RESEARCH REPORT
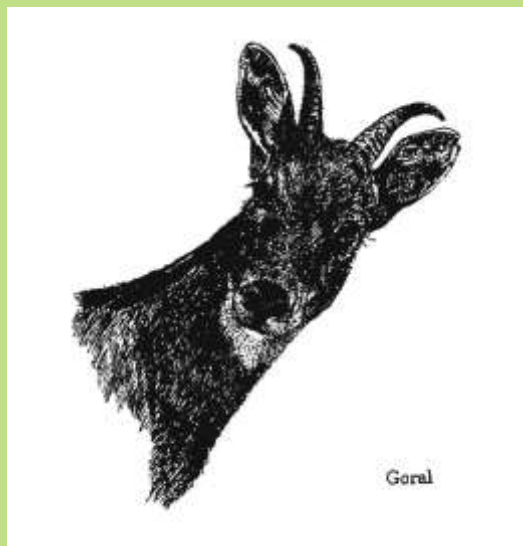
Protecting Biodiversity Under the Wildlife Protected Area System in India: A Status Report

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1. Background

The major strategy for protecting wild biodiversity in India, especially the ecosystems and the endangered species(mostly the larger mammals and over-exploited plants of medicinal use and ornamental value), is through the setting up and managing of protected areas (PAs). India currently has two categories of PAs set up under the Wild Life (Protection) Act 1972. These are national parks and wildlife sanctuaries.

National Parks are areas with a higher level of protection where no human - use activities are allowed, with the possible exception of tourism. Wildlife Sanctuaries are accorded a lower level of protection with some level of human - use permitted, including cattle grazing and the continuation of community rights over the resources (e.g., Non-Timber Forest Produce).

India has 85 national parks with a total area of 35,913.03 sq km and 448 wildlife sanctuaries covering an additional area of 112,274.45 sq km. [MoEF 1998]. These PAs cover altogather 148,193.48 sq.km of the country that is approximately 4.6% ofits land area. This subject has raised several issues and deep concerns.

2. Status

Despite this large number of PAs, wild biodiversity in India is still not considered to be secure. There are three main reasons for this:

A.   Gaps in coverage

B.   Inadequate size of PA units

C.   Human use pressures

2.1 Gaps in Coverage

A recent study undertaken by WWF India as a part of the Biodiversity Conservation Prioritisation Project (BCPP) has revealed that only eight of the 22 biogeographic provinces identified by Rodgers and Panwar (1987) had Pas in them covering 4.6% or more of the zone. Of the remaining 14, data was not available for determining percentage of coverage of two (West Coast and East Coast), though West Coast had only four Pas covering 488.8 sq km, clearly not enough. The status of the remaining 12 was as follows:

Biogeographic Province	Code	% Of Area under PAs
Thar	3b	1.9
Punjab	4a	0.6
Gujarat-Rawara	4b	3.1
Malabar Plains	5a	0.7
Deccan Plateau	6a	2.3
Central Plateau	6b	4.4
Eastern Plateau	6c	3.2
Chota Nagpur	6d	4.0
Upper Gangetic Plains	7a	2.9
Lower Gangetic Plain	7b	1.3
Brahmaputra Valley	8a	3.5
Assam Hills	8b	2.4

[Mehta 1998]

It is clear from the above that despite the overall coverage of 4.6%, many of the biogeographic provinces had PAs covering less than 4.6% and, infact, four of them had less than 2% under protection.

The same study [Mehta 1998] also analysed the coverage of Pas in terms of hosting populations of schedule 1 mammal species (species determined as deserving the

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highest status of conservation). The findings suggested (see table below) that at least 12 of the schedule 1 species were reported from less than five Pas. Though some of this might be due to gaps in surveys or problems with the reporting methodology, however for these and many other species there is a question mark whether they are being accorded adequate protection through the PA system in India.

Also, the populations and status of most of the threatened species is not accurately known even within Pas and it is possible that even where they are reported from, their populations might be on the decline.

Mammal Species under Schedule 1	Number of PAs Reported From
Antelope, tibetan or Chiru	1
Bear, Sun or malay	2
Cat, Pallas's	1
Civet, Malabar	2
Deer, Brow antlered or Thamin	1
Dolphin, Gangetic	4
Dugong	1
Gazelle, Tibetan	2
Hog, Pygmy	3
Langur, Golden	2
Lion, Indian	1
Lynx	3

[Mehta 1998]

2.2 Size of PA Units

In order to ensure minimum viable populations of species, especially larger mammal species, it is important that PA units are of an adequate size. To some extent the existence of corridors between Pas can make up for the smallness of the PA size, by allowing different populations to mix. However, for the proper evolution of floristic communities, even with corridors a minimum size is essential.

There is no agreement on what is a minimum viable population of breeding pairs and what is the minimum viable unit of a PA. However, the average size of PA in India works out to 278 sq km. This is seen by many as an inadequate size to maintain genetically viable populations of many large mammals. The fact that more than two thirds of the Pas are less than 200 sq km and the almost total absence of significant corridors between Pas, exacerbates this problem further. According to one study [IIPA 1989] only 30% of the national parks and 26% of the sanctuaries were connected by corridors to another PA.

2.3 Human Use Pressures

Human use pressures faced by PA in India are primarily from five sources. These are:-

(a)   Commercial uses

(b)   Infrastructural and development projects and activities.

(c)   Air and water pollution

(d)   Religious and cultural uses

(e)   Local community subsistence needs.

Commercial Uses

Despite the law prohibiting such uses, commercial extraction of timber and other non-timber forest products, mining, commercial fisheries, industrial activities, excessive and inappropriate tourism and other commercial activities still continue in many of the PAs. For example the IIPA data indicates that 16% of the national parks and 43% of the sancturaries responding reported extraction of timber. A recent trend has been to denotify protected areas in order to facilitate commercial activities.

Infrastructural and Development Projects and Activities

This includes dams, roads, townships, power transmission lines, and other such activities. The IIPA data indicates that 56% of the national parks and 63% of the sanctuaries responding reported use or occupation by departments other than the wildlife department. These uses included roads, irrigation and hydel projects,

housing, agricultural activities, railway lines and facilities, water supply projects, military activities and transmission lines.

Air and Water Pollution

Activities outside PAs which pollute the air or water of the PA also take their toll of thebiodiversity.

Religious and Cultural Uses

A recent study [Sankaran and Ssingh 1998] indicates that 50% of the PAs surveyed had sites of religious or cultural significance within them. Though in many cases these do not pose any threat to the PA, in some the pilgrims and visitors to such sites become a major disturbance. Some notable examples are the Sabrimala Temple in Periya Tiger Reserve, and temples in Sariska Sanctuary and Gir National Park.

Local Community Subsistence Needs

Pressures arising from the subsistence needs of local communities are the most difficult to handle. This is partly because they have a great level of legitimacy considering that they are for subsistence and also because many of the local communities have historical links and dependencies with the P.A. Such pressures are also very widespread. According to the IIPA data:

- 43% of the national parks and 68% of the sanctuaries responding reported the existence of rights and leases,
- 67% of the national parks and 83% of the sanctuaries responding reported grazing within.
- 36% of the national parks and 56% of the sanctuaries reported the extraction of NTFP.

3. Management Efforts

Historically, the forest departments of state governments have managed PAs. After the coming in of the Wild Life (Protection) Act, in 1972, special wildlife wings were carved out of the state forest departments. A Chief Wildlife Warden heads these.

The historical approach has been to police these areas and to keep out human and other pressures by enforcing the law. However, over the years such an aproach has become ineffective.

Current thinking is to move towards more participatory management where the local communities increasingly participate in the protection and management of the PAs. In order to make this possible and also to mitigate the adverse impacts of PA management on local communities, it is also increasingly being accepted that alternative sources of income and biomass must be developed for them. This approach is known as the eco-development approach.

4. Recommendations

Listed below are the five priority actions that need to be taken in order to ensure that protection of biodiversity through PAs is promoted.

i) Expand the PA network to adequately cover all biogeographic provinces and all threatened and endangered species, and to ensure that unit size, either in themselves or through corridors, are adequate. Some work to identify these gaps has already been done by the Wildlife Institute of Inida [Rodgers and Panwar], the WWF India [BCPP] and other institutions. A comprehensive gap analysis and a rationalization of PA boundaries needs to be urgently undertaken and the recommendations acted upon.

ii) Raise PA management capabilities. This can be achieved through training and motivating wildlife managers, ensuring adequate staff, resources and equipment for PAs, and promoting management oriented research.

iii) Get the support and cooperation of local communities. This can be achieved by giving them a stake and a sense of ownership in the PA and by ensuring that they have access to sustainable sources of incomes and biomass.

iv) Get mass support for PAs and for biodiversity conservation. This can be done through highlighting the role that PAs play in ensuring the wellbeing of humans,of other animals and of plants. Education and awareness campaigns and activities, covering all levels of the society, must be planned and executed.

v) Make the management of biodiversity, especially the status and threats, transparent. Ensuring that citizens have a right to know how their biodiversity resources are being conserved and who is threatening them would help immunize wildlife managers against political and bureaucratic pressures for destruction.

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