

Prioritization of Conservation area based on Faunal Distribution in Sikkim Himalaya

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Abstract—*Conservation of biologically diverse area needs immediate attention due to the fast rate of degradation of natural forest especially in tropical areas. Himalayan biodiversity hotspot including Sikkim exhibits immense gradient of altitude and climate resulting in great variation of life forms. However, recently Sikkim is witnessing massive developmental activities especially between low and mid elevation. Hence, there is urgent need to prioritize the area for minimizing the loss of biological diversity. We used the species distribution of four taxa (three vertebrates: birds, reptiles and amphibian, and one invertebrate: butterflies) to examine whether existing protected areas are adequate to conserve the high diversity of Sikkim. The data used herein are based on the study conducted along the Teesta valley, Sikkim covering 300 to 4800m elevation during June 2003-March 2006. Circular plot method for birds and butterflies and time-constrained visual encounter survey for reptiles and amphibian were followed for sampling. Species richness at each 500m interval was analysed for four taxa separately as well as together. Maximum number of species was found at 1500-2000m for birds and amphibians, and 500-1000m for reptiles and butterflies. The combined richness showed peak at 1000-1500m. Species composition of all the taxa varied among the altitude categories. The range profile of species, especially of low altitude areas, showed narrow altitude range (<1000m). Distribution of protected areas does not concur with the distribution of biological diversity in Sikkim Himalaya. Although Sikkim harbours 3129 km² (44.10%) of forest area, most of the existing protected areas (six sanctuaries and one biosphere reserve) lie mostly above 2000m whereas rich biodiversity occurs below 2000m. Further, areas <2000m is exposed to several anthropogenic pressures such as hydel project, road construction and tourism. The study recommends protection of entire elevational gradient for the holistic conservation of biodiversity of Sikkim Himalaya.*

Keywords: *Biodiversity, Distribution, Elevational gradient, Himalaya, Sikkim.*