The Sumatran Rhinoceros Project

by Francesco Nardelli

On Friday, 24th May 1985, an historic agreement was signed in Jakarta for the formal establishment of a project for the conservation of the Sumatran rhinoceros (*Dicerorhinus sumatrensis*), a project based on close co-operation between the Howletts and Port Lympne Foundation and the Indonesian Directorate-General of Forest Protection and Nature Conservation. The signing of the agreement by Professor Rubini, on behalf of the Directorate, and Francesco Nardelli, on behalf of John Aspinall and the Howletts and Port Lympne Foundation, was witnessed and endorsed by the Indonesian Minister of Forestry and the British Ambassador, who described the project as an imaginative illustration of the sort of collaboration between the two countries discussed by the Indonesian President and the British Prime Minister during Mrs Thatcher's recent visit. The whole scheme has been made possible only by the determination and perseverance of both Professor Rubini and Mr Aspinall.

The two-horned Sumatran rhinoceros is the smallest of the five species in its group — rarely more than 135 centimetres at the shoulder — and one of the most seriously endangered mammals in the world, thanks to the loss of its preferred rain-forest habitat, poaching, and other factors upsetting the normal patterns of the animal's life in the wild. The new project will be run as a comprehensive conservation for the species, aimed at ensuring its survival by the protection of viable populations in the wild and the establishment of captive breeding colonies, both in Indonesia and at Howletts. Initially, the capture of four pairs of rhinos is planned, the first and fourth pair to be sent to Howletts, the second and third to be settled in a breeding centre in Indonesia, which will be developed with the help of people and technical advice from Howletts. Permits for the export and import of the rhinos were granted by both governments concerned when the agreement covering the whole project was approved, although all captured animals and their

Sumatran rhino female 'Jeram' at Malacca zoo. She was caught by farmers in 1984 whilst she was wandering in the forest. *(Photograph by Francesco Nardelli)*

progeny will be owned jointly by the collaborating partners.

Howletts will support a team of field workers from its own staff and the Indonesian Directorate of Nature Conservation, which will choose the animals to be captured, concentrating on those prevented from breeding by destruction of their habitat or other factors threatening their survival. If more than eight doomed rhinos are located, extra ones may be captured, and any which are infertile or die in captivity may also be replaced, if and when others become available. A preliminary survey has shown that the Torgamba district in the eastern part of Sumatra contains enough rhinos to make it a likely source of the first captures. This region has some of the last groups surviving in the lowlands, and the team will start work there in July. The Field Supervisor representing the Howletts Foundation will be Francesco Nardelli.

The management of successful captive breeding colonies has become a Howletts speciality, and financial and technical help from this source will include the training of keepers and veterinarians in both Indonesia and England, as well as advice on the care, treatment, and transport of captured rhinos. Help will also be given to plans for increasing the protection of viable groups of rhinos in the wild, especially those in national parks and other sanctuaries. If the captive breeding programme is successful, with numbers of rhinos increasing fast, some of its products may even be able to be sent back to reinforce wild populations. Current estimates of the total surviving in the wild vary from 500 to 750 individuals, with Sumatra itself, the last stronghold, containing between 400 and 600. The animal was once known in eastern India, Assam, Burma, Malaya, Indochina, Thailand, and Borneo, as well as Sumatra, but very few, if any, still survive in most of these countries, apart from a handful in Borneo, Malaya, and Thailand. As the first detailed description of this little rhinoceros was published nearly two hundred years ago, perhaps a halt in its sharp decline would be a good way of marking the bicentenary of its introduction to the scientific world.

The earliest zoological description of the 'double horned rhinoceros of Sumatra' was written by William Bell, a surgeon in the service of the East India Company, and published in the *Philosophical Transactions of the Royal Society* in 1793. Several typical characteristics were noted: the rough skin covered with short dark hair, and the soft-looking, bulky body, without 'that appearance of armour ... observed in the single horned rhinoceros'. An engraving of Bell's drawing of his specimen accompanied the description.

The quantity and distribution of the animal's hair varies from one to another, though it seems most abundant in young animals, and the skin on the face and within the deep folds running round the whole body is usually hairless. The ears are lined with specially thick hair and trimmed with a fringe of longer hairs — one of the animal's earlier Latin names, *Rhinoceros lasiotis,* might be translated as 'hairy-eared rhinoceros'. The hair, anything from off-white to black in colour, is also clustered in a band down the middle of the back, and on the belly and the outer sides of the legs.

The horns, smaller in the female, match the body colour, usually a darkish grey. The front horn is always the larger of the two, and the horns seem to develop at different rates, for some of the rhinos with the largest front horns on record had mere knobs as back ones. The horns can be replaced if they are lost, for they grow throughout life. Each of the broad, flat feet bears three nails. The measurements of rhino footprints seem to vary with the quality of the ground, for the soft skin beneath the feet is quite elastic.

Wallowing rhinos have been heard giving contented buzzing sounds, varied by snorts and grunts, though a series of squeaks seem to be the usual sound of an undisturbed rhinoceros feeding. Captive females have also been known to give loud whistles. Verdicts on the rhino's hearing range from acute to rather poor, though most writers agree that it has a well-developed sense of smell, on which it must rely to help compensate for less good sight.

Although primary tropical rain forest is the rhino's favourite habitat, it has been recorded in other settings, from swamps at sea level to regions as high as 2,500 metres, always preferring the dense undergrowth, which was formerly widespread. Low-lying land has been cleared more easily, so that today the animals, for the most part, are restricted to dense forests in hilly or mountainous areas, which are less readily disturbed by increasing numbers of human settlers, looking for more land to cultivate. Sustained pressure on their habitat inevitably disrupts the animal's usual patterns

of behaviour, including those associated with successful breeding. Sumatran rhinos are solitary animals, except for intervals when a mating pair or a mother and calf live together. For most of the time they are nocturnal, wandering about in a large territory, though the males seem to cover more ground than the females. A good food supply may keep them in a feeding patch of about ten square kilometres for several weeks, as they browse on trees and shrubs, taking leaves, twigs, and any fruit in season. Records of their diet include over a hundred plant species from over forty families, though grasses, except for bamboo, do not seem attractive. Salt licks, visited once or twice a month, help to balance this herbivorous diet.

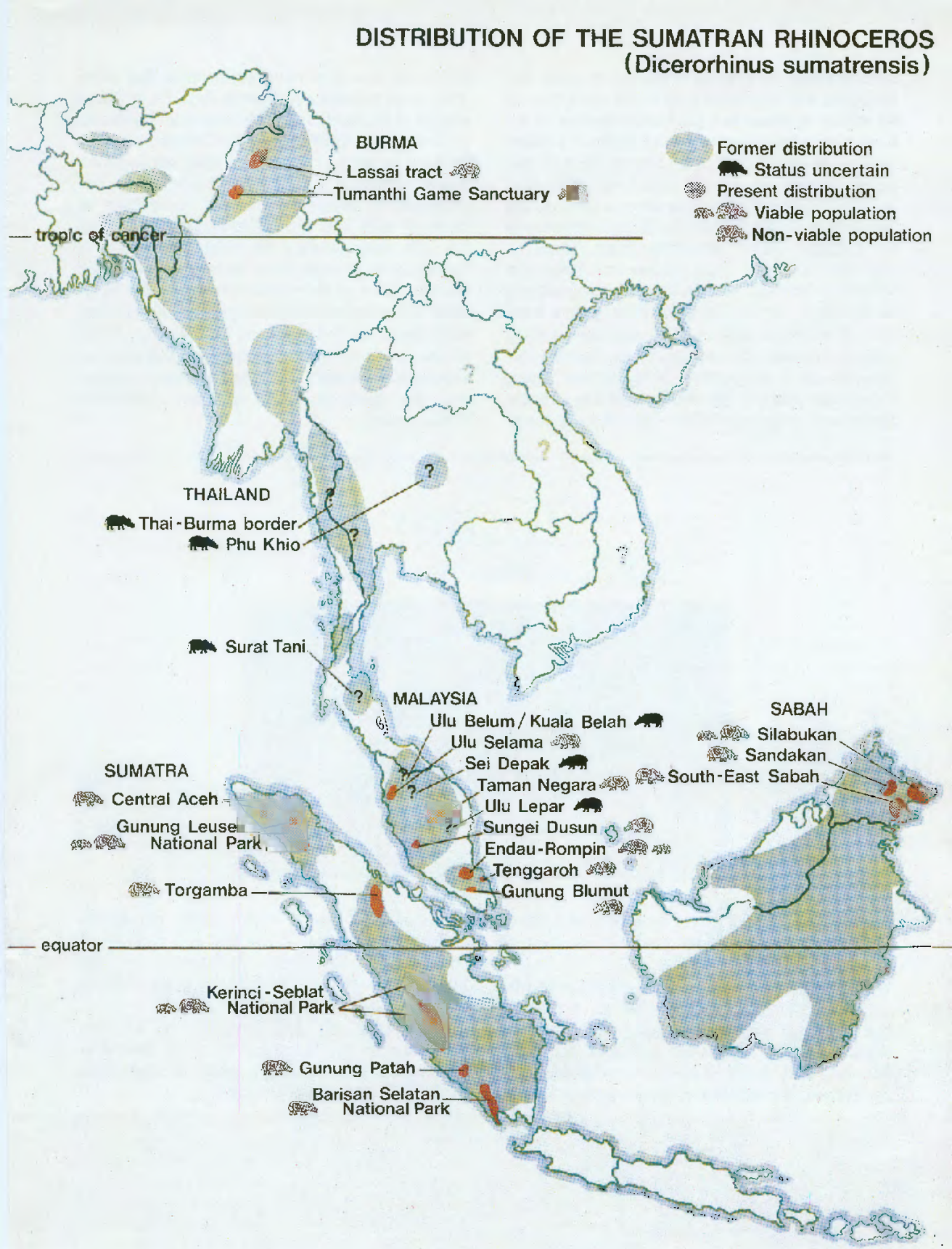
The travels of the rhino often follow well-marked trails established by other members of his own or different species. Along these paths, droppings are often left in specific, recognized areas, although rhinos may also defecate in water, if there is a stream or pond nearby. Urine sprayed on the leaves of plants along the trails is a sign of the presence of rhinos, while twisted saplings may show the boundaries of particular animals' territories, especially those of males. Main tracks may connect wallowing places too, as it is essential for the Sumatran rhino to have baths or wallows in mud as often as once or twice each day, for several hours at a time, in order to keep its skin healthy, free of cracks, parasites, and inflammation. Streams with stony beds or pools formed by waterfalls are favourite sites for wallows, which may be as large as eight metres across and are usually surrounded by a patch of trampled vegetation. The banks of the wallowing places may be eroded by the animals rubbing their skins or horns against them.

The rhino's usual reproduction pattern is still not completely clear, although studies of captive animals have supplemented observations of wild ones. Breeding is slow, perhaps only once in three or four years, with a single calf being born after a gestation period of about a year. Each calf seems to spend about eighteen months with its mother, and no other calf is born during this time. A declining population scattered over large areas of land or isolated patches of forest obviously has fewer chances of successful breeding, so that the animal's chances of survival also decline. Even in captivity births have been rare so far: two in Calcutta in 1889 and 1895 and one aboard a steamer in London in 1872.

Even before the destruction of so much of its preferred habitat, hunting was a constant threat to the Sumatran rhino. The prices given for its horn (ground to powder to supply the demand for its reputed aphrodisiac properties) and almost all its other parts, which are said to have medicinal effects, mean that hunters are still eager to trap it in pits or hunt it with weighted spears or poisoned darts. This little rhino seems to have suffered more from poaching than any other Asian species. During the twenties and thirties hunters from Thailand, having virtually exterminated the animal in their own country, crossed the border into Burma and repeated the operation there, even as late as the 1960s. Counts of the number of horns sent from Borneo and Sumatra, mostly to Singapore and China, show that hundreds of rhinos have been shot or trapped there in the last eighty years. The strong and lasting belief in the power of rhinoceros horn, especially among the Chinese, means that hunters can still sell the product of even a single beast — blood, bones, teeth, skin, as well as horns — at prices high enough to make the risk worth taking. If this trade could be stopped in cities like Singapore, Hong Kong, and Bangkok, conservation of the rhino would be given a great boost.

Surviving wild groups of Sumatran rhinos are too scattered for all of them to be protected, so efforts will be concentrated on viable ones. Successful conservation will need effective care of their habitat and the entire ecosystem needed to support their way of life. Regular surveys and a constant guard against poaching, illegal logging, and unauthorised settlements are being organized by local agencies in conjunction with the IUCN and its Asian Rhino Specialist Group.

Once rhinos are no longer able to maintain their population in the wild, captive colonies, in which the normal pattern of breeding can be started again, offer the best hope for these doomed animals. Captive breeding centres, with conditions as close as possible to the animals' natural ones, will be established in Indonesia and at Howletts, with the ultimate aim of building up groups large enough for some to be released back into the wild, in suitable protected areas, probably within national parks or reserves. New groups of this kind have particular importance in preserving the genetic diversity needed to give the rhino a better chance of survival.


DISTRIBUTION OF THE SUMATRAN RHINOCEROS
(Dicerorhinus sumatrensis)
Former distribution
Status uncertain
Present distribution
Viable population
Non-viable population
BURMA
Lassai tract
Tumanthi Game Sanctuary
tropic of cancer
THAILAND
Thai-Burma border
Phu Khio
Surat Tani
MALAYSIA
Ulu Belum / Kuala Belah
Ulu Selama
Sei Depak
Taman Negara
Ulu Lepar
Sungei Dusun
Endau-Rompin
Tenggaroh
Gunung Blumut
SABAH
Silabukan
Sandakan
South-East Sabah
SUMATRA
Central Aceh
Gunung Leuser National Park
Torgamba
equator
Kerinci-Seblat National Park
Gunung Patah
Barisan Selatan National Park

International co-operation makes it easier for financial and technical help to be mobilized in an effort to preserve a particular species. Zoos now play a major part in this kind of conservation, in contrast to their former limited role as exhibitors of exotic creatures. The first Sumatran rhinoceros to appear in a zoo was the one seen in Regent's Park in 1872, a female sent to London after spending four years in captivity in India. This female still holds the longevity record, as she lived for thiry-three years after she was caught. Two others were sent to America, also in 1872, and one of them may have been the one shown at Cambridge, Illinois, on 4 September 1874, in the 'Great Forepaugh Show'. By the turn of the century there were specimens of this little rhino in many European and American collections, but after 1919 when a female in Vienna died, there was a gap of forty years, until two females captured in Sumatra in 1958 arrived in Copenhagen and Basle. The next group of captives, in Sumatra and at Howletts, will be studied intensively, for information about the rhinos' behaviour in captivity may well add to the knowledge needed for the management of wild or semi-wild populations. It must never be forgotten that the ultimate aim of the whole scheme is the long-term conservation of the Sumatran rhinoceros in its native land. If that can be achieved, it will be another justification of the special interest at Howletts in animals from the Indonesian region and the great problems of their successful conservation.