

the motors, have been trained as guides for tourists by Prof. Schenkel. In addition some paths have been opened to permit small excursions in the neighbourhood of P. Peutjang.

In addition an information leaflet for tourists has been prepared.

We have submitted these suggestions to the Director General of Forestry, Mr. Sudjarwo, and to Mr. Walman Sinaga. We plan to follow up on these questions in 1973.

Prof. Dr. R. & Dr. L. Schenkel
Zoologische Anstalt der Universität
Basel

Project 884 Ecology of the Sumatran Rhinoceros in Gunung Leuser

WWF GRANT 1972 – \$ 2,666

Paid by Swiss National Appeal

The present range of the Sumatran rhinoceros in Sumatra includes Lampon in South Sumatra with about 15 rhinos, Riau in Central Sumatra with about 15, and North Sumatra and Atjeh with about 20 (estimates by Basjarudin, 1968). In recent times there have been no positive reports of rhinos in South Sumatra. Milton (1963) did not find any rhinos in the area of Pokambaru in Riau where Skafta captured rhinos in 1961. Schenkel (1969) gives some evidence that there might still be some rhinos in the region of Udjung Baru and Pasirpengarajan in Central Sumatra. Kurt (1970) estimates the rhino population of the Leuser Reserve and its peripheries at about 27 (rhinos heard or tracks he himself saw) to 68 (number given by local hunters).

Visibility in tropical rain forests is usually poor, often only a few metres, though it is somewhat better (30 to 50 m), in riverbeds and ladangs and other areas with less dense vegetation. Normally the flight distance is greater than the visibility distance. Due to the dense vegetation, most of the techniques normally used in an ecological or ethological study cannot be used in a study of this rare animal: direct observation is extremely difficult and would result in glimpses at most, aerial photography is impossible, and following a fleeing rhino would be hopeless. Thus the analysis of tracks takes on importance. The mapping of an animal's trail through the forest leads to an understanding of its individual range, and the analysis of faeces and identification of foodplants along the trail give clues about food habits.

If there are several tracks in an area only an identification of the individual footprints could tell something about the number of animals. Milton (1961) measured the maximum length, maximum breadth and the width of the central nail of rhino footprints.

Strickland (1967) gives only the breadth, and Kurt (1970) took the maximum width, the width of the central nail and the maximum width of the lateral nails. He did not give maximum length measurements because prints of the heel were rarely visible. All measurements were taken only of hind footprints since front footprints were often obliterated by hind footprints.

The size of an animal's footprint varies considerably with the type and condition of the soil. Strickland (1967), for example, found a difference of about 2 cm in the footprints of one animal that had left tracks in both soft mud and hard sand. Since it is difficult to identify an animal by its footprint, it might be expected that estimates of the size of the population would tend to be conservative.

Young animals are often considered adults from their footprints since their feet are relatively large. The footprint of a six months old Indian rhino, for instance, is only 3 to 5 cm smaller than that of an adult animal (Schenkel and Schenkel, 1969). If possible, pictures of the footprints should also be used to help distinguish and identify individual footprints, particularly in the case of footprints with identical measurements.

In December 1972 Mr. M. Borner of Zurich University started an ecological study in the Leuser Reserve with the goals for mapping all rhino territories; monthly visits to territories to determine by track analysis the number of rhinos present and how recently rhinos have occupied the territory; observation from hidden observation points such as tree houses in order to observe animals directly and, if possible to distinguish them individually.

Dr. Fred Kurt
Aussenstation der Universität
Zürich