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Some Wild Fauna around Himalayan Wetlands

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The Himalayan mountain range extends in a broad arc from Pakistan through India, Nepal, Bhutan and China. With elevations ranging from approximately 300 meters in the plains at the base of the mountains to the peaks well over 8,000 meters (Mt Everest 8,848 m). The Himalaya is the tallest and most complex of the world mountain regions (Striffler, 1985). The Himalaya can be divided into three physiographic zones. These includes the lower foothills usually describe as sub-Himalaya and represented by the Siwalik Hills which extend along most of the Himalaya with elevation seldom exceeding 1000 m. The second zone is the middle Himalaya also called Outer Himalaya or the lesser Himalaya with elevation ranges from 600 meters to over 3000 m. Interspersed within the middle zone are occasional larger to small valleys and river basins. The third zone is the great Himalaya or Inner Himalaya zone that covers higher mountain areas, the snow clad peaks and trans-Himalayan harsh climatic dry areas (HMG Nepal, 1977; Kaith, 1960). The glaciers and natural springs have drained the whole area and created a vast area as wetlands supplemented by different lake system in different elevations.

The central sector of the great Himalaya around 800 km lies in the Nepal territories. The hills and the Himalaya constitute over 78% of e total geographical area of Nepal (147,181 sq. km). The country is drained by three major river systems in west to east sequence: the Karnali, Gandaki and Koshi system About 10 different bioclimatic zones may be identified in the vertical zonation of the Nepalese mountains with over 50 types of forests and other vegetation types (Stainton, 1972; Dobremez, 1976 cited in Shrestha, 1985). The mountain valleys and high lands have different types of wetland areas with typical quality and varied extent of volume. According to faunal diversity Wetland in Nepal may be classified into five categories with their own characteristics: 1. Trans Himalayan wetlands, 2. Midland-mountain wetlands, 3. Lowland – tropical wetlands, 4. Managed wetlands (semi natural), and 5. Artificial wetlands: manmade water bodies (Chalise, 2007).

The faunal representations therefore have multiple adaptation characteristics if present in and around the wetland areas of mountains. The fauna in the mountain and near the wetland would bears probably double characteristics and adaptation. They have to accommodate on one hand adversely and abruptly changing weather and climatic conditions and on the other adapt to constantly humidity. The harsh climate, regular and irregular terrain and low atmospheric pressure obviously required certain physiological and morphological development within animals for their successful adaptation (Chalise, 2007).

The study conducted by DNPWC with support from WWF Nepal for the declaration of high altitude Ramsar sites stated availability of snow leopard (*Uncia uncia*), musk deer (*Moschus chrysoaster*), red panda (*Ailurus fulgens*) and wood snipe (*Gallinago nemoricola*) and Cheer pheasant (*Catrius wallichii*) around Rara Lake, Phoksundo Lake, Gosaikunda-Naukunda wetlands and Gokyo and Associated Lakes system (Karki et. al., 2007).

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Rara Lake: Karnali; 1,583 ha; 29°30'N 082°05'E. National Park of the area named after this lake system. It is the largest lake in Nepal, lying at about 2,900m altitude and providing water to the Karnali River. The area has a number of rare and vulnerable fauna and flora species, and the wet alpine pasture, moraines, and damp stream banks along the lake area are the natural habitats for endemic species of biodiversity. The endemic frog Rara paha (*Paa rarica*) is found at only one other location in the Central region, and three endemic species of snow trout, Asala machha (*Schizothorax macropthalmus*, *S. nepalensis*, and *S. raraensis*), are found only here.



Phoksundo Lake: Karnali; 494 ha; 29°12'N 082°57'E. It lies within Shey-Phoksundo National Park and is a glacial lake near Ringmo in the Dolpo region, the deepest lake in the country, and the area is the centre of endemism in the western Himalayan region. The lake, alpine meadows, and bogs provide habitat for a number of rare and vulnerable plants and animals, including the Snow Leopard (*Uncia uncia*), Musk deer (*Moschus chrysogaster*) and Grey or Tibetan Wolf (*Canis lupus*).

Gosaikunda-Naukunda wetlands: Sighting of Pika *Ochotona royle* is abundant in the rocky areas of Gosaikunda, Bhairabkund and Suryakunda area. Call of Yellow Throated Martin could be heard during night time in Gosaikunda lake area while it is fairly common in the South Eastern trail that goes to Naukunda from Saraswoti Kund. Badger and alpine fox are found in the periphery of lake system. The lower area of Saraswoti Kund provides the marginal habitat of musk deer and red panda. The northern slope of Gosaikunda area provides the optimum habitat of Himalayan thar, musk deer and snow leopard (Chalise and Kyes 2005).

Gokyo and Associated Lakes: Sagarmatha; 7,770 ha; 27°52'N 080°42'E. It lies within Sagarmatha National Park, UNESCO World Heritage site. A system of glacial lakes at 4,710m-4,950m altitude in the high Himalayan region at the base of Cho Oyo (the world's 6th highest mountain), not far from Mt Everest, at the headwaters of the Dudh Koshi River which is part of the Ganges river system. The alpine pasture meadow and sloping mountain terrain support a number of IUCN Red listed rare and vulnerable species, such as the Himalayan thar or goat (*Hemitragus jemlahicus*), the Snow Leopard (*Uncia uncia*), Wood snipe (*Gallinago nemoricola*) and many important birds like *Aythya nyroca* and *Grus vigor*.

Threatened Species

The following list includes all mammals which occur in Nepal and are rated as Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) in the 2004 IUCN Red List of Threatened Animals. There are some animals that are not real high Himalayan nature as their habitats are in subtropical Tarai plain areas south of Churiya range. They account nearly eleven mammals in the following list.

Legal status of Mammals in the Himalayas

Critically Endangered:

1. Pygmy Hog (*Sus salvanius*).*

Endangered:

1. Asian Elephant (*Elephas maximus*).*
2. Chiru (Tibetan Antelope) (*Pantholops hodgsonii*).
3. Ganges River Dolphin (*Platanista gangetica gangetica*).*
4. Hispid Hare (*Caprolagus hispidus*).
5. Indian Rhinoceros (*Rhinoceros unicornis*).*
6. Particolored Flying Squirrel (*Hylopetes alboniger*).
7. Red Panda (Lesser Panda) (*Ailurus fulgens*).
8. Snow Leopard (*Uncia uncia*).
9. Tiger (*Panthera tigris*).*@
10. Wild Water Buffalo (*Bubalus bubalis*).*

Vulnerable:

1. Argali (*Ovis ammon*).
2. Asiatic Golden Cat (*Catopuma temminckii*).
3. Assamese Macaque (*Macaca assamensis*).
4. Barasingha (*Cervus duvauceli*). *
5. Blackbuck (*Antelope cervicapra*). *
6. Clouded Leopard (*Neofelis nebulosa*).
7. Dhole (*Cuon alpinus*).
8. Eurasian Otter (*Lutra lutra*).
9. Fishing Cat (*Prionailurus viverrinus*).
10. Four-horned Antelope (*Tetracerus quadricornis*). *
11. Gaur (*Bos frontalis*). *
12. Himalayan Black Bear (*Ursus thibetanus*).
13. Himalayan Tahr (*Hemitragus jemlahicus*).
14. Irrawaddy Squirrel (*Callosciurus pygerythrus*).
15. Mainland Serow (*Capricornis sumatraensis*).
16. Malayan Porcupine (*Hystrix brachyura*).
17. Mandelli's Mouse-eared Bat (*Myotis sicarius*).
18. Marbled Cat (*Pardofelis marmorata*).
19. Sikkim Rat (*Rattus sikkimensis*).
20. Sloth Bear (*Melursus ursinus*). *
21. Smooth-coated Otter (*Lutra perspicillata*).
22. Wild Yak (*Bos grunniens*).

* The animal is mainly found in lowland of Nepal not in snowy area and highland.

@ The tiger movement is recently recorded around 3000 meter also.

The wild animals found in Nepal Himalaya can be more than a dozens group that can be categorized according to government given status. More than 13 species out of 26 protected species of Nepal are found in highlands (Table 1). They are basically found around the wetland areas of higher mountains. The wetland areas in the mountains are considered basically lakes, ponds river basins and adjacent forest and pastureland habitat. They are shy, elusive and solitary in nature (Chalise 2008).

Table1. Animal generally found in Nepal Himalaya and their legal status.

Civet	1. Common palm civet (<i>Paradoxurus hermaphroditus</i>)	2. Large Indian civet (<i>Viverra zibetha</i>)
	3. Spotted Linsang (<i>Prionodon pardicolor</i>) ‡	4. Himalayan palm civet (<i>Paguma larvata</i>)
Pandas	1. Red Panda (<i>Ailurus fulgens</i>) ‡	
Goat	1. Ghoral (<i>Nemorhaedus goral</i>)	2. Serow (<i>Capricornis sumatrensis</i>)
	3. Himalayan thar (<i>Hemitragus jemlahicus</i>)	
Sheep	1. Nayan (<i>Ovis ammon hodgsoni</i>) ‡	2. Bharal (<i>Pseudois nayaur</i>)
Deer	1. Musk deer (<i>Moschus chrysogaster</i>) ‡	2. Sambhar (<i>Cervus unicolor</i>)*
	3. Chevrotain (<i>Ragulus meminna</i>)	4. Barking deer (<i>Muntiacus muntjak</i>)*
Antelope	1. Tibetan antelope (<i>Pantholops hodgsoni</i>) ‡	
Cat	1. Snow leopard (<i>Uncia uncia</i>) ‡	2. Clouded leopard (<i>Neofelis nebulosa</i>) ‡
	3. Golden cat (<i>Felis temmincki</i>)	4. Leopard cat (<i>Felis bengalensis</i>) ‡
	5. Pallas cat (<i>Felis manul</i>)	6. Jungle cat (<i>Felis chaus</i>)
	7. Fishing cat (<i>Felis viverrina</i>)*	8. The Lynx (<i>Felis lynx</i>) ‡
Dog	1. Jackal (<i>Canis aureus</i>)	2. Red fox (<i>Vulpes vulpes</i>)
	3. The wolf (<i>Canis lupus</i>) ‡	4. The Dhole (<i>Cuon alpinus</i>)
Horse	1. Wild ass (<i>Equus hemianus kiang</i>) known to occur around west Nepal	
Wild Yak	1. <i>Bos grunnius</i> ‡ wild species not recorded in Nepal	
Bears	1. Himalayan Black Bear (<i>Selanarctos thibetanus</i>)	2. Brown Bear (<i>Ursus arctos</i>) ‡
Pangolin	1. Chinese Pangolin (<i>Manis pentadactyla</i>) ‡	2. Indian Pangolin (<i>Manis crassicaudata</i>)* ‡
Monkeys	1. Himalayan Langur (<i>Semnopithecus ajax</i>)	2. Assamese monkey (<i>Macaca assamensis</i>) ‡

Note: * not real Himalayan ‡ Protected by Nepal Government Law, 1973

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