

*The Sumatran rhinoceros needs help. As survivors of the prehistoric Pleistocene Age, these large mammals have adapted successfully to living in a rain forest environment. Today, fewer than 1,000 animals are found on the Indonesian islands of Sumatra and Borneo. Threatened by poaching and destruction of their native habitat, the Sumatran rhino is quickly becoming isolated in ever-shrinking islands of rain forest surrounded by growing human developments.*

*In the United States, the Sumatran Rhino Trust was established several years ago by the American Association of Zoological Parks and Aquariums in order to work with the government of Indonesia to save these rhinos (see Direct Line, November 1992 ZOONOOZ). There are now five of these animals living in captivity in United States zoos. The hope is that more can be learned about their reproductive biology and, of course, that their numbers can be increased through captive breeding. These efforts will undoubtedly make the difference between survival and extinction for this species.*

*Last August, a contingent of Zoological Society staff members that included Veterinarian Dr. Amy Shima, Assistant Animal Care Manager Curby Simerson, Animal Care Manager Tom Silva, Staff Photographer Ron Garrison, and Zoo Public Relations Manager Georgeanne Irvine, journeyed to Indonesia to help transport Tanjung, a young, 1,200-pound male Sumatran rhino, from his threatened rain forest home to the San Diego Zoo. There, he would be placed with Barakas, a female who had arrived from Sumatra in 1988, to form the only captive breeding pair of Sumatran rhinos in North America. The staff members each brought back descriptions and impressions of their particular specialty—capture, care, transport, and photography—that helped with this rescue effort. Their stories follow.*

*The truck carrying Tanjung, an endangered Sumatran rhinoceros, passes the animal's already destroyed rain forest home as it travels toward Jakarta. The rhino's ultimate destination will bring him to California and a new home at the San Diego Zoo.*

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## Bringing

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## Back

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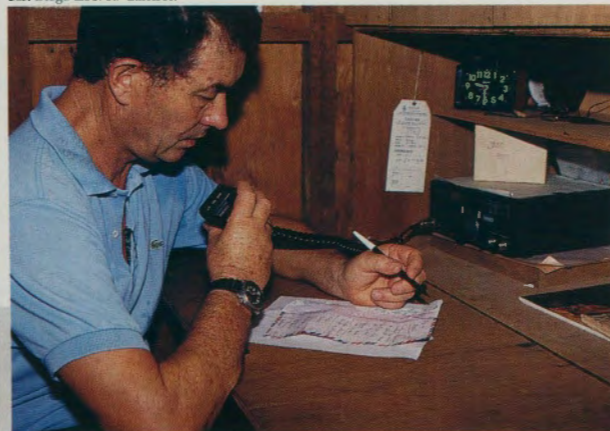
## Tanjung





Tanjung relaxes in his crate while being bathed and fed fresh browse. The rhino was slowly introduced to the crate after capture, and then he was fed and cared for while in the crate before the eight-day journey to San Diego began. In this way, he became familiar with the new environment and more readily accepted the trip.

San Diego Zoo: R. Garrison



Tony Parkinson directs the field projects of the Sumatran Rhino Trust and has had a great deal of experience in both Africa and the Philippines in dealing with the conservation and capture of exotic mammals.

San Diego Zoo: R. Garrison



The Sumatran Rhino Trust (SRT) was established as a joint operation between the Indonesian government and the American Association of Zoological Parks and Aquariums (AAZPA) and has been implemented as a Species Survival Plan. It now includes four participating United States zoological institutions.



**Opposite:** Workers build the track—which consists of logs laid out as a path—leading from the capture site to the nearest main road, **top**. It can take as long as two days for a dozen workers to manually push the rhino crate along the track for several miles to the waiting truck. The rhino is then moved to the base camp, which can be as far as 30 to 50 kilometers (about 18 to 30 miles) from the capture site. Along the way, workers can encounter obstacles such as swamps, rivers, and hilly terrain, **below**. Often a bridge needs to be constructed on the spot and the crate pushed over it to reach the truck waiting on the other side.

Curby Simerson



Barakas enjoys her mud wallow in the corral at the trap site in 1988. Once the rhino has walked into the pitfall trap, then workers throw in soil to elevate the ground level, and the rhino walks out of the trap into a corral that has been built by the project workers.

In order to track and capture the shy and elusive Sumatran rhino in its dense rain forest habitat, Sumatran Rhino Trust workers must first identify a trail used by the animals as they move within their territory. This is where the workers then set the pitfall trap. From their nearby fly camp, they check the trap twice a day to ensure it has not been flooded or triggered by other large animals.



Curby Simerson

## Out of the Jungle and into the City

Curby Simerson ASSISTANT ANIMAL CARE MANAGER/ZOO

Surveying the jungle for rhinoceros trails in order to capture an animal like Tanjung is a time-consuming task. There are two basic types of trails. The first type is a small feeder trail formed by animals passing through and eating vegetation as they move. The second type is a larger trail that is frequently used by the animals to move within a territory. The field team found that the Sumatran rhinoceroses primarily used the larger trails. Unfortunately, the process of locating a fresh, well-used trail can take months in the dense forest foliage.

Another difficulty often encountered in this operation is that the larger trails, once discovered, are also used by the logging industry. Heavy trafficking of these trails forces the wildlife, including the Sumatran rhinoceros, away from the disturbed area. When a larger, undisturbed trail is discovered, it is monitored until a rhinoceros passes through; within the next six weeks, the animal will most likely use the trail again if it is left undisturbed.

A modified pitfall trap is then constructed by the Indonesian workers. The traps are six feet deep, lined with timber, and the floor cushioned with one foot of leaf litter. The top is covered by a set of doors that meet in the middle. A trigger mechanism is adjusted to allow smaller animals to pass over without falling





**Below:** The Sumatran Rhino Trust's base camp near Ipuh, Sumatra, is an important part of the rescue process. The rhino is first brought here after capture and the animal's health is carefully monitored over several months. Tanjung enjoyed a daily romp with his keeper, Sakur, as part of his exercise routine and became acclimated to people, mechanical sounds, and his crate while there.



San Diego Zoo: R. Garrison



San Diego Zoo: R. Garrison

into the trap; but when an animal with sufficient weight passes over, the doors fall open and the animal slides down the doors onto the cushioned floor. In addition to rhinoceroses, Malayan tapirs commonly trigger the trap, and the unwanted animal is easily released unharmed. When the trap is completed and set, the workers retreat to a small camp three to five kilometers (about two to three miles) away from the trap site. Two to three people monitor the trap on a daily basis. The small camp is supplied via a footpath leading to the base camp. This is located on the periphery of the jungle, at the end of an old logging road, and allows reliable four-wheel-drive vehicle support.

When a Sumatran rhinoceros is discovered in a trap, all available workers enter the jungle with equipment and tools needed to build a holding corral for the captured animal. Time is a significant factor in getting the rhinoceros out of the trap, because it may take approximately two days to complete a corral under the best of circumstances. The corral is at one end of the trap, with an alley serving as a connection. Dirt is piled into the trap, and the animal walks up the dirt ramp into the corral. Once in the corral, a door blocks the alley in order to keep the rhinoceros inside. A small barn for protection and an area for a mud wallow are added, as preparations are made to move the rhinoceros to another holding structure at the base camp.

The most efficient way to move the rhinoceros out of the jungle is to put it into a crate. Workers at base camp begin building a crate while others work to widen the foot path and lay wooden tracks on which the crate will be moved. It takes approximately one month to complete these tasks. The crate is fastened to a sledge with rollers and is then manually pushed on the tracks to the trap site. Meanwhile, at the trap site, the rhinoceros is becoming acclimated to its captive diet of alfalfa hay, alfalfa pellets, and native plants. The rhinoceros is fed in a chute, which is part of the corral, in order to prepare the animal for easier loading

into the crate. When the crate arrives, it is firmly attached to the end of the chute. The rhinoceros is then coaxed into the crate with food and is ready to be transported. The loaded crate is replaced on the sledge and is pushed towards the base camp.

Usually, base camp is reached within one or two days. Depending on the terrain, this may include the building of bridges across swamps and rivers. The crew might also have to negotiate steep hills that require the use of ropes and winches to move an animal weighing several hundred pounds. On one trip, it took an entire day to move a rhino 500 meters. Upon arrival at base camp, the animal is released into a holding pen and its health conditions are monitored. It takes approximately two months to coordinate the land, sea, and air transport for Sumatran rhinoceroses.

## Doctor to a Rhino

Amy Shima, D.V.M. VETERINARIAN/ZOO

As a veterinarian, one of the most satisfying things about escorting Sumatran rhinoceroses is that they are wonderful, hardy travelers and suffer from few medical problems related to translocation and transport. I actually believe that the animals come through the journey in better condition and with less stress than their human attendants. I have been the "veterinarian in attendance" for the journey of four of the Sumatran rhinoceroses that have come to the United States as part of the Sumatran Rhino Trust. During three of the journeys, my medical skills have been called into play only twice (three times, if you count advising



*Caring for Tanjung in transit was the job of Veterinarian Amy Shima. Much of Dr. Shima's work had to be done by climbing on the rhino's crate, helped here by Assistant Animal Care Manager Curby Simerson, so that she could look and reach through openings to check on such conditions as tail abrasions, urine and fecal output, and body temperature. Daily, Tanjung enjoyed a quick shower to keep his skin from drying out.*



San Diego Zoo: R. Garrison



San Diego Zoo: R. Garrison



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one of the human travelers who was suffering from a case of gastrointestinal distress): to treat a case of sore muscles and overexertion, and to tend minor skin abrasions and lacerations.

In spite of the fact that the rhinos are good travelers, our preparation for each trip is extensive. As veterinarians, we try to be prepared to deal with a wide range of situations that might arise during the course of the journey. Preparations for the first trip, in November 1988, were the most difficult, because no one knew just what to expect from either the trip itself or the animals. But, by the time we needed to make arrangements for the most recent trip, in August 1992, the packing procedure was almost routine.

Among the medical problems we try to be prepared for are such things as: trauma cuts and bruises caused by loading the animal into the traveling crate; muscle soreness caused by traveling for long distances over rough roads; gastrointestinal upset or colic brought on by travel; having the animal panic in the crate (the animal may then need to be tranquilized); and spraying the animal with insecticide to comply with United States government animal health importation regulations. In addition to medical supplies, we also have to consider what kind of equipment—tarps, ropes, sprayers, flashlights—we might need to bring with us from San Diego.

Our veterinary work begins upon arrival at the holding compound in Sumatra. There, the animal caretakers give us an update on the condition of the rhino, and we are able to make a visual inspection. On this trip, we discovered that Tanjung had several abrasions and cuts on his tail. Because even a minor injury can become seriously infected in a short time under the hot, humid conditions in Sumatra, treatment of the injury began at the holding compound and continued throughout the journey to San Diego. Twice a day we thoroughly cleaned the wounds and applied an antiseptic astringent solution.

Monitoring Tanjung's condition during the trip involved

climbing onto the truck bed and peering into his crate. A typical exam consisted of feeding Tanjung some browse while looking at his oral mucous membranes; checking to see that his eyes were bright and not sunken in; feeling the ears and body to judge whether he was getting too warm; taking a rectal temperature, if indicated; and monitoring his respiratory rate. We also monitored his food and water consumption, as well as fecal and urine output.

Prior to leaving for the United States, quarantine regulations require that the rhinos be sprayed with an insecticide. This is to reduce the chance that ticks potentially harmful to our domestic animal industry are not accidentally brought into the country. The Jakarta Zoo was our stopover point for this procedure, and they provided fresh browse and the appropriate Indonesian government veterinary supervision.

Once on the plane, Tanjung seemed a bit concerned about the first takeoff and landing between Jakarta and Amsterdam, but then he adjusted well to travel. Pressurized air and high altitudes associated with jet travel tend to dehydrate rhinos, just as with people, so we had to take special care to make sure he drank plenty of water and was regularly sprayed with warm water during the flight. By the end of the trip, Tanjung was in much better shape than we were. Apparently, rhinos don't suffer from jet lag!

Once Tanjung arrived at the airport in Los Angeles, the final hurdle came with processing all the permits and paperwork. A USDA veterinarian met us at the airport and inspected the health papers and the rhino. Then it was off to San Diego. Fortunately, the home team of veterinarians took over once Tanjung arrived at the San Diego Zoo hospital. The general veterinary opinion has been that the rhino arrives looking much more rested and relaxed than the veterinarian who has been traveling with it. Still, it's the kind of work that makes being a veterinarian for the San Diego Zoo one of the most rewarding jobs around.



*Driving across some roads in various states of disrepair could be arduous, so Tanjung's crate was securely fastened to the truck with wood and rope. Openings in the crate allowed inspection by Animal Care Manager Tom Silva and Veterinarian Amy Shima, besides providing Tanjung with an opportunity to view his new surroundings during transport.*

San Diego Zoo: R. Garrison



San Diego Zoo: R. Garrison

*Moving Tanjung's crate onto the back of a truck for the land portion of the trip to San Diego was a herculean effort requiring the construction of ramps fastened to the rear of the truck and a mighty "heave ho" by a number of strong backs.*

## On the Road with "Badak"

**Tom Silva** ANIMAL CARE MANAGER/ZOO

When we arrived at the base camp on August 23, near Ipuh in Sumatra, Tanjung had been well acclimated to people, mechanical sounds, and being confined to his travel crate. Since his capture on March 19, 1992, he had enjoyed being the center of attention of at least a dozen Indonesian caretakers, overseen by Tony Parkinson of the Sumatran Rhino Trust (SRT). Tanjung was one of several animals to be captured and transported from Sumatra since the trust was formed in 1987, so the procedure had been well refined and everyone knew what to do. On this trip, Curby Simerson and I were responsible for the care of Tanjung during transport, which included ensuring that all paperwork

and logistical arrangements were in order. Tanjung was used to being fed various species of browse by hand and had been introduced to our staple diet of alfalfa and herbivore pellets to facilitate the transition to a zoo diet.

Preparations for travel included rental of a truck large enough to accommodate his crate, several caretakers, browse, and various other supplies, including a compressor to pump water from rivers and streams along the route in order to clean the crate and give the animal his daily bath. Animal transports of this duration can be stressful, and keepers must carefully monitor all aspects of the animal's physical condition. Small wounds can become severe infections if the animal's resistance is lowered.

We awoke early our first morning after arrival at the base camp to begin a five-day journey back to Jakarta through the heart of Sumatra. Jakarta had the nearest airport capable of accommodating jumbo jets used for transport of rhinoceros cargo. Being near the equator, the weather was hot and humid but not unbearable. Tanjung was enticed into his crate with browse and the door was secured. Two ramps were fastened to the rear of the truck and logs were positioned on the ground, over which the crate was manually pushed and rolled. With two or three good "heave ho's," the crate was pushed up the ramp and into place on the bed of the truck.

After thoroughly securing the crate with wood and ropes, we





Tom Silva

*Tanjung's trip to San Diego took him first by foot and by truck down the island of Sumatra, by ferry to the island of Java, and then by jet to Amsterdam. During the air portion of the journey, he was checked by his keepers, generally about once an hour, and also given fresh food and water. Sumatran rhinos are usually fairly docile, and Tanjung simply slept for much of his trip. After arriving in Amsterdam, Tanjung and his crate were moved to the KLM Animal Hotel, a special animal holding area, during an eight-hour layover. Here, he was fed and watered while his crate was cleaned for the final leg of the flight to Los Angeles.*



San Diego Zoo: R. Garrison

were on our way to Bengkulu, a six- to eight-hour drive over roads in varying stages of repair or disrepair. The crate, built from wood, allowed plenty of room for the animal to lie down but not to turn around. Openings at both ends and at the top portion of the crate provided good ventilation as well as a good observation point for the rhino to see his surroundings and for us to view him during transport.

Our caravan to Jakarta included an Indonesian forestry official and a district police officer whose vehicle was equipped with a flashing light and siren that was used at every opportunity. Although irritating at times, the siren did help to clear traffic when there was a problem.

Overnight stops along the route were prearranged so that the truck could be easily parked before dark and to allow easy access to water. At least one attendant was on duty 24 hours a day, and the police officer was on hand to deter curious onlookers from climbing on the crate to see and touch the "badak," the Indonesian word for rhinoceros. It was important that Tanjung be thoroughly rested overnight, after being jostled about in his crate all day, in order to minimize his stress level.

Tanjung's care for the drive down the island was routine and consistent. An ample supply of browse was provided — jackfruit and ficus species mostly — which was replenished easily by walking into the forest and cutting what was needed. His general condition was carefully monitored by Dr. Amy Shima. The

caretakers kept a log of daily water consumption to ensure that he was drinking enough and not at risk of becoming dehydrated; and he was sprayed and splashed with water to keep his skin moist and cool enroute.

On our fifth day of travel, we crossed the Sunda Straits to the island of Java on a large ferry and continued our drive to the Jakarta Zoo, where arrangements had been made to park the animal overnight. The following morning, after spraying Tanjung for ectoparasites, we boarded a KLM flight to Amsterdam. A KLM attendant was on hand to escort the animal and to ensure that the crate was positioned properly on the plane. The flight was uneventful, and after an eight-hour layover at the "animal hotel" in Amsterdam, we were on our way to LAX. During the flights, we were allowed free access to the cargo area in order to monitor the animal's condition. At this point, Tanjung was showing signs of fatigue and spent most of the time sleeping.

We arrived in Los Angeles on August 30, 1992, and were met by San Diego Zoo staff. After clearing customs, Tanjung was loaded into an enclosed trailer and driven to the Zoo hospital to begin his 30-day quarantine period. He was weighed and sprayed again for ectoparasites, under supervision of a USDA veterinarian. All agricultural materials, browse, and alfalfa had to be put in infectious waste bags and the crate and trailer thoroughly cleaned and disinfected before we were finished for the night.

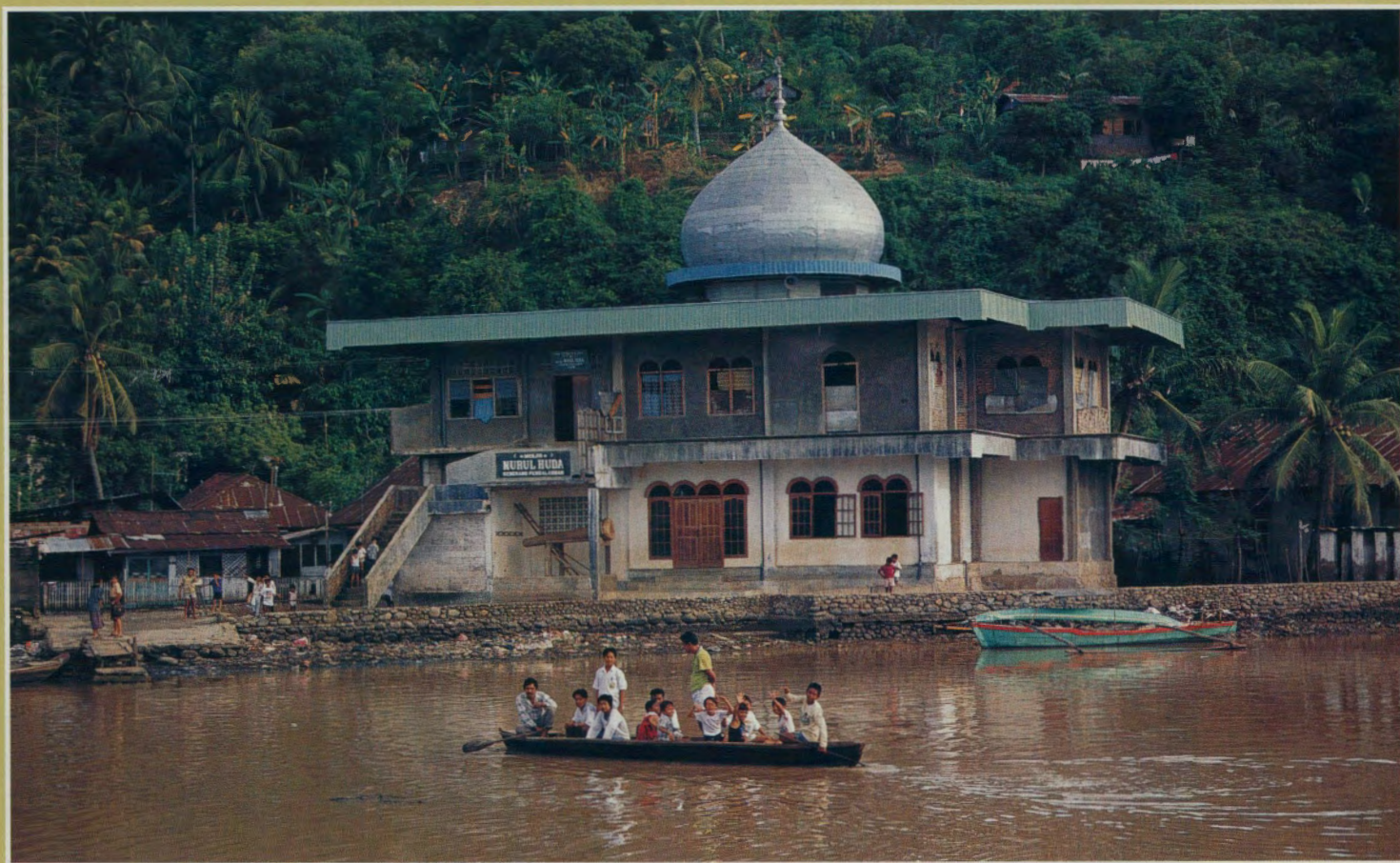


# One-way Ticket from Sumatra

Georgianne Irvine PUBLIC RELATIONS MANAGER/ZOO

Once I arrived in Sumatra, I realized I was in for an unusual adventure. But nothing had prepared me for the wide range of emotions I would experience as we traveled through a country — unfortunately, often at the expense of its wildlife and millions of acres of rain forest. My first few days in Sumatra were the most dramatic and my tape-recording notes the most revealing, a kind of journal of initial, on-the-spot reflections that are adapted here.

My assignment was to work with San Diego Zoo Staff Photographer Ron Garrison and free-lance Video Photographer Kurt Snider to produce a video of an important conservation mission for the Zoological Society of San Diego. We would be documenting the transport of a critically endangered, male Sumatran rhinoceros on an eight-day journey from a steamy jungle base camp in western Sumatra to San Diego by truck, ferry, and airplane. Tanjung had been selected as the mate for the Zoo's lone female Sumatran rhino, Barakas, who had arrived in 1988. Our hope is that they will produce offspring as part of the Sumatran Rhino Trust project.



*Photos by the Author*

On the ten-hour drive from Padang to the jungle base camp where we will rendezvous with the Indonesian staff and the captured Sumatran rhino, we pass mosques and incredible village scenes along the seashore. A few of the homes look like a cross between a house and a hut and have satellite dishes on the roof. It's a tremendous contrast between the old and the new. Huge piles of coconuts are for sale in front yards. And then we pass an enormous sawmill with stacks of raw logs that seem as high as the sky.



We're standing in a burned-out area of forest with a few logs still smoldering around us. It's quiet here except for the sound of a distant chain saw. This forest is dead. Not far from here are rows and rows of transmigration houses in what appear to be at least 100 acres of cleared forest. The entire area is going to be a transmigration camp. The Indonesian government is relocating several million people to Sumatra from other Indonesian islands in order to give them a better life. Each family is provided with a two-room house and five acres of forest to farm. The tragedy of the project cycle is that farmers move in, chop down rain forest, farm the land for a year or two until it is unproductive, and then they move on and cut down more forest. As I walk to the crest of the hill on a new road, I imagine the many species of animals that once made this forest their home: not just rhinos but also tigers, tapirs, elephants, monkeys, reptiles, and birds. It's strange to think that yesterday's visions—from the new road near the rhino base camp to the transmigration settlements—represent the beginning of a better life for the people of Indonesia and the end of life for certain Indonesian animal and plant species.

It's incredibly crowded here, more crowded than a market in China. It's early in the morning but people are everywhere. Kids are playing soccer in a field; families are washing clothes in the river; farmers are plowing their fields with oxen; a lady carries a big basket filled with vegetables on her head. They're selling flowers, fruits, and vegetables that I've never seen before. People love to have their photos taken here.







There he is! He's beautiful, with lots and lots of red hair. Tanjung's keeper plays chase with him every day in the pen at the base camp. Tony Parkinson, the director for the Sumatran Rhino Trust project, tells us that this is Tanjung's daily exercise session, and he loves romping with his keepers. Sumatran rhinos are gentle, friendly animals, unlike the African black rhinos that have more volatile dispositions.



Attendants are riding in the rhino truck in front of Tanjung's crate in order to keep him company, talking to him and scratching him so that he remains calm. At the end of a long day's drive, the vehicles pull over to a river and use pumps to bring up water for Tanjung.



This scene really tells a story: the rhino truck, on its way from the base camp to the coast, is passing a bulldozer that is building a new logging road into the forest. Initially, on our way to the base camp, we also headed into the forest on what appeared to be a fairly new road, and trucks loaded with logs that must be four feet in diameter passed us. It's disconcerting to see such a good road leading into the rain forest, and even more disconcerting to see that logs are coming out of it. The farms and villages we're passing must once have been part of a continuous band of rain forest. All along this coast are new roads and buildings, which indicate that a large population is being moved in here. At one time, Sumatran rhinos lived in these same coastal areas. Today, because of habitat destruction, they have moved up into more inaccessible mountain habitat. **ZNZ**

**EDITOR'S NOTE:** "Out of the Jungle and Into the City," by Curby Simerson, is excerpted from a paper presented at the 1989 American Association of Zoological Parks and Aquariums Annual Conference and published in the 1989 AAZPA Proceedings.