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Abstract: Class Insecta, the largest group in the animal kingdom, consists of the second largest order Lepidoptera which contains moths and butterflies (Kumar. A, 2013). Moths are good model organisms to understand patterns of environmental change as being ectotherms they are, susceptible to climate changes. They are bio-indicators and were the model organisms that led to the discovery of industrial melanism. Further they form the key prey-base for many species, thus, their dispersal, divergence, and distribution which is directly related to the patterns of diversity of a variety of species across different taxa who are their predators. India is home to four biodiversity hotspots and many taxonomic studies and checklists have been produced on moths from various regions in India. However, there is a general paucity of ecological study on diversity patterns on moths and only one study so far seems to have examined patterns of diversity of moths in India. This thesis focused on unravelling patterns of moth diversity in relation elevational gradient and canopy type in the North-western Himalayas. Moth sampling was carried out in 18 sites across Himachal Pradesh in 2019 for two nights in each location. The sampling locations were divided into three categories depending upon the elevation (LOW, MID, and HIGH) and two based on the canopy type (OPEN and CLOSED. Data analyses was carried out to examine, the effect of elevation and canopy type on moth species richness and abundance, in the 18 sampled locations. The result suggests that overall, there is a low positive correlation of moth species richness and abundance across elevation and these also vary based on canopy type. There seems to be larger variation for both Species Richness and Abundance for CLOSED canopy type habitat as compared to OPEN canopy type. Along with that the Shannon Wiener diversity index also tells us that the diversity is greater in MID elevation followed by HIGH elevation and dips at LOW elevation. However, habitats with OPEN canopy type have similar diversity indices across the three elevation categories unlike CLOSED canopy type where diversity is highest at MID elevation, followed by HIGH elevation, and low at LOW elevation. This thesis presents an overview on patterns of species richness and abundance of moths in the western Himalayas (Himachal Pradesh) with varying elevation and habitat type.

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