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NATURE WITHOUT BORDERS

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innovative approaches to

conserving nature and wildlife

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Project snow leopard

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IN January 2009, the Ministry of Environment and Forests launched an ambitious conservation programme called Project Snow Leopard for the Indian high altitude areas. This was a unique endeavour that was catalyzed by a voluntary organization, with active participation of the five Himalayan state governments, the ministry and a select group of organizations and individuals in a consultative process which lasted close to four years. Given, however, a good representation of wildlife protected areas in the high altitudes (over 9% for the Trans Himalaya), the question is why was such a scheme required; what were the attributes of the region that necessitated an alternative strategy? This article discusses the salient features of the snow leopard initiative and the challenges ahead.

The Indian Himalaya extend in a huge arc from the Nanga Parvat in the west to the Namche Barwa in the east, covering over 2,500 km and passing through five Indian Himalayan states – Jammu and Kashmir, Himachal Pradesh, Uttarakhand in the west and Sikkim and Arunachal Pradesh in the east. The Himalaya covers over 12% of India's geographic area which is more land than the entire area of the Gangetic plains. The high altitudes are quite heterogeneous in topography, climate, flora and fauna from east to west and from south to north. In general, the climate and habitat become drier from east to west and from south

* The concept for the Project Snow Leopard discussed in this paper has developed through years of research and involvement of my group at NCF-SLT as also other agencies working in the Indian high altitudes. There are thus numerous colleagues to thank but will limit to some of the agencies – the Forest Departments of J&K, HP, Uttarakhand, Sikkim and Arunachal Pradesh, the Wildlife Institute of India and the Ministry of Environment & Forests.

to north. Dense forests are replaced by open scrub and meadows or steppe along both these gradients.

There is a vast variety of fauna across this diversity of habitats, most of which are globally endangered. The Himalaya is home to a unique assemblage of hoofed mammals (ungulates), with forest dwelling goat-antelopes such as goral and serow occupying lower and middle zones, and true wild goat and sheep such as ibex and Tibetan argali occurring in the open steppes of the Greater Himalayan and Trans Himalayan zones. Over ten wild ungulates are exclusive to this zone, making the Indian high altitudes among the richest areas for mountain ungulates in the world. The animals, however, mostly occur at naturally low densities due to the limited plant productivity confined to three months of summer.

Preying upon these wild herbivores is the globally endangered snow leopard, the apex predator in these mountains. This elusive predator occurs over two million square kilometres in about 12 countries of Central and South Asia; yet the global population estimate remains below 8,000 animals. It is a medium sized cat characterized by thick fur, stocky limbs and long tail which help it to survive in the harsh mountains. It also shares the area with other predators such as the Tibetan wolf, the brown and black bears, lynx and wild dog.

Project Snow Leopard defines the high altitudes as the non-forested zone above the tree line (that occurs roughly around 3,200 metres in the western Himalaya and around 4,200 metres in the eastern Himalaya), going over the Greater Himalayan crest into the Trans Himalayan region. This region, which constitutes the headwaters of all north Indian rivers, has certain distinctive features that set it apart from other areas in the country. One crucial feature is that the wildlife exists more or less in a continuum, primarily broken only by natural features such as glaciers or high rocky cliffs. This effectively translates to approximately 200,000 square kilometres of near continuous wildlife habitat, very unlike the lowland forested and grassland areas where human dominated landscapes cut up wilderness areas into 'islands' of sorts. In contrast, even though all the elephant reserves in India total 110,000 square kilometres, they are spread in many unconnected populations. The case with the tiger reserves is no different.

In the high altitude's continuum, even endangered species occur in the larger landscape, often outside the already large protected area (PA) network of the region. Note that the human density in the region is less than one per square kilometre in most areas, in sharp contrast to over 300 to a square kilometre in India as a whole. Most of them eke out a living from the sparse resources, often pervasively using the region for pasturage, fuel, fodder, construction material, cultivation or other resources such as medicinal plants. It can be safely said that in this region, people as well as wildlife use almost any usable piece of land.

An important reason for the persistence of wildlife in the larger landscape has been the local people's tolerance of wild animals and birds. This is especially so for the Tibetan Buddhists, which at times extends even to a reverence of wildlife. But this is not always the case and there are many threats that wildlife faces.

Despite the basic wildlife values and the interface between people and wildlife being so very different from the rest of the country, the primary approach to conservation is virtually identical. National parks and wildlife sanctuaries remain centrepieces of conservation policy across this region too. The Trans Himalaya for example, are spread over 1.8 lakh square kilometres (6% of India's geographic area), but the protected area coverage is over 11% of the country's total acreage of such areas.[1] In contrast, in most other zones, barring the deserts and Western Ghats, the PA coverage is usually lower in proportion to their actual area.

This leads to a paradoxical situation. Conservation efforts in the high altitudes are largely confined to the parks and sanctuaries while bulk of the wildlife occurs outside. This is rarely seen in any other ecosystem. For example, the designated tiger reserves may house most of the tigers in India, but the PAs with snow leopards may house less than half of the snow leopard population in the country.

Managing protected areas in the high altitudes remains a challenge, since it has not been possible to exclude human use in *any* of the high altitude parks. There has been some success in the Great Himalayan and Nanda Devi national parks, but this may have more to do with the fact that both include lower forested tracts within their boundaries. The lower areas in general offer more livelihood alternatives thus enabling villagers to move out. In the high altitudes, as mentioned above, each patch of land is already under some community-based ownership and large-scale relocations are difficult and often not needed.[2]

The problem gets aggravated as most protected areas are heavily

1. W.A. Rodgers, H.S. Panwar and V.B. Mathur, *Wildlife Protected Area Network in India: A Review*. Wildlife Institute of India, Dehradun, 2002.

understaffed, often with 600 to 1000 square kilometres to be managed by every forest frontline staff member.[3] In addition, these staff continually need to deal with conflicts and enforcement cases from outside the PAs. The usually poor equipment, capacity and motivational levels to work in the difficult mountainous area further compound the problem of efficient wildlife management. The fact that some sanctuaries like Changthang and the Karakorum have unclear boundary demarcation further complicates any settlement and management planning work.

The primary threats to wildlife in the region were believed to be competition from the livestock of both local and of migratory pastoralists, poaching and occasional retributive killing of wildlife after a conflict instance.[4] However, while these continue to remain matters of concern in certain areas, it is the threat from developmental projects, defence establishments and changing lifestyles that is becoming far more serious.

Many pastures in the Trans Himalaya are overstocked and, as a consequence, wild ungulates – such as the bharal and ibex in Spiti,[5] and the Tibetan gazelle and argali in Ladakh[6] – have declined or gone locally extinct. Livestock depredation by wild carnivores such as snow leopard and Tibetan wolf may lead to retributive killing of the animal and, in any case, results in strong negative perceptions about conservation.[7] Poaching too is reported in areas such as Lahul, Kinnaur in Himachal, Doda, Kargil and the Kashmir Valley in J&K, and in most of Arunachal Pradesh.

In addition, some recent transformations have led to the emergence of new threats, multiplying the effect of other threats to the landscape. These largely underdeveloped areas have recently seen a spurt of developmental efforts from both government and the voluntary sectors. The much-needed improvements in infrastructure invariably cause disturbances to habitats and bring in poor migratory labourers. These labourers are now increasingly reported to be involved with poaching and collection of medicinal plants,[8] thus adding a significant, largely new threat to many areas.

While the larger people-wildlife interface expectedly generates some conflict, it is disturbing that people's tolerance levels to losses is declining. Given both a thriving meat market, and the presence of high value animals such as *pashmina* goats and horses, any loss will have greater impact on the household now compared with, say, the last decade. Moreover, with increased job opportunities and increased proportion of nuclear households, there is a shortage of manpower to herd the stock effectively, thereby adding to instances of conflict. In areas like Spiti and lower Ladakh, damage to high value cash crops such as green peas and apricots by animals causes significant resentment.

The spread of defence establishments as also tourism facilities in the entire region not only damages wildlife habitats, but may lead to other significant problems. For instance, the drastic increase in feral dog population that thrives on the large garbage dumps and regularly preys upon livestock, is reportedly increasingly preying not only on wild ungulates but also competing with native predators.[9]

Both the unique continuous spread of wildlife in the Indian high altitudes and the emerging threats, compel us to look at conservation at a truly landscape level. An approach is required such that not only does wildlife persist in the entire landscape, but people too can continue with their livelihoods. The large people-wildlife interface needs to stay while addressing all issues and managing conflicts effectively so that coexistence of the two can continue in perpetuity.

What should the approach then be? Do we continue to focus on Protected Areas as the primary areas for conservation? Not necessarily. A study by the Wildlife Institute of India that tried to prioritize conservation areas in Ladakh, found that more than three-fourths of the landscape could be prioritized for wildlife either due to the presence of a very rare species or a good diversity of large mammals.[10] A similar ongoing study by Nature Conservation Foundation

2. Y.V. Bhatnagar, 'Relocation From Wildlife Reserves in the Greater and Trans-Himalayas: Is it Necessary?' *Conservation and Society* 6(3), 2008, 263-270.

3. PSL, Towards Project Snow Leopard: Report of the national workshop on Project Snow Leopard, Leh, Ladakh. Ministry of Environment and Forests, Government of India, Department of Wildlife Protection, J&K, Nature Conservation Foundation, and International Snow Leopard Trust, Mysore, India, 10-11 July 2006.

4. T.M. McCarthy and G. Chapron, *Snow Leopard Survival Strategy*. International Snow Leopard Trust and Snow Leopard Network, Seattle, WA, 2003.

5. C. Mishra, S.E. VanWieren, I.M.A. Heitkonig and H.H.T. Prins, 'A Theoretical Analysis of Competitive Exclusion in a Trans-Himalayan Large-Herbivore Assemblage', *Animal Conservation* 5, 2002, 251-8.

6. Y.V. Bhatnagar, R. Wangchuk and C. Mishra, 'Decline of the Tibetan Gazelle in Ladakh, India', *Oryx* 40(2), 2006, 229-232.

7. Rodney Jackson, Charudutt Mishra, Thomas M. McCarthy, and Som B. Ale, Snow Leopards: Conflict and Conservation, in D. McDonald (ed.), *Biology and Conservation of Wild Felids*, 2010, pp. 419-34.

8. Y.V. Bhatnagar, R. Wangchuk and C. Mishra, 'Decline of the Tibetan Gazelle in Ladakh, India', *Oryx* 40(2), 2006, 229-232.

9. J. Bhatt, 'Abandoned Dogs Poach into Snow Leopard's Terrain', *Times of India*, 13 July 2010, New Delhi and Chandigarh edition.

(NCF) in Spiti has found numerous areas outside with superior wildlife values compared with the two existing PAs there.[11] If we were to go by the existing model, almost the whole of eastern Ladakh (> 22,000 sq km) and Spiti (*c.* 7,000 sq km) would need to be designated as PAs!

Can all these areas then be brought under the PA network, especially with the exclusionary legal framework in place? The answer is obvious. There is a need for conservation as effective policy, but to be achievable it has to adopt instruments other than the national park and wildlife sanctuary model. But what are the alternatives?

In the recent decade, some interesting experiments in 'social fencing' have been tried in the Himalaya, which have managed to effectively result in population recovery of wildlife. Based on incentive based agreements between voluntary organizations and the community, relatively small areas up to 20 square kilometres, were designated as reserves. In Kibber, Spiti, the bharal population has increased over three folds in just the past five years and ibex have colonized the reserve areas[12] that were set up based on agreements between the NCF-Snow Leopard Trust (SLT) and the local community.

Similarly in the Hemis NP, efforts by the Snow Leopard Conservancy have resulted in freeing up over 10 square kilometres where a population of the Tibetan argali had colonized in the mid-70s and the small, but stable population is already showing signs of increase in less than three years of management.[13] These areas are also seeing an increased presence of predators. The improved wildlife sightings have energized a hitherto non-existent wildlife tourism sector, thus augmenting income of the local people.

These organizations have also demonstrated suitable conflict mitigation mechanisms. Even though the government has a mechanism of compensation, it has not worked well, in part because of the wide spread and large number of conflict instances. The compensation paid is usually much lower than the market price of the stock lost. The Conservancy project has demonstrated how better corrals can reduce damage[14] in places where most damage happens in such structures, either in the village or out in the pasture. In contrast, community-managed insurance programmes catalyzed by the NCF-SLT, have helped by efficiently compensating the losses in a decentralized manner.[15]

Though these experiments are all localized in scope, they do hold great promise at a much wider level. Community support, combined with a sound understanding of local issues, can facilitate success in high altitude conservation. It is increasingly obvious that mutually beneficial agreements, coupled with comprehensive awareness programmes, will ultimately both increase wildlife populations and help local people with material gains as also improve their tolerance.

When wildlife becomes an important subject in the larger landscape, other departments and agencies too need to be consulted and their participation sought in implementing conservation programmes. Often, even if these agencies already have environmental concerns in their mandate or carry out activities that are environment friendly, they may equally carry out activities that damage the environment or harm wildlife. A recent assessment in Spiti showed that large departments such as horticulture, agriculture and rural development already acknowledge environmental concerns, for instance, through promotion of activities like organic agriculture. The Sarva Shiksha Abhiyan of the education department wishes to promote environment education as well as hold nature camps for children, while the *Himurja* is covering huge areas under its programmes for alternate sources of energy that include harnessing solar power and micro-hydel projects.[16]

A more detailed analysis shows many other areas of convergence. Once acknowledged and a mechanism of cooperation put in place, conservation efforts can be made more participatory and effective, resulting in more efficient utilization of precious conservation resources. Simultaneously, the assessment in Spiti has also highlighted the 'divergences'. These include large scale construction plans in or near sensitive habitats

10. R.S. Chundawat and Q. Qureshi, Planning Wildlife Conservation in Leh and Kargil Districts of Ladakh, Jammu and Kashmir. Report submitted to the Wildlife Institute of India, Dehradun, 1999.

11. K. Suryavanshi, et al., 2010 (unpublished data).

12. C. Mishra, S. Bagchi, T. Namgail and Y.V. Bhatnagar, Multiple Use of Trans Himalayan Rangelands: Reconciling Human Livelihoods with Wildlife Conservation, in J.T. du Toit, R. Kock and Deutsch (eds.), *Wild Rangelands: Conserving Wildlife While Maintaining Livestock in Semi-Arid Ecosystems*. ZSL, CS & Wiley-Blackwell, Chennai, 2010, pp. 291-311.

13. R. Wangchuk, SLC (pers. comm.).

14. R. Jackson and R. Wangchuk, 'A Community-based Approach to Mitigating Livestock Depredation By Snow Leopards', *Human Dimensions of Wildlife* 9, 2004, 307-15.

15. P. Trivedi, 'Heights of Success – Conservation Success at High Altitudes', *Hornbill*. October-November 2006, pp. 36-40.

16. Management Planning for the Upper Spiti Landscape being done by NCF and the HP Forest Dept, 2010.

such as moist meadows, roads through sensitive areas or into pristine areas that can open up valleys for exploitation and, of course, the influx of outside labour.

Drawing upon the above understanding, Project Snow Leopard hopes to streamline conservation in the larger landscape, including the PAs, in a manner that is landscape based and participatory.[17] It emphasizes the identification of suitable landscapes and provides guidelines for the preparation of scientific management plans. It has also set up a four-tier structure, from the village level up to the national steering committee, through a landscape level committee and a state level society that will help plan and implement all activities. The structure at all levels aims to be sensitive to all stakeholders.

Despite all these being in place, the Project Snow Leopard continues to face some challenges. For one, it is a new and untested programme. Given the uncertain nature of official tenure within the department, the fundamental philosophy may be lost over time. There is a danger that the innovative programme may get trapped into the usual rigid funding cycles and dilute its salient features. In the larger landscape, while the Forest Department needs to take the lead, and hopefully has the capacity to lead, eliciting cooperation from other agencies remains a challenge. However, these are all issues that can be sorted out.

The important thing is that the primary agencies responsible for conservation in the states and the country have an alternative model for landscape level, participatory, knowledge-based conservation of the great heights of the Himalaya. Given time, effort and application, there is every reason to believe that it *will* work.

17. Anon, The Project Snow Leopard. Ministry of Environment & Forests, Government of India, New Delhi, 2008.