

CONTRIBUTION OF LIVESTOCK TO THE CONSERVATION OF BIODIVERSITY OF PALAS VALLEY

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Abstract

Palas Valley is globally known for the last intact Moist Temperate Forests of the Western Himalayas and its unique fauna, including the endangered Western Tragopan. Palas Conservation and Development Project (PCDP) is active in the Valley to conserve its unique biodiversity through community participation. Spaced over 135,300ha, the Valley has 27.4% of its area under forests, 24.2% under rangelands, 39.4% under wastelands, 7.6% under water bodies and permanent snow, while 1.4% of its area is under agriculture. Livestock rearing and subsistence agriculture is the mainstay of the local economy. With about 32,000 livestock heads, there is a tremendous pressure on the rangelands. Reduction in the numbers, better breeds, stall feeding, better marketing facilities, awareness raising, etc. are some of the possible remedies to reverse the trend of degradation. In order to reduce pressure on forests as a source of income, improved livestock health could be one way to do so.

Based on a recent survey, the local people loose a staggering amount of 42 million rupees each year because of the livestock casualties caused by various diseases. In 2003, about 10% of the livestock was vaccinated. This came to a net saving of about 4.2 million rupees. While comparing it to the net income of Rs.730,000 - that the people of the Valley receive as revenue from timber – they are well off by a respectable margin of Rs.3.470 million rupees. If somehow, this message is made clear to the local people, a possibility exists that they might opt for better animal husbandry practices, than to go for timber.

Introduction

Situated in northwestern Pakistan, about 300km northwest of Islamabad, to the east of River Indus, is the Palas Valley. Altitude of the Valley ranges between 1,000m and more than 5,000m amsl with rugged and precipitous topography. The tract experiences dry subtropical climate below 1,500m amsl and Moist Temperate above this elevation. The Valley has a mean annual precipitation of about 900mm in the drier zones that reaches up to 1,350mm at the higher altitudes.

The Valley contains not only the last intact parcels of Moist Temperate Forests of the Western Himalayas but is also the Endemic Bird Area (EBA) - a

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priority area for the conservation of biodiversity. The EBA extends from the northern Pakistan and Afghanistan to western Nepal, supporting 11 bird species found nowhere else in the world. Importance of the Valley can be judged from the fact that eight of the 11 species of EBA occur in Palas Valley. The Western-horned Tragopan (*Tragopan melanocephalus*), being one of the eight endemic bird species, is believed to be the largest remaining population in one eco-region, making the Palas Valley at the centre stage of global attention.

A predecessor to the Himalayan Jungle Project, the Palas Conservation and Development Project (PCDP) is active in the Valley since 2001. The Project aims at safeguarding the biodiversity of the Palas Valley by enabling the local communities to tackle the linked causes of poverty and natural resource degradation. For this, the PCDP is following a *process approach* that is based on community participation in conservation through partnership and cost sharing. To achieve this end, the Project has set up six implementation sectors: Biodiversity Conservation; Participatory Forest Management; Community Organization and Participation; Infrastructure, Rehabilitation and Development, Agriculture, Livestock, Range Management; Health, Nutrition and Sanitation.

With about 65,000 people living in 42 large and small villages, Palas represents a unique social system. Most of the *Palasites* speak *Shin* and are believed to have migrated from Central Asia. A very backward community, the *Palasites* have a 12% literacy rate for men and 3% for women; compared to 61% for men elsewhere in the country and 37% for women.

Based on a satellite imagery of October 1998, the Valley is spaced over 135,300ha. Landuse consists of coniferous forests (23,000ha: 17%); broadleaved forests (14,100ha: 10.4%), rangelands (32,700ha: 24.2%); wastelands (53,400ha: 39.4%); water bodies (800ha: 0.6%); permanent snow (9,400ha: 7.0%) while agriculture is practised over 1,900ha (1.4% of the Valley's area).

The forests have a wide variety of plant communities including sub-Tropical dry Oaks (*Quercus spp.*); Temperate forests having conifers such as Bluepine (*Pinus wallichiana*); Deodar (*Cedrus deodara*), Silver Fir (*Abies pindrow*) and Spruce (*Picea smithiana*); sub-Alpine Birch (*Betula utilis*); and the Alpine scrubs and pastures. The Temperate forests could provide a sustainable source of timber for local use as also for the construction industry, provided harvested technically and sustainable with full respect for the ecological integrity of the area.

Objective

The PCDP aims at ascertaining ways and means to reduce pressure on the biodiversity of Palas Valley through community support but based on improved socio-economic wellbeing of the local people.

Methodology

The base line data collected by the field staff of livestock and the range management sector of the Palas Conservation and development project was used to analyse various aspects of the activities undertaken so far. The data was analysed and inferences were deduced accordingly.

Results and Discussion

Livestock rearing, subsidized by agriculture, is the mainstay of the local economy. Because of hilly terrain, land is scarce while the human population is outstripping what the traditional agriculture and livestock could sustain. Based on a recent survey conducted by the Livestock and Range Management (LRM) Sector, there were about 32,000 small/large ruminants and equines in the Valley. These animals had a pronounced negative impact on the biodiversity of the Valley. Any reduction in livestock pressure on forests in general and the pastures, in particular, will have a tremendous positive impact on the status of biodiversity. This could be achieved by increasing the local income through innovations and changes in the existing livestock practices, through some or all of the following (possible) means:

- i. Reduction in the numbers of livestock
- ii. Reduction in the numbers of livestock complemented by increase in productivity: improved breeds through selection and artificial insemination (A.I.)
- iii. (gradual) Shift from the conventional open grazing/browsing to stall-feeding
- iv. Reduction in the duration of stay of livestock in the pastures: late going /early coming back
- v. Growing of better, palatable, and nutritious grasses on the periphery of agricultural lands and on marginal and wastelands
- vi. Marketing of livestock at a centrally located point
- vii. Marketing of dairy products at a mutually agreed location
- viii. Reduction in livestock mortality because of seasonal diseases and worms
- ix. Training of local activists in diagnostics and in the administration of vaccines against seasonal diseases

- x. Setting up of modest facilities at a few centrally-located villages for livestock vaccination, diagnostics, and possibly, an A.I. Centre
- xi. Awareness-raising about the negative impacts of the prevalent livestock rearing, grazing/browsing practices on the health of biodiversity
- xii. Development and dissemination of effective and non-classical awareness material
- xiii. Making the people realize that tree harvesting does not pay off as much as it is thought
- xiv. Agreement on the "Terms of Partnership" for the provision of services by the Project and a commitment by the benefiting community, to help in the reduction of pressure on the biodiversity

Immediate positive impact on livestock leading to improved health of the local economy could be achieved through *vaccination* but in tandem with a commitment and a resolve to desist from *tree harvesting*.

The most common livestock-related diseases in the Valley are Foot and Mouth, Black Quarter, Rinderpest, *Haemorrhagic septicaemia*, *Pleuro pneumonia*, *Enterotoxacaemia*, etc. At least 9% of small ruminants, 4% cattle, 11% buffaloes, and 3% equines fall prey to these diseases. Average price of a small ruminant in the Valley is Rs.2,000, of cattle, Rs.12,000, of a buffalo, Rs.20,000, and of an equine, Rs. 18,000.

Worms (internal/external) are the deadly pathogens that reduce the price of an animal to about half. Some of the common worms/parasites of the Valley are liver fluke, stomach worm, intestinal worm, and the external worms including the most deadly warble fly besides ticks, mites, fleas, and the common fly, etc. For most of the worms, de-worming is the simplest remedy that has already been initiated by the Project.

Total yearly financial losses that the *Palasites* suffer at the altar of various livestock diseases and worms, is a phenomenal amount of 42 million rupees.

Because of the efforts of PCDP, at least 10% of the animals were vaccinated and de-wormed during the last one year. Translated in monetary terms, this means a net saving of 4,200,000 rupees to the local people.

To keep the people away from harvesting of forests, and to prove to them that even the modest saving of 10% in livestock losses could more than upset the losses that the people believe they are suffering - because of ban on logging - the following approach has been adopted:

- Had there not been a ban on logging, the existing working plan would have allowed an average annual cut of the standing volume of 32,000 cft Deodar, 48,000 cft Bluepine, and 133,000 cft Fir/Spruce
 - Converting it in to scantlings, accounting for the management costs, and the share of forest purchasers, the meager returns that the forest owners receive, is hardly 20% of the sale proceeds; after 15 years of wait for their turn
 - This comes to nearly Rs.730,000 per annum
 - Comparing this with the net savings of even 10% in livestock losses, the Palasites are well off by 3,470,000 rupees each year
 - If this message could just be communicated properly, it should be more than enough to stop them going for timber
- This was just last year that the Valley people got wheat on their farms.

Since they had to manage the crop, they delayed their departure to the pastures by about 20 days. This caused four things happen, simultaneously:

- (i) they got an additional crop of wheat;
- (ii) they got wheat straw to be used as fodder for livestock;
- (iii) due to delayed departure to pastures, at least 15% pressure on the pastures was reduced; and
- (iv) having straw handy, they would keep the livestock at stalls, thus further reducing the pressure on natural vegetation

Its long-term impact on the livestock would be that they would become used to staying home. This would also mean that those persons accompanying the livestock would also stay home: and simply staying home would mean doing nothing detrimental to biodiversity, thus contributing, though indirectly, to the conservation of biodiversity. And with that, all that happens today might not be happening tomorrow.

Further, the Infrastructure, Rehabilitation and Development Sector of the PCDP is providing electricity through micro-hydel power stations. Once a man becomes habitual to light and later to TV, he would hardly be willing to go up in the pastures. Even if not all, at least a majority would stay back home and send just a few shepherds to look after the livestock while in the pastures. This would again be one good step forward to reduce the pressure on forests: lesser houses in pastures, lesser repairs, leading to lesser timber consumption, besides lesser wood needed as fuelwood. All this would ultimately lead to a combined reduced impact on forest and other allied vegetation.

Conclusions and Recommendations

It is hoped that the things would take a turn to the better and the biodiversity of the Palas Valley will be conserved, coupled with better livelihood opportunities for the local people, through the following interventions:*

Management of the Valley forests through the establishment of core zones and local use zones.

- Improved animal husbandry practices
- Stall feeding
- Artificial insemination
- Introduction of better grass varieties

References

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