Thirty Years of Managing Suklaphanta, the Swamp Deer and the Tiger: Issues and Strategies

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Conservation values of Suklaphanta

Protected areas are widely considered to be among the most effective means of conserving biological diversity in situ. Protected area management received a real thrust in the 1970s in Nepal. Not only protected areas came to be added, but also action on both their protection and conservation was intensified.

The first organized approach to managing Swamp deer in Nepal dates back to the year 1976. Suklaphanta Wildlife Reserve (SWR) was established in 1976. It is the only protected area which has been set up exclusively for Swamp deer. The presence of world's largest herd of Swamp deer in Suklaphanta makes SWR a globally important site for conservation standpoint.

SWR is a home to a wide range of vertebrates. It is home to endangered wildlife species including Tiger, Elephant, Rhino, Swamp deer, Hispid hare, Pigmy hug etc. In fact, it is the largest refuge of already endangered Bengal Florican and harbors the only hispid hare population in Nepal. Famous for its rich and diverse biodiversity, SWR also has the pride of having the highest density of Royal Bengal Tiger in any tiger habitats in Asia.

The vegetation of the park is a mosaic of great expenses of grasslands primarily of tall, dense grasses interspersed with deciduous forests, interconnected streams and swamps makes the area suitable for many rare and endangered species. Schaff (1987) described eight vegetation types in the reserve. Sal forest, Sal savanna, mixed deciduous forest, Khair-Sissoo forest, dry grassland, seasonal wet grasslands, lowland savanna and marsh. About two third of the total area is forest. The vegetation is dominated by Sal forests. The riverine forest is stretched along Mahakali, Chaudhar, and Bahuni rivers and Khair-Sissoo forest is found along the riverine areas. The grassland and water bodies are very critical for Swamp deer cover 15 and 7 percent of the total reserve area. Some of the important species of grassland are Siru *Imperata cylindrica*, Babio *Eulaliopsis binata*, Kans *Sacharum spontaneous*, Dubo *Cynodon dactylon*, Dhaddi *Themeda sps*., Narkat *Phragmites karka*.

Swamp deer *Cervus duvaucelii duvaucelli*

The Swamp deer, one of the three sub-species of swamp deer in the Indian sub-continent namely the *Cervus duvauceli branderi*, *Cervus duvauceli ranjithsinghii* and *cervus duvauceli duvauceli,* which had once distributed widely across Nepal and India along with himalayan foot hills, has now been confined into a few small protected population totaling about 3000 animals in five areas in India and Nepal. Among the three subspecies *Cervus duvauceli duvauceli* has the highest number of individual up to a maximum of about 2000 across India and Nepal.

The species witnessed a steep decline in the population (780 in 1976) during the 1970s. Due to managerial efforts and stringent protection, the Swamp deer population gradually restored to a relatively safer status. As per the population estimates of 2007, SWR had 1674 Swamp deer whereas 1639 swamp deer was recorded during 2006 census.

Table: Swamp deer population in Suklaphnata Wildlife Reserve

Year	Number	Source
1968	1250	Bhatta and Shrestha, 1977
1978	1000	Schaaf, 1978
1994	1850	Hensaw, 1994
2003	1607	Gyawali, 2003
2006	1639	SWR, 2006
2007	1674	SWR, 2007

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The Bengal Tiger, *Panthera tigris tigris*

The Bengal tiger is classified as endangered by the World Conservation Union (IUCN) Red List of threatened animals (IUCN, 1994), enlisted as Appendix I of CITES and as protected (schedule I species) by NPWC Act 1973. Tiger now occurs in the outer foothills of the Himalayas from Bagmati River in the east to Mahakali River in the west in Nepal.

Royal bengal tiger, one of the five surviving sub-species of tiger on this planet, has the highest number of estimated individuals upto a maximum of 4,556 across India, Bhutan, Bangladesh, Nepal, Myanmar and China. As per the population estimates of 1999/2000 Nepal had 98-123 breeding individuals and estimated total numbers between 340 and 350 (DNPWC, 2005). The world population of all the five sub-species is estimated between 5000-7000 tigers (Seidensticker et. al. 1999). The recent estimates show 105-137 breeding individuals and 360-370 total tiger number in Nepal (Poudel et. al. 2007).

The monitoring of tiger in SWR is carried out using camera-trapping techniques under mark-recapture sampling framework. In the years 2000 and 2005, 16 to 23 breeding individuals were estimated based on tiger monitoring data. A total of 15 to 27 breeding individuals were estimated from tiger monitoring 2006, showing increasing trend of the tiger population. Tiger monitoring in SWR in 2007/2008 is planned with the help of WWF Nepal and NTNC. SWR has the pride of having the highest density of Royal Bengal Tiger in any tiger habitats in Asia.

Major habitat types used by tiger in Suklaphanta include Sal forest, Riverine forest, tall grasslands along Mahakali River, short grasslands and wooded grasslands. The high density of tiger in SWR is attributed to abundant prey species in the reserve. The important prey base for tiger in Suklaphanta comprises spotted deer, swamp deer, hog deer and wild pig.

Table: Status of breeding tigers in Nepal (Adapted from Poudel et. al., 2007)

Location	1999/2000	2005	2006
Protected Areas			
Chitwan National Park	50-60	50-60*	50-60*
Bardia National Park	32-40	32-40*	32-40*
Suklaphanta Wildlife Reserve	16-23	16-23	15-27
Outside Protected Areas			
Chitwan (Barandabar north), Kailali (Basanta), Banke (Shamshergunj), Bara forest and Kanchanpur (Laljhadi forest)	-	8-10	8-10
Total Breeding Tiger	**98-123**	**106-133**	**105-137**
Total	**340-350**	**360-370**	**360-370**

** indicates figure carried from 1999/2000 census.*

Issues and strategies

1. Grassland management

SWR has several grasslands locally known as Phantas and some of these grasslands created and maintained by grazing, some due to climatic climax, some due to repeated fires and some due to management interventions. Tree cutting, uprooting of saplings, shrub and bushes cutting is common practice for grassland management.

Lack of grassland action plan where more than 1550 Swamp deer browsed and lack of Swamp deer conservation action plan are the main problems. The grassland always has undergone a repeated fire and the impacts on small mammals like pygmy hog which requires tall grassland, is completely unknown. Framing of the grassland and wetland conservation action plan and the regular monitoring of the Swamp deer is the need of the hour.

2. Wetland management

Amongst wild animals, deer do not perambulate long distances and remain confined within a radius of 2.5 to 3.0 km (Schaller, 2004). Efforts were boosted since 2000 to create artificial waterholes at strategic places to provide water. So far, there are 6 man made waterholes. During dry season, artificial waterholes are becoming the hubs of wildlife activities. It would be necessary to construct waterholes perennial well distributed in the reserve.

3. Research and monitoring

Population monitoring is an essential prerequisite to plan out scientific management of animal in the wild and with this idea in view of counting of Swamp deer has been carried out in SWR. Furthermore, the monitoring of Swamp deer should be on day to day basis and other species at periodic interval need to continue.

Besides opportunistic sightings of many wild animals, periodic vehicle transect survey might help in assessing the wild animals. Fixed point photography of relocated places could be of added benefits. The reference points can be fixed by taking GPS coordinate and/or marked clearly using enamel on tree or stone for photography.

Lesser known species are poorly studied in the reserve. There are unconfirmed sightings of the Pigmy hog. It needs a immediate attention to confirm the presence of pigmy hog and population status survey with ecological prospective. Therefore Tiger, Rhino, Nilgai, Hispid hare, Pigmy hog, Bengal Florican, like endangered species require focused attention.

4. A fresh look at protection strategies

Setting up a good network of posts in areas where gaps exist in pursuit of buffer zone management program is required. Regular foot patrol and the patrol roster and register are the prerequisite for Suklaphanta management in perpetuity. The monsoon is vulnerable period during which poachers and timber smugglers are more active. While the efforts for controlling poaching and illegal trade must continue, a fresh look at the protection posts would be appropriate. The need of the critical review of the number and efficacy of Nepal Army in reserve protection is realized.

5. Alternatives to satisfy biomass needs

The battle for saving the SWR will not be won within the boundaries of 305 sq. km. core zone, whether the reserve survives will depend crucially on how for the biomass needs of more than 1 lakh buffer zone population can be satisfied, in harmony with needs to wildlife management. Hence, alternatives have to be provided.

6. Changing the cropping pattern

Conversion from seasonal field crops to permanent horticultural tree crops and changing the cropping pattern to high value non-conventional crops should be encouraged in the buffer zone. Cultivation of local fruit trees is to be encouraged. It will reduce conflict between human and wildlife on account of crop damage. This will also create a more favorable habitat for wildlife and reduce dependence of people on forests for firewood and fodder. Mango cultivation can economically viable.

7. Wildlife damage compensation

There exists a provision of compensation in the case of cattle kills and human injury. Moreover, the paucity of fund for compensation is a major problem for the management. However, the amount of compensation and delay in compensation has been the problem area. Further no compensation for crop depredation is an area of misunderstanding between the local people and the management.

8. Green volunteers to control illegal grazing

There is a huge grazing pressure on the forest lands especially in the eastern part of the Reserve. The evacuated village area suffers most from this problem. This has resulted in weed infestation leading removal of certain palatable forage species and causing area less favorable for wildlife species. In the year 2004, 2005 and 2006, reserve management authority provided forage from nearby reserve areas (some 100 to 200m inside the reserve boundary where villagers usually let their cattle to graze) in a regulated manner (twice or thrice per week for 2 hours either in morning or in evening and one from each group member households) and villagers themselves completely stopped cattle grazing in the reserve from Piparaiya to Baghphanta, the western and northern border. In addition, village youths were also engaged in controlling illegal grazing. Adjacent buffer zone user groups, female groups in most cases, were fully utilized to make grass cutting more regulated. This has resulted win-win situation for the reserve and the local communities. This practice, in fact, has threefold effect. First, it indirectly helped to reduce the number of cattle in the buffer zone, second, it improved the relation between villagers and reserve staffs and third and the most importantly, it prepared the grazing lawn for Chital and thereby reduces the crop depredation in adjoining agricultural fields of buffer zone area. This practice can be continued to those areas and can also be applied to other parts of the reserve to control the problem of illegal grazing.

9. Conservation education program

It is imperative to convince the people that biodiversity conservation is vital for a better way of life. Biodiversity conservation can succeed only when people realize the values of biodiversity. Despite having various efforts on conservation education in past years, various facets of conservation education targeting youths and kids should be further stepped up.

10. Ecotourism potentials

Considering the great potentials of ecotourism in the area, visitor information center is established at the reserve entrance gate. Some regular activities like reserve road maintenance, bridge construction and maintenance, watch tower construction and maintenance are being carried out in the reserve. There needs to be some detailed thinking on developing ecotourism in SWR by upgrading tourism facilities and services. The promotional activities should be developed in coordination with other relevant organizations both at national and international arena.

10. Documentation of indigenous knowledge

The indigenous people are the repository of accumulated experience and knowledge of indigenous methods of ethno botanical uses of vegetation. They are not only familiar with the thousands of plant species in their ecosystems but also understand the ecological interactions of the various components of their resource base. The invaluable knowledge of priceless biodiversity of the area needs to be well documented.

11. Wildlife disease

Every year, reserve authority is providing thatch grasses to the public, but accrued benefits thereof and its impact on wildlife and habitat should be assessed critically. The villagers make inroads on the nearby grasslands in the reserves during grass cutting and there is a more danger of spreading diseases during the period. In 2006, more than 50 wild pigs in SWR were reported to be dead immediately after the grass cutting due to Hemorrhagic Septicemia (HS). It was later found that the HS was prevalent in adjacent villages and suspected the disease was spread from the village.

Conclusions

The importance of wildlife conservation in long term well-being of human society is an undisputed fact. The conservation of Barahsingha population in SWR requires species as well as habitat specific management approaches based on sound ecological and scientific principles. To conserve and manage the swamp deer, an ecological research and monitoring program should be made backed by appropriate anti-poaching operations.

On closer scrutiny, illegal grazing is posing a serious threat to the reserve. Due to poaching and timber smuggling, the most potential threats to the residents of the Suklaphanta reserve, especially the innocent Swamp deer, lies with the uneducated poor people in adjacent proximity of SWR and the inadequate conservation education program thereof. These threats impair the journey of both mega and tiny animals of the area and their habitats.

Suklaphanta hosts several grasslands; however, neither the grasslands nor the tiger or swamp deer are safe in SWR. With the illegal grazing, poaching, timber smuggling and natural succession, the tigers are getting poached, the grasslands are shrinking in their size and number, and the swamp deer are not finding a safe haven to browse. Habitat management, stringent protection, effective anti-poaching activities and strict law enforcement coupled with dedicated trained staffs and reduced resource dependency on reserve forests are the major measures that can save the Tiger, the Swamp deer and the SWR from the dungeon of despair.

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