

Himalayan forests are quietly vanishing

- [18 May 2006](#)
- [NewScientist.com news service](#)
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THE Himalayas may never be the same again. The forests growing on the roof of the world are disappearing, and the rate of deforestation is so rapid that a quarter of animal and plant species native to this biodiversity hotspot, including tigers and leopards, could be gone by the end of the century.

Worse, the Indian government is oblivious to the problem because official figures erroneously suggest that forest cover will rise rather than fall. This mistake has led to the approval of new schemes, such as hydroelectric dams, that will exacerbate the devastation.

The Himalayan region has long been recognised as extremely rich in animal and especially plant diversity. For instance, a paper published last year in *Science* (vol 308, p 405) concluded that Himalayan watersheds harbour more diverse ecosystems than the Amazon. "Himalaya's importance as a biodiversity-rich area and its need for conservation cannot be overemphasised," says Maharaj Pandit of the University of Delhi, India.

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Now a team of researchers led by Pandit have revealed evidence of widespread deforestation in the Indian Himalaya region, which threatens tigers, black bears, musk deer, leopards, golden eagles and bearded vultures that depend on the forests. Large-scale conservation efforts are urgently needed to avoid the disappearance of these animals from the region, they say.

Pandit's team analysed high-resolution satellite images of the region dating from 1972-1974, 1980-1983 and 1999-2001. The team also went out into the field to verify ground features that could not easily be identified in the images. They classed regions with more than 40 per cent forest cover as dense forests, and those with between 10 and 40 per cent of cover as open forests.

By 2000, the region had lost 15 per cent of its forest cover compared with the early 1970s. By 2100, it will have lost almost half its forests, the team predicts. Less than one-third of the dense forest on which many native species depend will survive in the western Himalaya, while less than three-quarters in the eastern Himalaya will remain (*Biodiversity & Conservation*, DOI: 10.1007/s10531-006-9038-5). What's more, the researchers consider these conservative estimates, as they think increases in population and agriculture will increase the deforestation rate.

However, official Indian government statistics from the ministry of agriculture and the Forest Survey of India imply that total forest cover across the Indian Himalaya will expand by more than 40 per cent between 1970 and 2100. The researchers suspect the discrepancy between the official figures and their satellite data may stem from poor sampling, a lack of technical expertise and a lack of resources in the government institutes. The government might also attach too much weight to projects aimed at stopping commercial logging and at replanting trees in more remote regions, while the more serious threat is deforestation by villagers, they suggest.

These "miscalculations" in land-use decisions could have severe repercussions. "More than 80 per cent of proposed hydro-projects in India are located in the Himalaya," says Pandit. "Diversion of forest lands for hydro-irrigation projects is second only to agriculture in India."

[From issue 2552 of New Scientist magazine, 18 May 2006, page 20](#)