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## A STATUS REPORT ON TIGER CONSERVATION IN THE KINGDOM OF NEPAL

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### The status of the tiger in Nepal

There are 5 populations of tigers in the lowlands of Nepal. They are separated by dispersal barriers; from east to west these are:

1. The Kosi-Trijuga population: A recent report indicates that no tiger sign has been found in Trijuga since 1961. A zone of cultivation where the Bagmati River enters the Terai separates whatever remains of this population from that to the west.
2. The Chitwan population: This is the largest and at the same time best documented group of tigers in the Kingdom. The habitat consists of floodplain covered with riverine forest and tall grassland, together with a large area of upland Sal forest. Large herbivores include 4 species of deer, wild pig, gaur, rhinoceros, and elephant. The population of cointiguously distributed tigers contains 55-60 breeding adults. About half of these are included in the 1040 km<sup>2</sup> Royal Chitwan National Park. Here tiger density varies from 1/20 km<sup>2</sup> in the prime floodplain habitat to 1/52 km<sup>2</sup> in the upland Sal forest. Other tigers belonging to this population are protected in the adjacent, newly created, Parsa Wildlife Reserve 545 km<sup>2</sup> in extent. Further east addition animals of this population exist in Nepal's Bara Forest Division and, across the border to the south, in India's Tribeni Forest Reserve. A dispersal barrier that consists of an extensive tract of settled, cultivated land, lacking forest cover and tiger prey separates the Chitwan population from other conspecifics further west.
3. The Kapilvastu and Deukhuri populations. Status unknown.
4. The Karnali-Bardiya population: This is the second largest in the country, but its extent and full numbers are not known. It extends through the Banks, Bardiya and Kailali Forest Divisions. Habitat consists of Sal forest with meadows and riverine forest along the Karnali and Babai Rivers. There are 5 kinds of deer, blue bull, wild pig, and a few elephant. The best remaining habitat has been included in the 342 km<sup>2</sup> Royal Bardiya Wildlife Reserve. Recently settled land in Kanchanpur Forest Division separates the Karnali-Bardiya tigers from those at the extreme west of Nepal.
5. The Sukla Phanta population: This is confined to the 155 km<sup>2</sup> Royal Sukla Phanta Wildlife Reserve, which is entirely surrounded by cultivated land, the population thus being isolated not only from its neighbors within Nepal but also from those across the nearby Indian border. Habitat consists of meadows together with tall grassland, riverine forest, and Sal forest. There are 5 kinds of deer, including a population of more than one thousand swamp deer, blue bull, wild pig, and a few elephant. The tiger population probably contains fewer than a dozen breeding animals.

The total number of tigers in the Kingdom of Nepal is roughly estimated to be 130 breeding adult animals.

## Management Priorities for Tiger Conservation in Nepal

1. A Data Base for Tiger Conservation: The present status of tigers and tiger distribution especially outside of parks and reserves is unknown. Tiger distribution throughout Nepal needs to be mapped in order to define the number of breeding animals within each population. We recommend as a first priority project the mapping of potential tiger habitat based on the distribution of forest habitat determined from the 1982 Satellite map of Nepal. Tiger distribution can then be mapped in relation to forest habitat to determine the size and extent of discrete populations. This information will form the data base for designing a network of tiger reserve systems, to include existing parks and reserves, buffer zones, mini-cores or stepping stone sanctuaries, and multiple use areas.

2. The Kesli-Trijugal: Even if there are a few surviving tigers these do not constitute a viable population and therefore do not warrant the allocation of management resources. Another important species in this region, the wild buffalo, is already protected in the Royal Kesi Tappu Wildlife Reserve.

3. Chitwan: The best habitat was brought under protection in 1962 as a Rhinoceros Sanctuary. It was then managed as Royal Chitwan National Park, beginning in 1973, with an original area of 544 km<sup>2</sup>, which was extended to 1040 km<sup>2</sup> in 1976. A management plan for the Chitwan region by Smith and Mishra in 1980 recommended tiger management at the level of population units. This plan proposed the extension of the park to the east, the creation of the Bara Hunting Reserve. Further to the east, and co-operation with India to manage Tribeni Forest Reserve as part of the Chitwan population. The park extension has been implemented, but as a separate administrative unit, the Parsa Wildlife Reserve. The Basa Hunting Reserve has not been established because of other development considerations, but it may not be too late to reverse this decision. The possibility of reintroducing 2 species which existed in Chitwan prior to 1950, i.e. the wild buffalo and the swamp deer, has been discussed, but no decision has been taken.

Royal Chitwan National Park affords protection to a number of other endangered/threatened species in addition to the tiger such as the leopard, wild dog, sloth bear, rhinoceros, gaur, and elephant. In the Narayani River which forms the northern border of the park there are gharial and gangestic dolphin. An imminent threat to the park is the newly constructed paper mill in adjacent Nawalpur, which may pollute the Narayani River as well as bring pressure on the authorities to utilize grass resources from the Park.

4. Karnali-Bardiya: The Royal Karnali Wildlife Reserve was established in 1974. An extension which would double the size of the Reserve to a total of some 900 km<sup>2</sup> has been approved and will be implemented in the near future. Nevertheless, the tiger population extends beyond the confines of that area. There are 2 urgent priorities. The first is to map the distribution of tigers on both sides of the Karnali River so that provisions can be made to protect existing dispersal corridors linking the eastern and western limits of this population. Forest blocks outside the reserves could then be given priority ratings to ensure tiger conservation. Had this been done some years ago it might have been possible to maintain the corridor which formerly joined the Karnali-Bardiya tigers in Nepal with those in India's Dudhwa National Park. A second priority is to assess the effects of the major development projects which are planned for the region. These include the Karnali Dam Project, and the Mahendra-East-West Highway which has been alined through the middle of the reserve. Provisions can then be taken to minimize the detrimental effects for wildlife which these projects will have.

5. Sukla Phanta: The reserve was established in 1974. Because of its isolation and small size the management of this population poses a number of special problems. A proposal to extend the reserve by creating a corridor to link a neighboring block of forest is being undertaken.

6. Problem Tigers: The recovery potential of tiger is high assuming that their habitat requirements are met and that protection is adequate. The number of tigers in Royal Chitwan National Park, for example, has reached, or is at least approaching, saturation. This condition, together with continuing high reproduction and dispersal barriers, may produce problem tigers, with the passage of time. However, in Nepal historically, cases of man-eating have been of isolated and infrequent occurrence, and so far have not posed a management problem. Again using Chitwan as the example, there is documentation to show that dispersing tigers that raid domestic livestock at the periphery of the Park are frequently poisoned by villagers. Possibly if this did not occur the incidence of man-eating would in time increase.

7. Research Objectives: Over the last decade ecological studies in Chitwan have documented distribution, density, social organization, dispersal patterns, genetic structure, and major prey species of tigers (Seidensticker 1976 a,b; Mc Dougal 1977; Sunquist 1981; Mishra 1982; Tamang 1982, Smith 1984). For the Karnali Bardiya and Sukla Phanta population, management oriented research is needed to determine tiger and prey densities and the extent to which tigers rely on domestic livestock. In addition a tiger monitoring system is needed throughout Nepal. This system would consist of periodic updating of tiger distribution data and surveys of habitat quality. Once the distribution of tigers is established and the quality of tiger habitat is assessed, a Nepal tiger management strategy is needed as a part of the national conservation strategy.

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