

PANTHERA TIGRIS IN BHUTAN
an overview of its status

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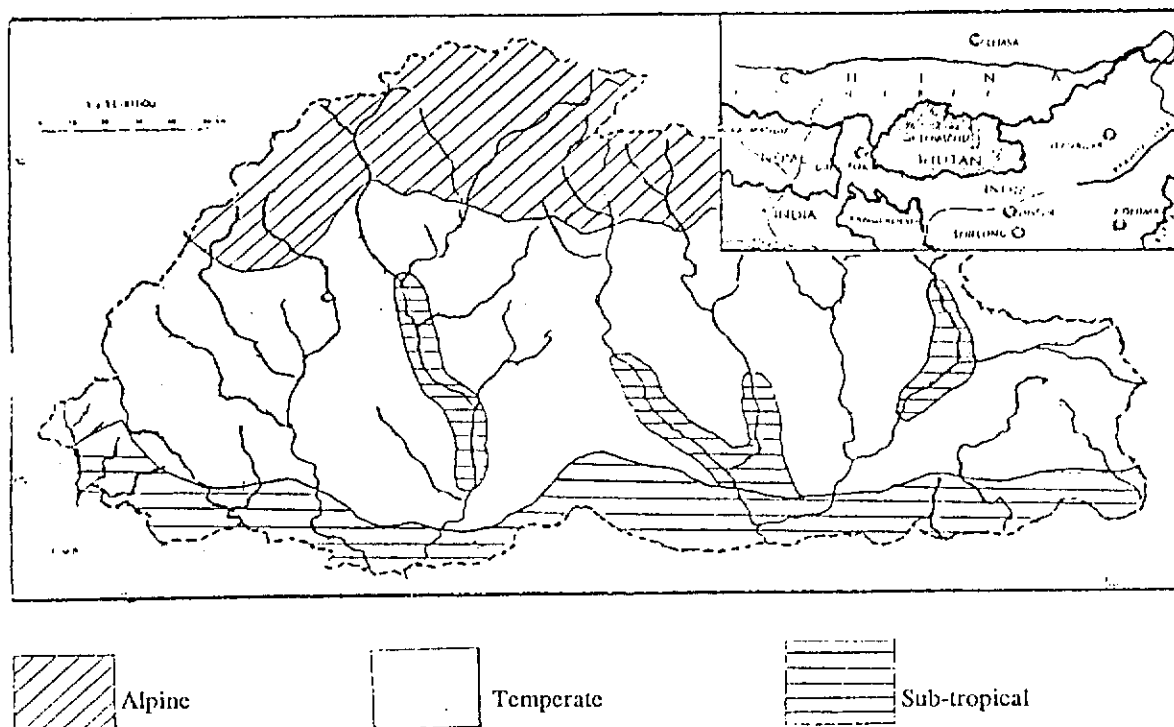
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Area description

The Kingdom of Bhutan boasts a relatively high faunal and floral species richness for a country that has an area of only a little over 46,000 km². Located in the Eastern Himalayas roughly between 26°40' and 28°15' N latitudes Bhutan clearly lies at an equal distance from the Equatorial tropics as the sub-tropical regions of the world similar to southern China in Asia, northern Libya and Algeria in Africa, and northern Mexico and Florida state (U.S.) in North America. However, like most other regions in the Himalayas extreme altitudinal variation (from about 150 m.a.s.l. to over 7000 m.a.s.l.) and its associated variance in precipitation and temperature have constituted for the vast diversity in Bhutan's biological resources. Although temperate forests and mountains are the dominant regimes, sub-tropical forests are confined to the southern strip of Bhutan where the foothills of the Himalayas gradually blend into the Indian plains of West Bengal and Assam (Fig. 1). However, it should also be noted that pockets of sub-tropical forests appear in the interior of Bhutan wherever the altitude is low enough (less than 1000 m.a.s.l. like in Punakha and Tashigang).

Fig. 1 Generalized vegetation types of Bhutan



Two of the world's bio-geographical realms, the Palearctic and the Oriental, coalesce and traverse along the east-west length of the country. This accounts for the presence of Palearctic mammals such as snow leopard *Panthera uncia* and blue sheep *Pseudois nayaur* in the alpine and sub-alpine regions, and also Oriental species such as gaur *Bos gaurus* and golden langur *Presbytis geei* in the sub-tropical regions of Bhutan.

Also deserving mention here of their presence are many generalist species that can be found in regions overlapping both the realms. Most often it is these species that are often encountered by humans leading to human-wildlife conflicts. Wild boar *Sus scrofa*, sambar deer *Cervus unicolor*, leopard *Panthera pardus* and tiger *Panthera tigris* are some mammalian species that belong to this group.

Distribution, habitat and food habits of Tiger in Bhutan

Much like the sambar and wild boar, tiger has been known to thrive in a wide range of habitat in Bhutan. The presence of this largest carnivore of Bhutan has been observed in the savannah grasslands with *Careya arborea* and *Lagerstroemia*, and subtropical forests dominated by *Pterospermum* and *Ficus* in the south along the border with India. Direct and indirect observations (from scat, tracks and attacks on prey) have also been recorded in the *Castanopsis*-dominated and temperate *Quercus* forests to mixed coniferous forests at 3000m and above. This wide geographical distribution even within Bhutan underlines its versatility and ability to adapt to wide variations in environmental conditions (Dorji & Santiapillai, 1989).

The tiger plays its role in the food chains of the various eco-systems in Bhutan it inhabits as one of the primary predators, in addition to leopard and wild dog *Cuon alpinus*. Now with the decline of wild dog populations the tiger and other predators play an even more crucial role of naturally controlling population of prey species such as wild boar and barking deer *Muntiacus muntjak*. Although tiger usually preys on deer, pigs, and animals generally smaller than itself, it is known to have killed bigger ungulates like gaur and wild buffalo *Bubalus bubalis* (Thinlay, pers. comm. 1993). Few depredation on domestic cattle have been recorded.

The first tiger census in Bhutan, conducted by Dasho Paljor Dorji and Dr. Charles Santiapillai (1989), projected a minimum of at least 151 tigers observed in various parts of Bhutan in 1988. Method employed for data collection consisted primarily of interviews with local people and visits to the areas. Spoor and scat along transects were recorded in select areas (refer Dorji & Santiapillai 1989 for detailed methods). The next series of data collected from informants in 1993 showed a total of 237 tigers observed in different parts of Bhutan. Grouped data for 1988 and 1993 are presented in Table 1, sorted by Dzongkhags (districts) where observations were made.

The data for 1993 has not been verified yet and may not be used as official statistics. This poses a limit to using this information to estimate a minimum population density. It reflects only data submitted by informants from different localities. Survey areas were very sporadic and large with no clearly defined boundaries. Nevertheless, data so obtained presented an image of the lower limit of number of tigers present in Bhutan.

Table 1. Number of Tigers *Panthera tigris* in Bhutan in 1988 and 1993*

Dzongkhag (district)	1988	1993
Bumthang	5	9
Chukha	5	16
Dagana	6	9
Gasa	3	10
Geylephug ^a	47	44
Haa	2	5
Lhuntsi	5	15
Mongar	5	11
Paro	3	5
Pema Gatshel	20	7
Punakha	6	12
Samdrup Jongkhar ^a	17	18
Samchi ^a	5	10
Shemgang ^a	7	18
Tashigang	3	6
Tashi Yangtshi	5	7
Thimphu	1	4
Tongsa	3	12
Chirang	-	7
Wangdiphodrang	3	12
Total	151	237

* Data not official and have yet to be verified and confirmed

^a Numbers in these districts include animals shared with India

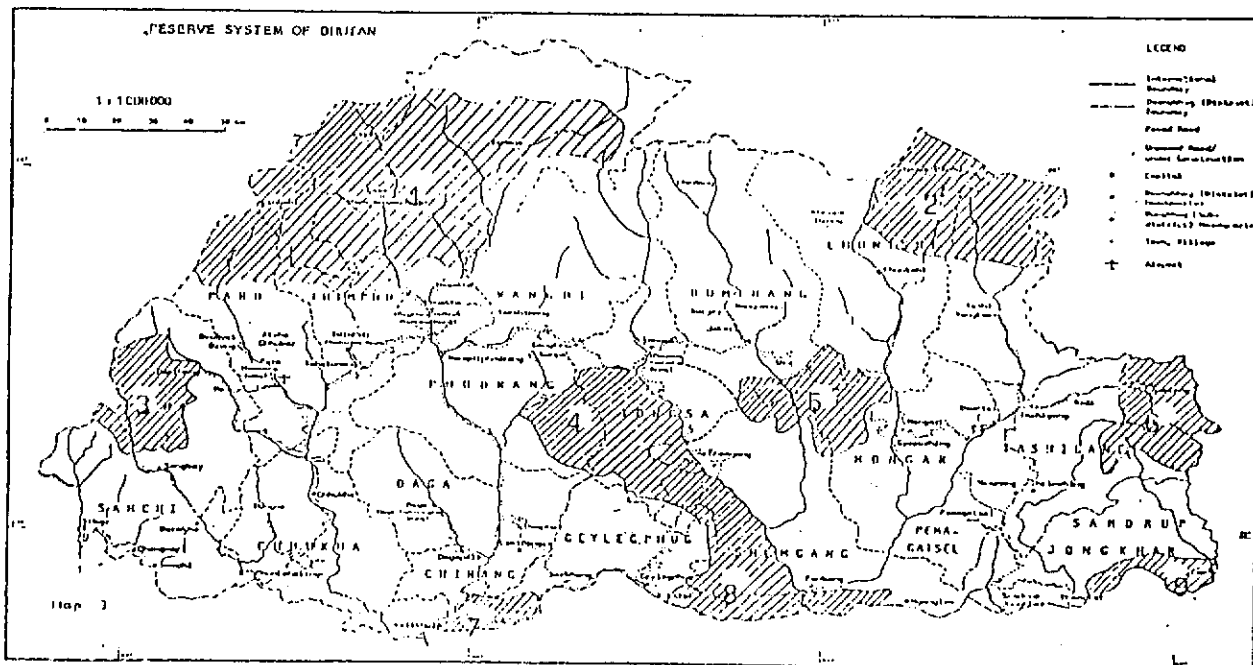
The (supposedly) significant increase in the total number of tigers between the period of the two censuses could be attributed to several actual and hypothetical factors: increased intensity of data collection covering more new locations and therefore new sightings/observations, decline of another predator (wild dog) population and thus more prey, and favourable conditions like well protected habitat and absence of hunting. It is important to note that there could have been a lot of duplication in the 1993 data since there was no systematic form of data collection, and several locations could have easily been covered by the same tigers. However, this data was included here only to present the frequency of observation.

Sightings and observations, according to the observers, were made in the forests along the drainage of the major rivers running north to south. Areas in which observations were recorded included all the protected areas of Bhutan (Fig. 2) exhibiting again the wide range of the tiger.

Conservation status of Tiger in Bhutan

With over 21% of the country set aside as protected areas, and a goal to maintain at least 60% forest cover for the whole country (Forestry Services Division 1993), Bhutan has embarked on an ambitious conservation endeavour. Much of the presence of the tiger in Bhutan could be attributed to the national policy that prohibits hunting, and the general aversion of the majority Buddhist population towards killing any living being. A revision in the protected area system has now allowed for inclusion in it regions spread out over different parts of the country that are representative of different vegetation-types and habitats that exist in Bhutan (Fig 2). This further enhances the survival of species like the tiger which has a wide range by keeping large tracts of land devoid of major human activities.

Fig 2. Revised protected areas of Bhutan



1. Jigme Dorji National Park (4200 km²) 2. Kulong Chu Wildlife Sanctuary (1300 km²) 3. Torsa Strict Nature Reserve (644 km²) 4. Black Mountain National Park (1400 km²) 5. Thrumshing-la National Park (768 km²) 6. Sakteng Wildlife Reserve (650 km²) 7. Phibsoo Wildlife Sanctuary (278 km²) 8. Royal Manas National Park (1000 km²) 9. Khaling/Neoli Wildlife Sanctuary (273 km²) [Source: Nature Conservation Section 1993]

In small populations one genetic and evolutionary concern is the loss of genetic variation caused by inbreeding (Schonewald-Cox *et al.* 1983). To counter such effects, some protected areas (like the Black Mountains and Royal Manas National Parks) have been proposed to be adjoined to create a contiguous forest corridor (Nature Conservation Section 1993). This will facilitate migration of species and genetic exchange to support the tiger's survival. A large protected area will help reduce incidence of erratic fluctuations in sex ratio and inbreeding depression. In select protected areas water-holes and artificial salt licks have been set up. Favourable conditions such as availability of water and minerals would increase survival of ungulates that make up a substantial component of the prey base of the tiger.

Currently the government is focusing primarily on establishing management plans for the extensive protected area system in Bhutan. Preliminary bio-diversity surveys are being conducted to establish a database for the various species present. Bhutan is home to several other endangered species such as the snow leopard *Panthera uncia*, red panda *Ailurus fulgens*, black necked crane *Grus nigricollis*, *Cinnamomum zeylanicum* and *Aquilaria* spp. Some of these are higher on the urgency list than the tiger in terms of their need for conservation. Decline in the population of a species is often accelerated by loss of habitat, as in the case of the tiger. Presence of several rare and endangered species in Bhutan has led the Forestry Services Division, which is the primary government institution handling nature conservation and wildlife management, to assign top priority to protecting the habitats of these species. This also serves to ensure survival of several other species besides the tiger. Since overall eco-system protection is the primary emphasis, species specific studies and programmes have not yet been conducted or implemented.

Although "the tiger is reproducing well and is clearly in its evolutionary prime" (Jackson 1993), the global tiger population is dwindling mainly due to poaching for tiger bones and other products, and habitat destruction. Poaching of tiger within Bhutan is almost non-existent. Isolated incidents of poaching do occur however, especially along the international boundary in the south where situations are not always easy to handle. The primarily agrarian population of Bhutan is growing at 2.4% per annum (Planning Commission 1990). However, much of the country's mountainous and rugged terrain does not allow for encroachment of tiger habitat. Strict forest and land use policies discourage clearing of forests for other uses.

Conclusion and Recommendations

Despite the fact that there seems to be a relatively low threat to tiger in Bhutan, some constraints to effectively conserving it are evidently present. Owing to the rugged terrain of the country, uneven distribution of human settlements, and lack of species specific research data on wildlife, it is difficult to assess the actual status of the tiger in Bhutan. The protected area management plans should focus on obtaining information on status, distribution and trends of current populations of key floral and faunal species. Then only would it be realistic to proceed with conservation activities targeted at specific species like the tiger. Concurrently crisis management should also be employed in the case of species that are rapidly approaching extinction.

It is seldom easy to manage animals that move back and forth across international boundaries. In several places along Bhutan's southern boundary tigers are shared by both India and Bhutan. Royal Manas National Park and the adjoining Indian Manas Tiger Reserve, a stronghold of bio-diversity in the region, is a good example. Political unrest in the Indian state of Assam has highly affected the tiger population in that region. Opportunistic poachers have taken advantage of the disturbed situation to destroy wildlife since February 1989 when the turmoil first began (Rahmani *et al.* 1992). It is not realistic for the poorly armed forest guards to patrol the areas effectively when they are dealing with poachers who are more in number, and armed with superior weapons. In such cases it is highly advisable that the two countries form a strong coalition to carry out anti-poaching measures. Sustainability of such measures is a requisite for success, and

discussions at the highest levels of authority (Central Government) seem like the only way to ensure it (Wangchuk, pers. comm. 1994).

Finally there is an extreme urgency to form a network amongst the 14 tiger range countries for a more fluid exchange of information, technical knowledge, and conservation strategies. This should also facilitate a tighter clamp down on the global trade in tiger parts. A stronger lobby needs to be voiced at international conservation organizations for stricter monitoring of this illegal trade. It is only with a united front that the secretive cat could be erased from the Red Data Book of the Convention on International Trade in Endangered Species (CITES) and would roam the jungles in plenty once again.

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