



Biodiversity Conservation in Human-Dominated Landscapes

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Introduction

Biodiversity manifests itself at many biological and ecological scales that begin at the level of simple genes and run through species, populations, communities and ecosystems. In the context of biodiversity, one term that is often used is 'biodiversity hotspot', which means an area rich in biodiversity as well as in threats.

Biodiversity has many direct values (eg., diverse food, medicinal plants), indirect values (eg., ecosystem services, pollination by bees) and cultural and religious values (eg., *Ficus religiosa*, peacock, cobra, tiger for the Mishmi tribe). High density human population is one major factor that affects biodiversity. The ability to support high density human populations varies from landscape to landscape. Biogeographic zones in India have varying degrees of human population density and biodiversity. At what levels human population density can affect biodiversity depends upon the food habits, lifestyle and economic status of the people and the productivity of the habitat. In general, poverty and high population density are the greatest threats to biodiversity. Bangladesh, for example, with 1400 people/sq.km, who are largely poor and meat-eating and with 11 percent forest cover (a good percentage may be in the Sundarbans), has lost species such as hog deer, swamp deer, sambar, gaur, wild buffalo and Javan rhino.

The key factors that contribute to loss of biodiversity are loss and fragmentation of habitats largely as a result of increase in human population and consumption levels, invasives, climate change, over harvesting and illegal trade, pollution and mortality on roads. Lack of political will and accountability to address these problems aggravate all these challenges. One glaring example of lack of

accountability is the inability of the Government to establish the Chilla-Motichur corridor in Uttarakhand across the Ganges over the last 35 years. Some harmful plant invasives are *Cassia spectabilis*, *Lantana camera* and *Xanthium strumarium* and animal invasives such as tilapia and African catfish. Once established, it seems we are helpless against them. The humongous threat to biodiversity in recent decades is climate change which appears to be irreversible. Some charismatic species affected by climate change are the golden eagle, Steller's sea-eagle and polar bear. In India we have witnessed the bleaching of corals.

Unregulated harvesting of animals, plants and the associated illegal trade are another great threat to biodiversity. Over the decades, tigers have lost 93 per cent of their range and the rest of the range is dominated by humans. Recovery of the tiger population to its former numbers is exceedingly difficult as a result of the use of the tiger body parts in Traditional Chinese Medicine which promotes poaching and illegal trade.

Certain animals such as elephants and hornbills help in the dispersal of seeds vital for forest regeneration. The massacre of elephants in Africa and hunting of hornbills in northeast India can have significant implications for forest regeneration. Noise pollution is reported to be the reason for the decline in sparrow numbers in the United Kingdom. It may be the reason in India too. In India, the brahminy kite has suffered a great population crash as a result of the use of DDT. Community support is crucial to ensure the future of the sarus crane which lives on the agriculture landscape. Cultivation of sugarcane is a great threat to this species.

The great Indian bustard is on the road to extinction. Its flesh is reported to be tasty and



therefore poaching could be one major reason for its population decline. Hangul numbers are declining rapidly as its summer range has been taken over by grazers. The demand for mutton has increased among Kashmiris and so they prefer to allow sheep and goats to take over the hangul habitat. Dogs accompanying the grazers kill the fawns. Sangai or the dancing deer of Manipur is confined to a 10 sq.km floating mass called *phumdi* in the 40 sq.km KeibulLamjao National Park. The total wild population of the above three species is less than 200.

Gharial and Ganges river dolphin are threatened by overfishing and pollution of their riverine habitat. Sand mining is a huge threat to gharial in National Chambal Sanctuary. Golden mahseer is threatened by overfishing which includes dynamiting. Colourful and rare butterflies decline as a result of illegal trade. Death of animals on roads due to speeding vehicles is enormous. We lose more animals to road kills than to poaching. Several measures including restoration of ecology are suggested to address all the above problems. What is sadly missing in the country is lack of continuity of thought and action.

What we are doing to the forests of the world is but a mirror reflection of what we are doing to ourselves and to one another.

– Gandhi