

## Altitudinal vegetation mapping of Lahaul valley, Himachal Pradesh

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**ABSTRACT :** In the present study, we have used supervised classification method for classifying Landsat Thematic Mapper™ satellite images of 30 meter spatial resolution into different vegetation classes. It was observed that vegetation constitutes only 12.45% (83,098.4 Ha) of the total area (667150.6 Ha) of Lahaul and 75% of this green area is spanned by alpine pastures (62,454.06 Ha). Besides the alpine pastures, forests dominated by Birch (*Betula utilis*), Juniper (*Juniperus macropoda*), Mixed broad-leaved, Mixed coniferous and Blue pine (*Pinus wallichiana*) forests constitute the rest 25% of the total vegetation. The accuracy of the results obtained was evaluated by using ground thruthing GPS points with an overall accuracy of 83.56% and kappa coefficient of 0.8206. The vertical extent of tree line in the study area was analyzed using a digital elevation model (DEM) in geographic information system (GIS) package. Thus, the present study provides for the spatial extent of vegetation types in the study area, which is useful for sampling of these communities for plant species population assessment. This forms a current baseline data which could be used for detecting and accounting for the change in vegetation and its structure from the past by using satellite images of earlier period. The study will also be helpful in identifying and establishment of chain monitoring plots in different critical habitats, which need to be monitored with respect to their responses to changing climate in future.

**Key Words:** Trans-Himalaya, vegetation type, altitudinal vegetation mapping, supervised classification, DEM, Lahaul valley.