

strict control with full protection for rhinoceros and other rare species.

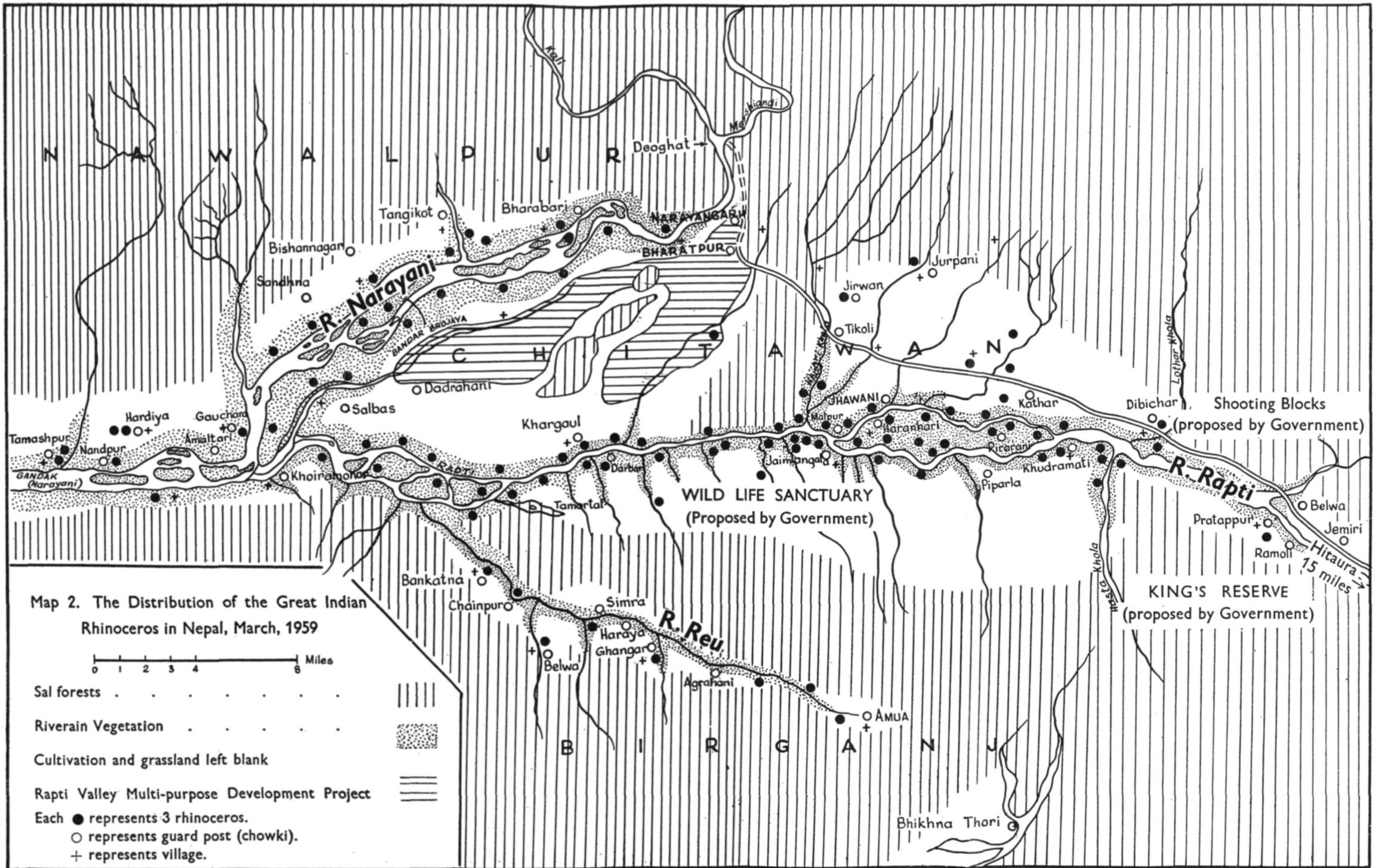
Shooting Blocks and Kings Reserve.

The area north of the Rapti at its eastern end, which the Government proposes should become "Shooting Blocks" consists mainly of foothills of the Mahabharat Range, and is under *sal* forest. The area south of the Rapti proposed as "King's Reserve" is part of the Churia Range, and also forested with *sal*. Both these propositions appear reasonable (see Map No. 2). They contain a few rhinoceros at their western extremities, under the protection of the Rhinoceros Protection Department.

A project believed to be in the blue-print stage is to divert the water of the Khagri Khola from a point about one mile north of Tikoli in the Mahendra National Park, and also the water of certain other streams in the vicinity, to irrigate part of the newly-settled grassland south of Bharatpur. If this were done, some of the rhinoceros area in the south of the present Mahendra National Park would dry up. Moreover, the only stream in the "corridor" needed for extending the present park southwards to the Rapti river, would cease to flow in the dry weather. This project is a serious threat to nature and wild life preservation; it is to be hoped that it will be shelved or modified.

VI. GENERAL ACCOUNT OF THE SURVEY

After a brief halt in Calcutta to discuss with Dr. Roonwal (Director of the Zoological Survey of India and Secretary-General of the Indian Board for Wild Life) ways of assisting Nepal to stop any possible traffic of rhinoceros produce through India, I arrived at Katmandu by air on 15th March. There I spent six days before going into camp in the rhinoceros areas, which are a day's journey by road. This period was very usefully employed in making contact with officials and non-officials, and in obtaining information of every description. These contacts included: General Kiran, S.J.B.R. (Shumshere Jung Bahadur Rana), who is the present authoritative and acknowledged leader in all matters pertaining to sport and wild life in Nepal; Field Marshal Kaiser, S.J.B.R., who, though he has not visited the rhinoceros area since 1933, has a vast store of knowledge of *shikar* and natural history; Mr. Balarama Paul Baidya, Chief Forest Officer; Major Lok Bikram, in charge of elephants (Government and others); Captain Tej Jung Thapa, Circle Conservator; Colonel and Mrs. Proud of the



British Embassy ; Mr. N. Pal, Adviser on Forests, India Aid Mission ; and Mr. Boris Lissanevitch, of the Hotel Royal, who knows the rhinoceros area.

This period of six days was also necessary to procure permits and letters of introduction to officials in the rhinoceros area—without these it would not have been possible to proceed.

On 22nd March I motored along the Tribhuvan Raj Path, the new road built by the Indian Army, over the Simbanjong Pass (8,162 feet above sea level), to Hitaura at the eastern end of the area. Here I met Mr. Sudhir Jung Thapa, the Divisional Forest Officer in charge of the Chitawan (Rapti Valley) Division, with whom I was to spend most of the subsequent sixteen days touring.

The following day we jeeped westwards along the new Rapti Valley road, with the proposed King's Reserve on our left and the proposed Shooting Blocks on the steep hills on our right, both mainly under *sal* forest. Here in the upper reaches of the Rapti the riverain strip is narrow. After crossing the gravelly bed of the Rapti river at the tiny villages of Ramoli and Pratappur we made two tours into the forest along rough forest roads used by timber contractors. This gave me an idea of the terrain of the King's Reserve at the western end of which about six rhinoceros are believed to exist. Rhinoceros wander far afield during the monsoon months, even into the town of Hitaura, I was told.

On 24th March we went into camp at Tikoli, which is at the south-eastern point of the newly-constituted Mahendra National Park, and a convenient centre for seeing the area where the rhinoceros density is greatest—Jhawani and neighbourhood. Here we were joined by Captain Gyan Bahadur Basnajt and Lieutenant Gaj Raj Joshi of the Rhinoceros Protection Department. Although our food, luggage and camping equipment had not yet arrived, I took an elephant out in the afternoon southwards along the Khagri Khola stream towards the Rapti. To the east of the Khagri Khola all is cultivation and villages, while to the west of the stream it is mainly unspoilt *sal* forest with patches of savannah. We saw tracks and dung of rhinoceros and found two of them in a secluded wallow in the thick scrub forest of the riverain tract of this stream. On our approach they immediately made off into cover.

Shortly after arrival at Tikoli, I opened up a large map of the area, and questioned the two officers of the Rhinoceros Protection Department about the numbers of rhinoceros at each *chowki* (post), sometimes at each part of each *chowki*. After

explaining to them that conservative figures were required, I compared their figures place by place with those given by the D.F.O., and then reduced them in all cases. I also obtained from them all the information I could on the types of terrain, localities of cultivation, grazing and unspoiled grassland or forest. Then I was able to re-plan my tour programme so that I could visit a sample of each rhinoceros area, and a sample of each type of terrain. So my tour was not a "conducted one"—in fact, I often later insisted on going to a spot other than that recommended for finding the greatest numbers of rhinoceros.

On the morning of 25th March we went to the Chitawan *hatisar* (elephant station) and took two elephants southwards to the Rapti river, to a riverain area near Malpur and Haranhari. Here we located six rhinoceros, including a cow and young calf, all of which appeared very frightened. On 26th March we again went to the *hatisar* and proceeded with three elephants to another area west of Haranhari. Here we found 10 rhinoceros, including 2 cows and young calves, also 3 young two-year-olds in a "school" of their own. Rhinoceros of this age are usually found still with their mothers, and I presume that these three had been driven off by their mothers when new calves were born. Nearly all these 16 rhinoceros were in dense scrub riverain forest, which is not the real habitat of this species. They were in thick cover even in the early morning. Although most of the grasslands had been burnt off, and although the young shoots were coming up—so palatable to herbivorous animals—no rhinoceros were found grazing in the open grassy areas, as one would have found in Kaziranga and other sanctuaries of Assam. There were also many fewer mud or water wallows than I expected. This might have been partly due to the sandy nature of the soil, and partly to the fact that a wallowing rhinoceros falls an easy victim to poachers. The rhinoceros in Nepal appeared to be very much more nocturnal than those in Assam, and very much more shy of human beings. Their droppings were scattered in small heaps or as single droppings instead of the large heaps found in Assam, where they lead a more natural and peaceful life.

As all the villagers of the area build *tands* (look-out towers for frightening away crop-raiding rhinoceros) both in their fields and also actually in their village vegetable gardens—in Assam the similar *tongis* are only built in the fields near a sanctuary—and as rhinoceros ditches are built round most vegetable gardens, it was abundantly clear that the rhinoceros roamed far

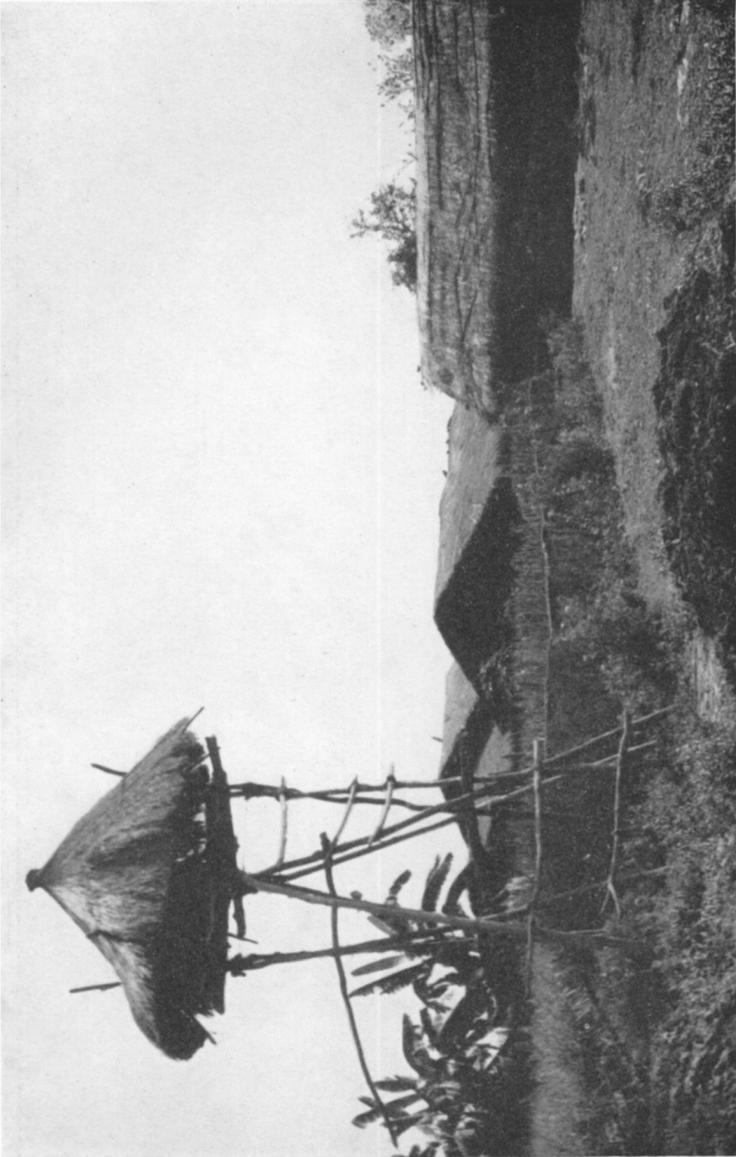


Photo : E. P. Gee.
A *tand* built to protect a village vegetable garden from rhinoceros at night. These *tands* are very common,



Photo : E. P. Gee.
A rhinoceros in riverain forest east of Haranhari. The trees are *simul* (*Bombax malabricum*).



Photo : E. P. Gee.

River Narayani near Deoghat, in Mahendra National Park.

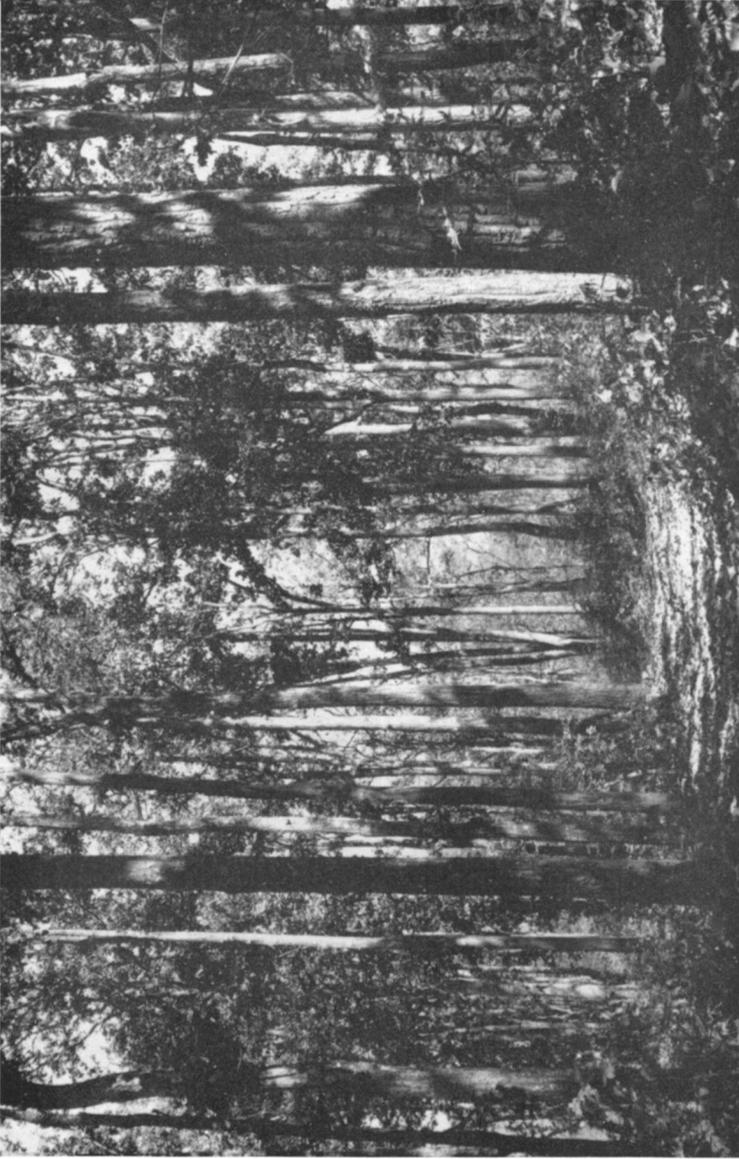


Photo : E. P. Gee.

Typical forest containing *sal* (*Shorea robusta*), in the Mahendra National Park.



Photo : E. P. Gee.

Two of the four rhinoceros seen in Bandar Bhojaya tapoo on 29th March.

The riverain forest is very thick, providing excellent protection for rhinoceros in the daytime.

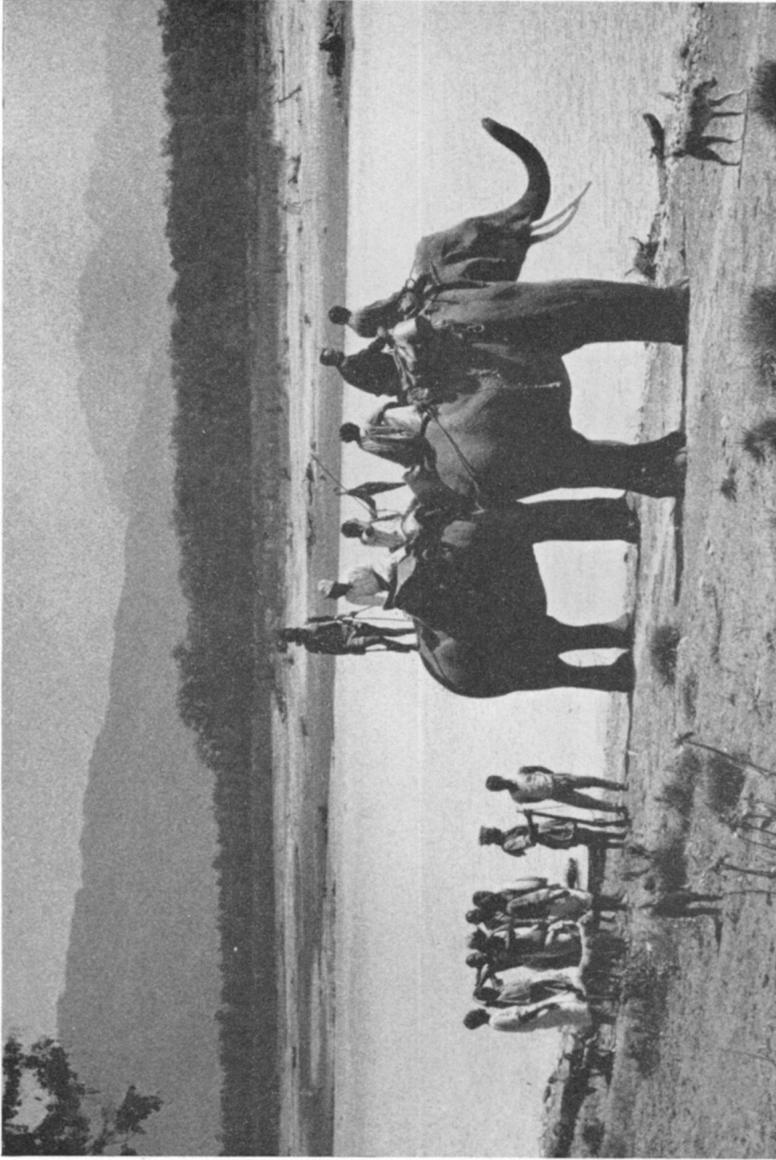


Photo: E. P. Gee.
About to cross the biggest of the channels of the Narayani river. Above the heads of the elephants can be seen part of Bandar Bhojaya *tapoo*, a large island in the river, containing rhinoceros.



Photo : E. P. Gee.
Isolated *sal* trees on the *dun* of Chitawan, with Himalchuli (25,800 ft.) in the distance.



Photo : E. P. Gee.

A newly-born rhinoceros calf with its mother.



Photo : E. P. Gre.

Cow rhinoceros and calf, near wallow half a mile from Jaimangala village.

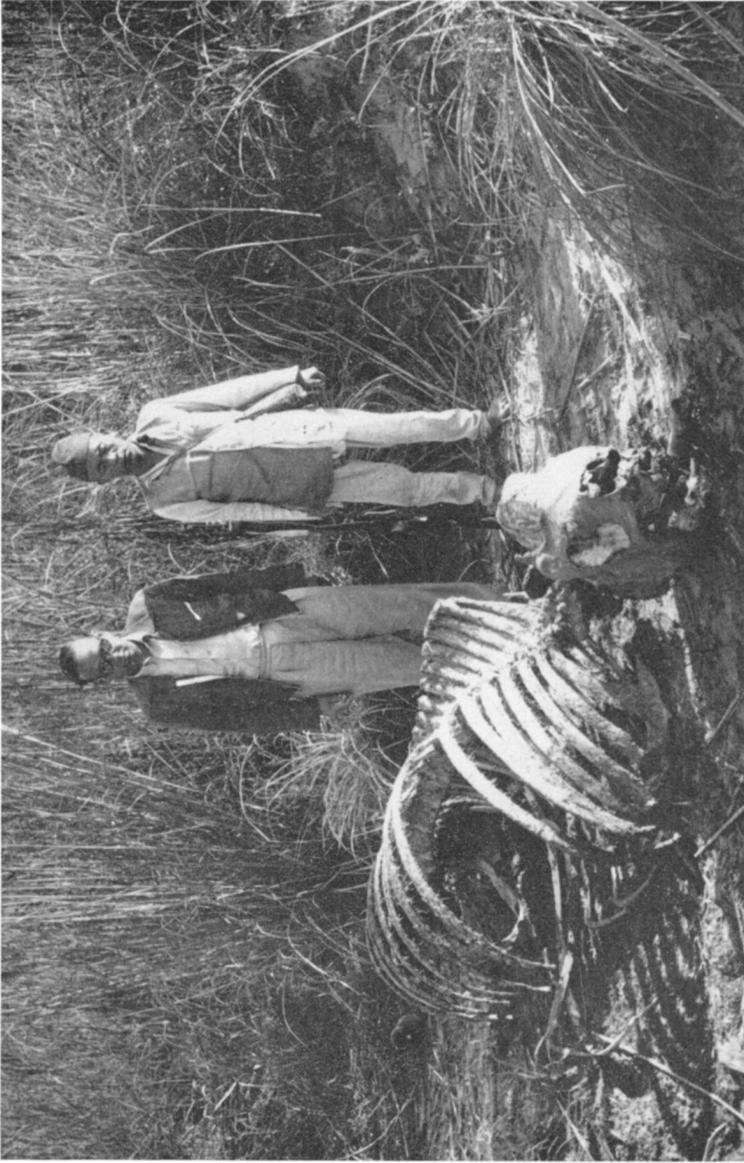


Photo: E. P. Gee.

Skeleton of a rhinoceros killed by poachers west of Jaimangala. The skull is damaged where the horn has been removed. The Captain of the Rhinoceros Protection Department is behind, with one of the Rhinoceros Guards,



Photo: E. P. Gee.

The horn of the rhinoceros in the foregoing picture which was recovered and some of the belongings of the poachers.



Photo : E. P. Gee.

Typical country of Nepal. Near the Simbanjong Pass (8,162 feet) looking north towards the Himalayas.

and wide over cultivated areas during the night, and lay up in hiding during the day. This was borne out by reports from the villagers, and from fresh rhinoceros tracks and dung seen near the villages.

The riverain forest in places is very thick, often with thorny and evergreen bush, providing ideal, though unnatural, cover for the rhinoceros. Visibility was very limited. Consequently numbers of rhinoceros we observed depended largely on the number of elephants we could muster on each visit. An observer on a single elephant could only find rhinoceros within a strip of country extending sometimes ten, sometimes twenty, yards on each side of him during a traverse in such forest. A party with three elephants could naturally traverse an area about three times as great. It is, therefore, not only for display that the rulers of Nepal have always employed a great number of elephants, over fifty at a time, for their shoots: a large number of elephants is actually required to locate and drive the game in such thick country.

Incidentally, the last of the big shoots, in January, 1959, had taken place in this very area, and over fifty elephants had driven a different square mile on three consecutive days in order to catch rhinoceros calves for foreign zoological gardens. They circled 5, 7 and 13 rhinoceros respectively on these three occasions. Although this year no cow rhinoceros were shot, as has been done in previous years in order to obtain the calf, the disturbance and fright caused to the rhinoceros of this particular place must have been considerable.

Several participants of this shoot informed me that between 50 and 60 different rhinoceros had been counted in the area covered by the shoot, which was spread over some 40 square miles (about 4 miles north to south by 10 miles west to east) between the Khagri Khola and Kathar.

The Mahendra National Park.

While in camp at Tikoli, I was able to pay three visits to the Mahendra National Park. In the afternoon of 25th March, we went by jeep via Jurpani across the *kholas* and back by Narayangarh. The *chowki* (post) at Tandkhola was a very beautiful site with a fine view of *sal*-forested hills, but there was no water in the stream. In fact, there was no water in any of the four bouldery and sandy *kholas* we crossed, although there reportedly had been during previous months. I was informed that there was a little water higher up, and that it runs underground at this point, to reappear again lower down in the rhinoceros area

of the national park. One or two water holes provide water for gaur, sambar, chital and other animals in this northern portion of the park.

In the afternoon of 26th and in the morning of 27th March, I made two extensive trips on an elephant into the south-east part of the park, where there were reported to be 12–30 rhinoceros. Although I found a few fresh tracks and droppings, I could find no rhinoceros on either of these trips, but on my return to camp I was informed that many were to be found here during the rains, though I could get no exact information about local or seasonal migrations. As this was ideal rhinoceros habitat with plenty of grassland as well as water and cover, I was puzzled as to why they should have migrated southwards to the Rapti, where there was less grazing and more human interference. My elephant on these two trips had been greatly worried by large horse-flies or gad-flies (locally known as *dans*), and possibly this may at least partly provide the answer to this puzzle.

The D.F.O. assured me that the previous year he had visited the area in the middle of April and had seen rhinoceros; and both the lieutenant and the Havildar of the Rhinoceros Protection Department said that a considerable number of rhinoceros come here in the monsoon months. I therefore became convinced that a corridor for migration of rhinoceros between the national park and the Rapti river was urgently needed, and that the national park could well be extended southwards to make it. An extract from my diary reads: "As there is forest and little or no cultivation west of the Khagri Khola, the national park could be extended southwards in a corridor about four miles wide, to include the Rapti area (near Jhowani) . . . and then southwards to the Siwalik Hills, possibly to include the rhino of the Reu Valley." As my tour progressed, I became more and more sure that the above measure was urgently necessary if the rhinoceros of Nepal were to be preserved.

I was disappointed with my first three visits to the national park, but on 27th March, I visited Deoghat after visiting Mr. Malla, Chief of the Rapti Valley Multi-Purpose Development Project. Motoring from Narayangarh along the bank of the Narayani, I was much impressed by the magnificent river and mountain scenery. The *kusum* trees were coming into new leaf and were a blaze of pale mahogany colour, and the bright red of the *Woodfordia floribunda* was much in evidence, both adding to the beauty of the *sal* trees now in their transitional stage. It then occurred to me that the forested mountains to the west

of the Narayani river and also those north of the confluence of the two rivers at Deoghat, almost totally uninhabited as I was told, could well be added to the national park. I also found that the national park idea seemed to have caught on in the district, and frequent references were made to the "national park" rather than to the "mriga kunjā". I think that this should be encouraged, and that Mahendra National Park should be this park's permanent name.

Shortly after midday the D.F.O. returned to Hitaura, and I went with the officers south-westwards through the recently settled area to Dadrahani, in order to cross the Narayani river to Sandhna in Nawalpur District. Very few people ever go to this "remote" and inaccessible area. It took us half a day to cross the different channels and islands of the river, and we reached our camp site long after dark, having travelled by truck, dug-out boat, elephant, bullock-cart and on foot.

On the 29th we visited the riverain forest near Sandhna with one elephant, and found one rhinoceros in thick cover. Then we crossed to Bandar Bhojaya *tapoo* and found 4 rhinoceros in a wallow, including a cow and tiny calf. This cow charged us twice in the thick forest. During the second charge my elephant tried to bolt and my hat and lens hood were knocked off. After we had dismounted to look for the lens hood, back came the irate rhinoceros for a third charge! In the afternoon we visited more riverain forest, and saw 3 rhinoceros. None of these 8 rhinoceros had been listed by us on the map at Tikoli.

On 30th March plans were made for me to visit an area south-west of camp, where they were anxious to show me a great number of rhinoceros. After my three recent visits to riverain tract of the Narayani, I was able to take their word for that and we visited instead the *sal* forest and hills to the west, to see that kind of terrain. Here I found tracks and droppings of rhinoceros in the *kholas*, and saw one animal. In this range of hills there are patches of grassland, *kholas* with water, and a belt of swampy ground all along the base between the hills and the 1½ mile wide strip of cultivation. This was useful information, proving that these hills could and did hold rhinoceros, and that during monsoon floods they migrated to the higher hilly region.

Having made a sample survey of the comparatively "unknown" Nawalpur area, I re-crossed the wide Narayani river back into the Chitawan District, to camp at Dadrahani. In the afternoon I took an elephant into the mile-wide riverain strip on the east bank of the Narayani, and saw tracks and droppings

of rhinoceros. Six, including two cows and calves, were said to be here. The D.F.O. had rejoined us from Hitaura. On 1st April I went to see the area at the junction of the Rapti and Narayani rivers, and also the *tals* or small lakes on the south side of the Rapti. All round here is magnificent thick rhinoceros habitat, and we saw fresh tracks and droppings, though no rhinoceros. The *tals* turned out to be small and disappointing—no comparison with the *bheels* of Kaziranga where so many rhinoceros and other species are to be seen grazing out in the open.

On 2nd April we jeeped through cultivated land, through a belt of unspoilt *sal* forest, and through more cultivated land to camp at Khargaul. This *sal*-forested portion of the *dun* contains some unspoilt country with swamp deer, chital, pig and other animals. As it apparently contains no rhinoceros in the dry weather, I have not included it in my recommendations, but the Nepal Government could well consider creating a small wild life sanctuary here.

After a night at Sandhna of unexpected and unseasonal rain, the snows of the Himalayas were a magnificent spectacle—this was the only day on which they were clearly visible in a cloudless and hazeless sky. Only a tiny peak of Dhaulagiri (26,795 feet) was visible behind a nearer range, but the whole massifs of Annapurna (26,504 feet) and Himalchuli (25,800 feet) towered in splendour before our eyes—more than ample compensation for being washed out two nights before.

I particularly wanted to see the country round Darbar, and also another and larger lake called Tamortal, and the connecting corridor through the Churia Range from the Rapti to the Reu Valley. The riverain forest and grassland near Darbar are comparatively unspoilt and ungrazed, but I saw no wild life. The *tal*, set in the midst of *sal* forest, was also disappointing, but north of the Rapti on our way back to camp on three elephants we found 4 rhinoceros within half a mile of our tents, a not unusual phenomenon as both in Nepal and north-east India rhinoceros seem to prefer the vicinity of villages and cultivation to unspoilt country.

The cart track from Darbar, past Tamortal, leads from the Rapti Valley into the Reu Valley; and while at Tamortal we were only a few miles from the Reu river. I would have liked to have had the time to visit the Reu Valley, but this could not be done. I was, however, informed by the D.F.O. that he went there as recently as November, 1958, and saw 8 rhinoceros. He described to me all the conditions of the place—similar to those in the Rapti and Narayani valleys, only on a smaller scale.

The next morning we took two elephants—one had broken loose during the night and disappeared into the forest—and traversed some more riverain country north of the Rapti, finding two rhinoceros. In the afternoon I took one elephant, the “escaped” one which had been recaptured, into the riverain belt near the camp, and photographed 2 rhinoceros.

Having seen a sample of the country round Darbar, both north and south of the Rapti, I said I would like to drive through the middle of the belt of *sal* forest and grassland that would, if approved of by the Nepal Government, be such a useful addition as a corridor to the Mahendra National Park. I also wanted to see the country to the south of this corridor, south of the Rapti. Accordingly on 4th April, we jeeped through this corridor at a point where it must have been about 6 miles wide. It consisted of comparatively unspoilt *sal* forest with patches of grassland, swamps, water holes, and of course the Khagri Khola on the eastern side. It proved to be ideal habitat for rhinoceros, deer and other animals.

Eventually we arrived at Jaimangala and camped there, in spite of the fact that cholera and smallpox were in epidemic form nearby. In the evening we took out four elephants and within one mile of camp found 9 rhinoceros. I personally saw 5, including 2 cows with young calves, and I have no reason to doubt the veracity of the others who saw an additional 4; for, on the following day I saw different rhinoceros on this very same spot. While trying to photograph a rhinoceros cow and calf, our four elephants at one time were encircling 4 rhinoceros 1 sambar stag, 2 hog deer and 2 bears. From Jaimangala westwards, most of the country appeared to be unspoilt and unoccupied by villagers, confirming my opinion that this area should be included in a southward extension of the national park.

On the following day we explored, on three elephants, the area westwards on the south bank of the Rapti, and returned along the north bank through the corridor. On the way out in the early morning I inspected and photographed the carcasses of 2 rhinoceros shot this year by poachers. I was told that the poachers themselves might have been shot had not 7 rounds of ammunition fired at them failed to go off.

Although we had seen 9 rhinoceros near the camp on the previous day, yet in this wilder country further away from the camp we saw nothing—until finally we came across a cow rhinoceros defending her pink, newly-born calf against a tiger. Our approach apparently frightened away the tiger. The rhinoceros with characteristic lack of gratitude then charged

my elephant two or three times. Photography was rendered very difficult by the fact that in Nepal the elephants are trained to charge back at a rhinoceros. In spite of this commotion, and in spite of the waving arms of the excited and gesticulating elephant-driver, I managed to secure some photographs of the newly-born calf with its mother—they must be unique.

On our return along the north bank of the Rapti, we suddenly saw, peering out of the tangle of unburnt grass, the head and horns of a solitary bull gaur (*Bos gaurus*), which immediately made off. We then searched without success for rhinoceros in two *kholas*, which had water and evergreen forest suitable for these animals. When we were near camp I dismounted from the elephant, stalked and photographed on foot 5 of the rhinoceros seen by us on the previous day, as they lay in their wallows. There were also four sambar hinds within a mile of the village.

In the evening I visited a riverain area north-east of the camp with one elephant, and found 4 rhinoceros including a cow and a young calf. Three of these were in thick grass within one furlong of our tents. The experience of this day in this area, as in all the other areas I visited, show that rhinoceros and other wild animals prefer the vicinity of villages and cultivation to the unspoilt forests and grasslands. The existence of thick cover in the form of evergreen and thorny scrub forest enables them to do this. The probable reasons are firstly and mainly a predilection for man-grown crops, secondly a certain amount of safety from predators, both human and feline.

On the morning of 6th April, we struck camp and proceeded to the house of the captain of the Rhinoceros Protection Department, where I was shown some of the rhinoceros horns and personal possessions recovered from poachers. Thence back to the main road and eastwards past the proposed "Shooting Blocks" and "King's Reserve" to Hitaura. After discussions with the D.F.O., I returned the following day over the Simbanjong Pass to Katmandu. There I spent three days discussing my observations in the rhinoceros area, with the people whom I had met earlier. Finally I flew from Nepal to India on 11th April.

VII. STATUS, DISTRIBUTION AND FUTURE OF THE RHINOCEROS IN NEPAL

Status and Distribution.

It is difficult to obtain accurate information about the former range and distribution of rhinoceros in Nepal. W. T. Blanford,