

ELEPHANTS IN DUDWA

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INTRODUCTION

Dudwa National Park lying in the Lakhimpur-Kheri District of Uttar Pradesh falls under the upper-gangetic plain and is adjacent to Nepal border. This Park is one of the best representatives of terai forest in the country. Diversity of floral and faunal life forms, some of which are highly threatened make it an extremely important site *vis-a-vis* conservation value at regional, national and global levels. The presence of elephants in the area has further enhanced the status of the park. This communication deals with status, distribution and historical aspect of the presence of pachyderms in the area and their conservation.

Of the four major populations occurring in India, the north-eastern population is the largest and the north-Indian one, the smallest. Over the years the north Indian population has increased from 500 in 1989 (Sukumar, 1989) to 700 at present (Khan, 1990). Two of the most important elephant areas in Uttar Pradesh are Corbett and Lansdowne Forest Divisions. Elephants in Dudwa are thought to be a part of 700 odd animals, comprising the north-western population in Uttar Pradesh, that ranges between Rajaji Corbett and Lansdowne Forest Divisions. Sukumar (1989) mentions a resident population of 25 elephants in Dudwa. Large scale clearing of forest in Nepal along the Indian border in 1980 resulted in the movement of a remnant population from Nepal into Dudwa National Park, in Lakhimpur Kheri district of Uttar Pradesh (Gupta, 1985). Elephant movement in Dudwa has been seasonal till 1991, contrary to Gupta (1985) and Sukumar (1989).

STATUS OF ELEPHANTS IN DUDWA

Whether the elephants of Dudwa are resident or migratory has been a subject of debate. In the absence of detailed studies and monitoring it appears too conjectural, to assume that they are either migratory or resident. Anecdotal accounts and research work in Dudwa since 1984 also support their seasonal movement. Sukumar (1989) mentions a population of 25 animals in Dudwa National Park that ranges into Bardia. There are three populations of elephants in Nepal: the elephants of western and eastern Nepal are part of a larger population extending into India, whereas the Central population is small and

geographically isolated from the other two and confined within Nepal (Smith & Mishra, 1992). Two groups of elephants, one each in Royal Bardia and other in the Royal Sukla Phanta reserves comprise the western population. According to Singh (1987) elephants were originally only seasonal visitors to Dudwa, but were driven during 1960's and 1970's by massive habitat destruction in Nepal. A herd of about 30 elephants stayed for nearly 10 years in the Park. Elephants used to arrive in the Park by June-July and start their return movement by March-April. This seasonality continued until 1990. The elephants that came in 1991, did not return but stayed back. Thus in the light of above mentioned facts it is wrong to consider Dudwa elephants as residents. Their movement to and from Dudwa can best be described as erratic with a tendency to overstay.

MOVEMENT OF ELEPHANTS

Movement of elephants in Dudwa has been seasonal and erratic. There is enough evidence to show that Dudwa elephants are a part of the population whose range extends into western Nepal (Bardia and Sukhla Phanta). The presence of exceptionally large bull in Dudwa and its prior sighting in Sukhla Phanta and Bardia suggests frequent movement of elephant in these areas. Animals of the western Nepal population range south along the Karnail river from the reserve to a patch of riverine forest across the border along India. Elephants along the Karnali river are separated from forest adjacent to Dudwa by a strip of treeless, intensively cultivated land of 7.5 km. Elephants often cross distances elsewhere (Smith & Mishra, 1992)).

The pertinent question here is why do elephants move through such intensively cultivated and thickly populated areas, with little cover and feeding opportunities and with imminent risk to their lives? Is it because they have exhausted all the resources in the area of their stay and habitat is below optimum or is it purely because of their habit of moving over large areas? Logically speaking it should be the first case, otherwise why should they undertake such hazardous movements at the expense of great amount of energy. The risk factor has increased manifold in last 4-5 decades, because of increasing urbanisation, industrialisation and agricultural expansion. These resulted in deforestation of large tracts of natural forests and their subsequent conversion to crop fields to cater to the growing human needs. As a result of these unmindful activities there has been excessive fragmentation of forests and animal populations in these areas. Species such as elephants with large ranges were confined to isolated pockets, some without even a corridor, to facilitate their to and fro movements. Longer stay of elephants, with a reasonably good population size in these habitat islands, soon depleted the food resources to support their massive requirements. Given their rather naturally destructive feeding habits (of destroying much more than what they actually consume), they render small areas with limited food supply into a marginal or poor quality habitat, which subsequently becomes less attractive to them. This forces the elephants to move out of these pockets of depleted resources, and resort to crop raiding on their way to areas with better cover and feeding opportunities.

Historical records, anecdotal accounts and current literature suggest that elephants since time immemorial have been ranging over large areas. This if looked in evolutionary perspective is debatable. If millions of years ago a major portion of the earth surface was under forest cover, then why should elephants range over large areas when food and cover are super abundant with the unnecessary wastage of energy. Evolution does not favour such traits that are harmful or have little relevance unless there is a genuine need for it. This clearly is against the popular belief or theory that large range of movement is an evolutionary trait and a traditional behaviour. At the same time it strengthens the fact that movement over large areas is recent phenomenon and is an adaptive strategy to meet the sustained requirement of food, limited on spatio-temporal scale because of excessive depredation of elephant habitats during the last few decades.

Thus irregular or occasional overstay in Dudwa may be mainly due to lack of optimum habitat in their traditional retreat plus their overstay in Dudwa, with plenty of food to support 40 odd animals, give enough time to the habitat to rejuvenate at the place of the origin of their movement. This possibly is an adaptive strategy to overcome resource crunch in one area and ensuring a sustained food supply. This may be the very basis of their movement into Dudwa as a consequence of large scale deforestation in Nepal, which resulted in small fragments, unable to sustain a continuous food supply to megaherbivores like elephants on a long-term basis, thus forcing the movement of elephant into areas with abundant food supply.

The Present Population of Elephants in Dudwa : Present population of Dudwa elephants is estimated to be between 40-45 (Sukumar, 1985). During the four years from 1990-1994 seven calves were born, one of which died as results of series of wounds inflicted by rhino in the Rhino Reintroduction Area of the Park. In 1992 a maximum of 46 animals were counted by forest department while in 1993, I personally saw a herd of 30 elephants in Naval Khar area of the park. Elephants in Dudwa live in two or three groups. A group of 16 elephants with 2 adult cows, 2 adult tuskers, 3 sub adults, 2 calves and 7 unidentified animals was found in Bankey Tal and Bhadraula areas. Another group of 15-25 animals range between Sathiana-Sonaripur and Salukapur region of the Park. Two adult tuskers remain together for much of the time. One of the interesting aspects of Dudwa population is the presence of an exceptionally large tusker a little over 11 feet, but with somewhat abnormally protruded fore-head. This big bull was seen occasionally until 1992 in Dudwa. It was also frequently seen in the Royal Bardia Tiger Reserve and was the subject of "Rajah Gaj" expedition in 1993 by a British team, lead by Colonel John Blashford-Snell (Arjan Singh, pers. comm.). This bull was also seen in Sukhla Phanta Reserve in Nepal. All these suggest that there is an intermixing of elephant populations of Bardia, Sukhla Phanta (Nepal) and Dudwa National Park (India).

IMPLICATIONS AND FUTURE PROSPECTS

Dudwa National Park with an area of 614 km², of which roughly 50% is sal forest and about 25% grassland dotted with several water bodies, Nallah and rivers provide an ideal habitat to the elephants. Sal forest of Dudwa besides *Shorea robusta* as the dominant species, has an understory with such species as *Terminalia alata*, *Adina cordifolia*, *Lagerstomia parviflora*, *Mallotus phillipensis*. Rohini (*Mallotus philipensis*) is one of the most dominant species and occurs all over sal forest and contributes significantly to the mixed forest community. It occurs in a reasonably high density and is probably the most utilized by elephants as indicated by their foraging activities. The vast expanses of grasslands are dotted with species like *Dalbergia sissoo*, *Bombax ceiba* and *Acacia catechu* and over the years they have increased in number, retrogressing the grasslands into wooded Savannah. Extensive feeding in grassland and frequent debarking and pushing over of these encroaching woody species may be beneficial for the maintenance of grasslands by containing the growth of these species. A mosaic of tall and short grassland interspersed with sal and mixed forests not only adds to the diversity of habitat but also enriches the faunal diversity.

Grasslands of Dudwa are few remaining representatives of the terai. These grasslands are plagio-climax or in their mid successional stage, maintained largely by burning and to some extent by grazing. In the absence of a proper burning regime, blanket burning is done in an unplanned and unscientific way at the beginning of the dry season. Repeated burning of all patches of tall and short grasses has resulted in changed species composition and encroachment of certain fire resistant and unpalatable grass species. Considerable growth of woody species in the area poses a serious management problem. If this growth is not checked at this stage, this last remaining good terai grassland will be lost to woodland and the important and typical species it harbours are sure to perish. The annual presence of elephant and rhino, both coarse grass feeders will provide micro habitat to such habitat specific species as the Swamp deer (*Cervus duvaucelli*), Swamp Francolin (*Francolinus gularis*), Hispid hare (*Caprolagus hispidus*), Bengal Florican (*Eupodotis bengalensis*) and Hog deer (*Cervus porcinus*). Pushing over, debarking of woody species by elephants will to extent contain their growth. Excessive use of these grasslands leading to trampling, feeding on coarse grass will open up patches of palatable and nutritive grasses to ungulate species.

In terms of tourism, presence of elephants has an immense potential value for the Park. Their presence throughout the year has certainly enhanced the tourism potential of Dudwa. The only negative aspect of the presence of elephants in Dudwa is the occasional crop raiding. All along the periphery of the Park, there is extensive cultivation, mostly of sugarcane, which is the major crop of terai region. Most of the incidence of crop raiding has been reported from Sathiana region where there are large settlements of peasants from eastern Uttar Pradesh with an average land holding of 2-3 acres a piece. There have been instances when the whole crop has been damaged in one night by elephants causing almost total loss to these poor farmers. In absence of any compensatory schemes for elephant damage, there is growing anger among the farmers.

On a long terms basis when population of elephant increases, the incidence of crop raiding is expected to increase, leading to major man-elephant confrontations. The occasional breaking of rhino enclosure fences by elephants offers the reintroduced rhinos a potential opportunity to move into adjacent crop fields. Villagers of the area adjacent to Rhino Reintroduction Area have heard about rhinos but are not accustomed to seeing them and their behaviour when rhinos raid their crops is unforeseeable. Being such an expensive programme, each and every rhino is important and expensive and hence strict protection is imperative.

The movement of elephants in the area will continue to pose a threat to the rhino and cause serious administrative problems. The villagers adjacent to the Park boundary, vulnerable to crop raiding by elephants should be made aware about scaring devices and other available effective methods. At the same time a scheme should be envisaged which can protect the interest of farmers by providing compensation in case of crop loss. This will go a long way in protecting the elephants and establishing a healthy elephant population in Dudwa without any conflict with humans and with possible implication in management and problem mitigation.

The future of elephants in Dudwa thus depends largely on the management practices inside the park as well as in formulating a clear-cut policy for their long-term survival. Being a very small and isolated population it is imperative to redefine the whole conservation programme in the way that major emphasis is given to the viability of this population. There is enough evidence to suggest that intermixing of elephant populations from Sukhla Phanta and Bardia in Nepal and Dudwa in India goes on. But the route through which they move between Dudwa and areas in Nepal makes them highly vulnerable as they have to cross a 7.5 km stretch of treeless and intensively cultivated area. As they move through the agriculture dominated areas they resort to crop raiding and occasionally rogue elephants kill human beings. This is likely to increase the way the human population is increasing, leading to agricultural expansion and deforestation.

Thus, for proper protection and viability of these clustered populations of elephants it is essential to link up these two areas that can facilitate risk free movements of elephants and will allow necessary genetic exchange for minimising the risk of inbreeding and other stochastic events associated with small isolated population.

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