

## Small Mammals: Viable Conservation Issues

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Everybody knows Rhinoceros, Elephant or Tigers or any other large sized mammals but we are not familiar with bats, Rats, Shrews or Marmot. Why? Because these are not charismatic big sized animals. Small or large mammals do not constitute definite taxonomic entities. The adult weight of contemporary terrestrial animals belonging to class mammalia ranges from 1.7 gm ( the shrew and *Sorex*) to over 5 tonnes ( The African Elephant). Small mammals have been considered to include any species whose adult live weight ranges from less than 2gm to about 5 Kg. In the world, about 90% of the total mammalian species have their body weight below 5 kg. More precisely, small mammal includes the groups of animals like Insectivores (Shrews, Vole), Rodents (Rats and Mouse), Lagomorphs (Pika and hares), and Carnivores (Cats and Otters) and Chiroptera (Bats). Most of them eat a fairly large variety of vegetal materials (grazers, browsers, seed eaters, nectarivores), although a reasonable minority is insectivorous or carnivorous. On the other hand, large mammals are almost exclusively vegetarians except large canids, felids and bears.

Among the small mammals rodents are the most diverse and chiroptera are the second most diverse groups of mammals. Out of 5,418 known mammals of the world, rodents only comprises about 2700 species while the chiroptera comprises about 1116 bat species. In percentile, Rat families constitute 42% and the bat family covers about 20% of total. In Nepal, there are 51 species of bats and 57 species of rat's family are known till now. However, it needs updating. We have one endemic mammal named Himalayan wood Mouse belonging to family rodents. They are not only numerous in Number but also they have good ecological services to our environment. Nepalese knowledge is very poor on their ecology. The available database was derived through the opportunistic study from foreign scholars. The Biological project profile (1995) data seems very incomplete and anecdotal.

Ignorant people think rats as crop pest and they know nothing except nuisance cause by Rats and mouse. Similarly, people think bats as an ugly and symbol of demon. Our perception is exactly wrong to these creatures that is why our activities are also injustice to small mammals. Studies show that only 5-10% of rodents are the major agricultural pests. In the name of crop pest, we are treating them negatively to remaining 90-95% of other non-pest species. They are actually the environmental engineer because they help us in plant pollination and seed dispersal, in aeration of soils through digging and burrowing activities. The major role is in ecological food web. They are the food sources of our most wanted carnivores like Tigers, Weasels, Otters, Fox, Jackals and birds of prey e.t.c. The squirrels are the indicator species of ecosystem. The poor condition of rodents denotes the degraded landscapes. Similarly, Bats play vital role in plant pollination and seed dispersals. Durian Fruits is the example, which is totally depends on bats for its pollination. Bats are "mosquito specialists" of the environment. A single insectivorous because our conservation procedures do not highlight them and their ecological role.

Millions of dollars has been investing for the studies and conservation issues of large sized fauna. The thoughtful and miserable matter is that the status of these protected fauna is more in the risk of extinction. Now our conservation procedures need to be rechecked. Our conservation efforts are only confined to mega fauna. Does it appropriate? Though the small mammals can recover from "ecological disaster which cause total extinction, There are several constraints of being small size. They have high turn over rate, short generation time. The most disadvantages to them are the high energy cost of homeothermy. A greater energy loss must be balanced by an increased metabolic rate if body temperature is to be kept constant. They have low gestation period and life span as well. The ageing process is accelerated. Most of the small mammals have average life span is less than one year except bats. They need to expend more energy so require more food intake. Most small mammals cannot survive for more than a very small number of days in the absence of food.

Behaviorally speaking, a short life span can be a serious drawback for small mammal species. It prevents the elaborate socialization of the young and limits the opportunities for learning from the experience of adults and does not facilitate the development of social traditions too. They have rather conservative way of life, rigidly in behaviour that compels them to rely upon genetically fixed skill. So they have very less selection processes to build up new behavioural adaptations.

In Nepal, we are neglecting the study of the small mammals. There must be several species which are collapsed day by day before their introduction to us. The faunal collapse indicates our incomplete conservation efforts. One of the weaknesses in existing wildlife conservation procedure in Nepal is to exclude the small mammals through the species priority list. The country has no any specific wildlife policies regarding small mammals. They have good ecological role. Many vertebrate predators rely on rodents as key supplies of food due to their high turn over of biomass. Because of nonselective food habits of rodents, one can consider them as a link between many primary producers and the vertebrate predators of the ecosystem. The burrowing activities greatly magnify the role of small mammals in mineral cycling. The other subtle role of small mammals is their impact on the diversity of the ecosystem. Clumped distribution of excretion spots or faeces and urine, feeding habits and burrowing activity influence diversity of plant cover. Burrows provide the shelter place for many invertebrate species. Similarly other considerable role of small mammals is plant pollination and seed dispersal. There are more than 300 species of plants in the world that depends on bats for pollination and seed dispersal. Tropical forests are more suitable example for this. Bat can finish 3,000 mosquitoes within a night. Let us imagine, aren't they really supporting us for controlling the mosquito related diseases like malaria, filarial or other mosquito borne disease?

Some of the micro mammals are our national identity for example, Himalayan field mouse (*Apodemus Gorkha*) is endemic to Nepal. In the past, the dedicated work of British resident Brain Hodgson (1836) yielded several new species of small mammals. For a hundred years only scattered new records were published by Abe H. 1982, Fry, 1925, (Kock, 1996; Martens 1980) e.t.c. with several Zoological investigations. After that the studies were concentrated mainly on the Mega fauna. Because of needs to study

keystone species for establishing nature protection areas. This made lesser extent on the small mammalian species. The present database is the review of these previous museum collections. The others are full of taxonomic inconsistency e.g. Prof. Shrestha, Central Department of Zoology, has made several such projections without real taxonomical details. But, it should be ascertained. So the country needs the exemplary survey for their up to date. Definitely, there is chance of adding more mammalian diversity at Nepal. The country need full timer dedicated scientists to study about them and to highlight conservation need to these helpless small faunas. Otherwise some of the species can be extinct from our surrounding before their introduction with us.