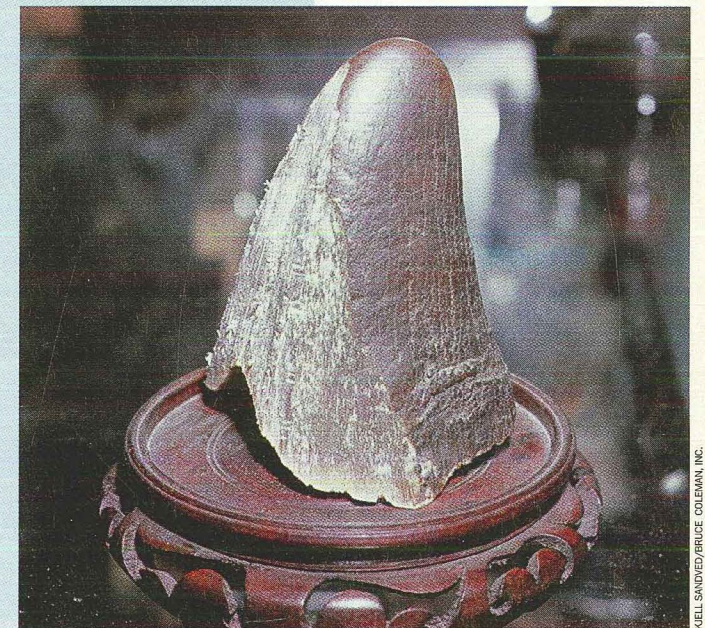
To implement the latter alternative, the Sumatran Rhino Trust was set up in 1985 between the U.S. and Indonesia zoo communities. After eight years and an expenditure of nearly three million dollars, this well-intended effort to bring together and breed wild-caught Sumatran rhinos both in Indonesia and the U.S. failed to produce a single offspring. Continually undermined by politics, greed, and corruption, the trust was finally disbanded in 1993. Attempts by Malaysia to carry out a similar breeding program have also failed. Twenty-two Sumatran rhinos currently are scattered in ten holding facilities in the United States, England, peninsular Malaysia, Sabah, and Indonesia. Cooperative efforts for breeding these animals, even within a single country, have been virtually nonexistent from the start.

There has been no lack of effort put into redrafting the Indonesian Rhino Conservation Strategy and the Malaysian Rhino Conservation Plan. Both plans now call for large inputs of money for actions that should have been taken all along: finding out where the remaining wild populations of Sumatran rhinos are and protecting them. Yet, even with additional funds, the chances that these countries will suddenly start to do what they could have done long ago are slim at best.

Changing people's attitude toward medicinal wildlife products must be done in a way that neither denigrates traditional beliefs nor tries to coerce people into new beliefs. Such an approach must be based on a sensitivity and understanding of local community needs. Media campaigns and educational programs carried out by respected members of local communities can succeed in promoting a greater understanding about medicinal alternatives, while explaining the inevitable outcome of current practices—that is, the extinction of precious native wildlife species. This approach, while time-consuming and expensive, is the only hope for the long-term survival of species such as the Sumatran rhino.

And we must begin now. Otherwise, future education efforts will take place only between the covers of a picture book.

—A.R.



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