Projects 839/840 Protection and Management of the Udjung Kulon National Park for the Javan Rhinoceros and other species

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Rhino research

During the 2½ months' stay of Prof. Schenkel in Udjung Kulon in 1972, and for more than one month after his departure, there was almost no rainfall in the reserve. The soil was dry and hard, streams and rivers had if any at all, only small quantities of running water left. Deciduous trees dropped their foliage and the soil was covered with dry leaves. In consequence it was not only impossible to follow rhino tracks, but even to recognize fresh footprints in most parts of the reserve.

It is remarkable that despite these adverse conditions, L. and R. Schenkel met altogether six rhinos, and during the same period guards had five more rhino encounters.

The rhino census which was performed by six teams in the same way as in former years, had to be carried out under rather unfavourable conditions. Fresh footprints were only recognizable in river beds and in a few still humid sites. Most probably a number of rhinos were missed because the footprints were not seen. On one occasion a rhino was seen, but the footprints could not be found in the hard soil, while on two occasions the fresh scent of a rhino was perceived, but no footprints seen.

The results of the rhino census (*Table I*, columns A and B) definitely represent an underestimate: 31 to 39 animals. We have evidence that a number of tracks which had been found in the days before and after the census, were not observed during the census: e, g, the footprints of a very small calf (15/16 cm) and its mother were found a few days after the census near Tjibunar. If these additional animals are included in the data of the census (column C, Table I) the number of animals ranged from 40 to 48 which is probably the more realistic figure.

Schenkel, R. 1973

Table I

Estimated size of the rhino population, based on the rhino census and on additional footprints seen before or after the census.

Width of forefoot	Census footprints A Minimum	B Maximum	Not seen in census Additional C	Minimum A+C	Maximum B+C
Below 20 cm	2	2	1	3	3
21 to 24 cm	7	9	3	10	12
25 to 27 cm	16	21 *	3	19	24
28 to 30 cm	6	7	2	8	9
Total	31	39	9	40	48

* Including 1 animal seen only, 2 animals recognized by their scent.

Table II

Census of rhino population in Udjung Kulon in recent years.

Year	Number of rhinos estimated Minimum	Maximum	Mean
1967	21	28	24.5
1968	20	29	24.5
1969	22	34	28
1971	33	42	37.5
1972	40	48	44

In comparison to the data of 1971, the total figures of 40 to 48 animals would mean a large increase *(Table II)*. This increase will have to be substantiated by another census under different soil conditions. It is planned to carry out another census during the wet season in March 1973.

During the census a rhino skeleton was found in the hole of a dry river bed near Tjimajang. Most of the bones were found in this location, some of them were scattered in the river bed, obviously dislocated by the running water. The bones which were found (skull, scapulae, leg bones and most ribs) showed no evidence of unnatural death. Two ribs of the animal were joined by a callus obviously due to an old fracture. The animal must have died several months before; the horn had disappeared completely. The age of the animal could not be estimated, but the teeth were not ground down to an extent that it could be assumed that the animal died of old age.

Attempts will be made to obtain the skeleton of this rhino for the Basel Museum of Natural History.

All the eight sample plots in which palms have been cut between 1967 and 1970 have been carefully checked this year;

an inventary of the regeneration growth in these plots has been made, the results of this inventory will be reported in detail later.

Generally it can be stated that in all plots a large number of saplings have grown and in all the plots signs of feeding by rhinos have been found. In one or two of the plots rhinos have chopped a large number of the saplings on various occasions.

In summary it can be stated that in sites with special plant communities, the selective elimination of the palms can result in an impressive increase of rhino food plants within two to three years. Whether such a place is visited by rhinos frequently, depends on its location. Obviously with increasing density of the rhino population the chance that such plots are visited by rhinos must increase.

From our observations of the Banteng population made since 1967 and during the study of Mr. Halder (1969–1971) it has to be assumed that the Banteng population in Udjung Kulon is limited by the availability of food. During the years with prolonged dry seasons (1967, 1969 and 1972) several sick and dead animals were encountered near the grass fields. Grass vegetation depends more on climatic conditions than the forest vegetation.

The animals which died during the dry seasons did not succumb to starvation; it seems rather that due to a poor nutritional status the resistance to certain endemic diseases e.g. liver fluke, decreases. The animals finally succumb to a combination of the malnutrition and other diseases.

Mr. Halder's studies have shown that the Banteng population attached to the grazing grounds is rather stable in this location and does not switch to feeding mainly in the forest vegetation in an unfavorable year, while the population which mainly lives in the dense forest only visits the grazing grounds occasionally. The forest Bantengs represent the major stock of the population of Udjung Kulon. This population would not profit from artificially enlarged grazing grounds.

These problems will be discussed in more detail in the publication which Mr. Halder is at present preparing.

Varanus salvator

Mr. P. Vogel started his study of the ecology and behaviour of this species in July 1972. He is collecting data concerning habitat preference, distribution and feeding habits mainly.

Dead Banteng and Rusa deer offered opportunities to study more intensely behaviour and social relations within local populations of Varanus. During the extremely long dry season it was possible to observe the Varanus very easily in P. Peutjang near the last pools of water and with the help of fish baits.

Unfortunately Mr. Vogel was ill for two months in November and December and had to interrupt his studies.

Protection and Management

The favourable development of the guard system which could be observed since the appointment of Mr. Widodo as Kepala

Seksi, has continued. No traces or signs of poachers were observed. The guards and their activities make a favourable impression. Buildings, equipment and motor vehicles are well maintained. Mr. Widodo was very careful and conscientious in spending the funds provided by the World Wildlife Fund.

Despite the provision of antimalarial drugs there are still from time to time cases of malaria among the guards, because the drug is not always taken. Dr. L. Schenkel has again spent time and effort to instruct the guards and their families on health sanitation and especially on the prevention of malaria.

In general the state of health is better than in previous years.

As had been planned for this year, the buildings were maintained largely from fees paid by tourists.

The building of the guard post Karang Randjang has been enlarged. The field station in P. Peutjang had been damaged heavily by a tree which fell during a heavy storm in February 1972. When we arrived in July, the field station was already again fully repaired.

The VW-Combi is now regularly used for road connection with Djakarta and Bogor and has in this function replaced the landrover. The latter is still well maintained and is used for heavy transports on bad roads, e.g. for transporting fuel for the motor boats to the shore.

The motorboat "Badak" has been out of action several times this year, obviously because a number of parts are ageing. The basic system of the engines is however still in good condition. The boat is at present again in running condition.

The boat "Mendjangan" with the Johnson 40 HP outboard motor has repeatedly replaced the "Badak"-boat for transport to Udjung Kulon. Otherwise the boat was stationed in P. Handeuleum and was used by the Kepala ressort, Mr. Sakmin, for patroling the North coast of the reserve.

The speedboat "Banteng" has continued to cause a lot of trouble and cannot be used for patrolling. The permanent problem with this boat is the lack of spare parts and of specialists for the repair of the boat. While the other boats can to a large extent be maintained by Mr. Widodo and Mr. Sugijono, in the case of the Banteng-boat this is not possible.

Problems of tourism to Udjung Kulon

Udjung Kulon is more and more visited by small groups of tourists. During the last years it has several times happened that such tourist groups, who have to pay large amounts of money to the tourist organization which brings them there, were disappointed because they did not see anything. This was usually due to insufficient information with regard to equipment (goggles etc.) and equally to poor guidance in Udjung Kulon.

Based on such experiences, Prof. Schenkel and Mr. Widodo have jointly planned some steps to improve the situation: two people who have reasonable knowledge of English, Mr. Amir from the office in Labuhan, and Mr. Sugijono, who takes care of

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.

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Project 884 Ecology of the Sumatran Rhinoceros in Gunung Leuser

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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 Skafte 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.