

**POPULATION STATUS, HABITAT USE AND DISTRIBUTION OF
BARASINGHA (*Cervus duvauceli duvauceli*) IN
SUKLAPHANTA WILDLIFE RESERVE, NEPAL**

**A Dissertation
Submitted for the Partial Fulfillment of the Requirement
For the M. Sc. in Zoology**

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Kirtipur, Kathmandu
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RECOMMENDATION

This is to certify that Mr. Chhatra Raj Pandit has completed the dissertation titled '**Population Status, Habitat Use and Distribution of Barasingha (*Cervus duvauceli duvauceli*) in Suklaphanta Wildlife Reserve**' for the partial fulfillment of the M.Sc. Degree in Zoology (Ecology Special Paper) under my supervision. To the best of my knowledge this is an original piece of work which has not been submitted to this university and any other institutions for the same degree.

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APPROVAL LETTER

This is to certify that Mr. Chhatra Raj Pandit's dissertation titled **'Population Status, Habitat use and Distribution of Barasingha (*Cervus duvauceli duvauceli*) in Suklaphanta Wildlife Reserve, Nepal** for partial fulfillment of M.Sc. Degree in Zoology (Ecology special paper) has been found to be satisfactory and approved by us.

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ABSTRACTS

Current population status, habitat use and distribution of Barasingha were studied in Suklaphanta wildlife reserve during November-December 2006. Main objectives of the study were estimation of population, habitat utilization and distribution of barasingha during winter season in the reserve.

Direct ground count method was employed to count the animals. Habitat use was studied by line-plot transect method. Altogether 15 transect lines were laid spacing 500m apart in all vegetation types. GPS location of waterholes, individuals or group of barasingha, fecal pellets found were taken to develop respective maps using GIS.

Altogether 1951 individuals were counted during the period, out of which 563 individuals (28.8%) were male and rests were females and fawns. The sex ratio was 40 stags to 100 hinds. In November group size was 268 individuals per group while the group size was increased to 298.8 individuals per group during December after burning the grass.

Out of 6 habitat type studied, phanta was found to be highly preferred (HP=29.6%) while Sal forest was least preferred. The wooded grassland and marsh came after the phanta in their preference respectively. In Phanta also, burned grassland was most preferred (HP = 70%) over unburned grass land. When burned grassland was available then they use it. In burned grassland, they were sighted even licking the ash adhered to the leaves or laying on ground for maintenance of minerals in body.

They were found usually around Suklapost and Purano tal during the study period. Having grassland and ample amount of water in the place, they like to stay around it. They mixed with other group to form larger one. During evening they were found lying in straight line. Suklaphanta itself is a place where largest herd of barasingha in the world is found.

Encroachment of phanta by trees such as *Bombax ceiba*, *Acacia catechu* etc is a common challenge faced by park authority. Scarcity of water, high predation rate, poaching are the factors challenging barasingha survival in the reserve.

Though park authority is doing with their best effort but it is recommended that more waterholes should be created around southern section, the encroaching plants should be uprooted periodically and inventing other suitable habitat inside the reserve for translocation the animal to escape from mass casualties of the animal.

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TERMS AND CONCEPTS

Antler	Branched horn of a stag.
Artiodactyles	Hoofed animals with even number of toes on each foot.
Biodiversity	The variety of life in all its forms, levels combinations; including ecosystem, species and genetic diversity.
Buffer zone	An area adjacent to Protected Areas, on which land use is partially restricted to give an added layer of protection to the Protected Area itself while at the same time providing valued benefits to the neighboring rural communities.
Browse	Feeding on leaves of plants by animals.
Carrying capacity	Maximum Population size of a species that a given ecosystem or area can support indefinitely under a given set of environmental condition.
Climax	A relatively stable, self- sustaining stage of ecological succession.
Conservation	The planning and management of recourses, so as to maintain and enhance their quality, value and diversity in such a way that their potential is maintained for present and future use by mankind.
Conservation Area	Area managed with an integrated plan for the conservation of the natural environment and the sustainable use of natural resources.

Competition	Two or more individual organisms of individual species (Intraspecific competition) or two or more individuals of different species (site-specific completion) in the same ecosystem attempting to use the same scarce resources.
Dominant	The species which is found in large number in the area.
Endangered species	A taxon is endangered when it is not critically endangered but is facing a very high risk of extinction in the wild in the near future.
Exotic species	The species that is not native to a particular place and suppress the growth of native species.
Extinction	Complete disappearance of an entire species.
Fauna	Animal population of particular area.
Floodplain	The land along a river that is subjected to periodic flooding when the river overflows its bank.
Flora	Plant population of a region.
Habitat	Place or type where an organism or community of organisms naturally survives.
Herd	A group of animals consisting of one or more animals.
Hind	Female Swamp deer.
Hunting Reserve	An area set aside for the management of bird and animal resources for the purpose of sport hunting.

Introduction	Establishment of a species in an area in which it has not occurred before.
Limiting factor	Factor that limits the existence, growth, abundance or distribution of an organism.
National Park	An area set aside for conservation, Management and utilization of animals, birds, vegetation of landscape together with the natural environment.
Poaching	Killing of wild animals illegally without permission.
Population	Group of individual organisms of the same species that occupy particular areas at given time.
Predator	Organism that captures and feeds on parts or all of an organism of another species (the prey)
Prey	Organism that is captured and serves as a source of food for an organism of another species (the predator)
Protected Area	A geographically defined area, which is designated and managed to achieve specific conservation objectives.
Re- introduction	Rehabilitation of species into an area in which it became extinct within historical times.
Red List	List of all the organisms of world that had extinct in the past, and are threatened at present; developed by IUCN.
Rut	Periodic sexual excitement of a male deer.
Species	All organisms of the same kind; a group of plants or animals that is potentially capable of breeding

with other members of its group but normally not with organisms outside its group.

Stag	Male Swamp deer.
Threatened species	General term used to denote all the species that are critically endangered, endangered, vulnerable etc.
Trend	General tendency or direction.
Viable population	Population stock capable of developing and surviving independently.
Vulnerable species	A taxon is vulnerable when it is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium-term future.
Wetlands	Land that remains flooded all or part of the year with fresh or salt water.
Wildlife	All free, undomesticated species of plants and animals of earth.
Wildlife conservation	The worldwide social movement to bring about the protection, preservation, management, and study of wildlife and wildlife resources.
Wildlife management	Manipulation of populations of wild species and their habitats for human benefit, the welfare of other species, and the preservation of threatened and endangered wildlife species.
Wildlife Reserves:	Protected Area managed for the protection of characteristic wildlife, especially migratory bird communities and of threatened plant or animal species.

GLOSSARY

Barasingha	Swamp Deer
Churia	Land lying above Terai in Nepal with altitude ranging from 120 - 2000 m.
District	A part of a country.
Khar-Khadai	A local festival during which the park is opened for local people to collect grasses.
Khola	A naturally flowing water body, particularly a tributary of a river.
Machan	An erected platform established to observe and monitor animals from height.
Phanta	Grasslands
Rinderpest	A kind of animal disease.
Shikar	Hunting Activity.
Siwalik	Synonymous of Churia
Terai	The low lying lands at the foothills; plain land in the southern Nepal with altitude is ranging for 60-300 m.
Tharus	A particular class of people living in the Terai region of Nepal.

ABBREVIATIONS

a.s.l.	Above Sea Level
BNP	Bardia National Park
Ca	Calcium
CNP	Chitwan National Park
DNPWC	Department of National park and wildlife Reserves
GIS	Geographical Information System
GPS	Global Positioning System
HP	Habitat preference
IUCN	International union of conservation of Natural resources
Km	Kilometer
MFSC	Ministry of Forest and Soil Conservation
Mg	Magnesium
Na	Sodium
P	Phosphorous
PA	Protected areas
PPE	Pellet present in each
PPP	Parks People Programme
SWR	Suklaphanta Wildlife Reserve.
TPP	Total pellet present