

STANDING TREE BIOMASS AND CARBON CONTENT IN NATURAL FORESTS OF KUMAUN IN CENTRAL HIMALAYA

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Abstract: Forest is one of the major carbon sinks which mitigates climate change problems, if deforested, they become a major source for atmospheric carbon and influence the climate from local to global level. Therefore forest must be conserved and managed in a scientific way as well as in collaboration with community residing close to the forests, because forests are depleting very fast from such sites. It is therefore prerequisite and very urgent for scientific community to save the existing forests wherever they occur. Keeping in view, we investigated the certain aspects i.e. biomass and carbon of forests located in Lohaghat, a remote border area of Kumaun in Uttarakhand. In studied forest sites, tree species richness, density and basal area ranged from 02-05, 920-1345 individual ha⁻¹ and 58.7-93.0m²ha⁻¹ respectively. Tree biomass of forests ranged from 495 to 718 t ha⁻¹. Of this, *Quercus leucotrichophora* and *Pinus roxburghii* accounted for 56-79 and 1-76 percent, respectively, however, rest of species accounted for 1-25 percent. Tree carbon content in forests ranged from 229 to 341tha⁻¹. Of this, *Quercus leucotrichophora* and *Pinus roxburghii* shared 193-244 and 04-168 t ha⁻¹. Our estimates of biomass and carbon are on higher side than earlier estimates reported by several workers for natural forests and fast growing plantations in plain area of the region. Thus it is concluded that high potential of biomass and carbon contents of studied forests must be conserved, otherwise any deforestation and degradation activities would release the already stored carbon into the atmosphere, therefore it requires a more appropriate way so that they could not further degraded from such existing forests and also promotes for new regeneration to maintain the future sustainability. Such scientific inputs not only save the high carbon potential of forests but also continuously will sequester the atmospheric carbon through enhancing tree productivity. Further it is to say that climate change is also a cause of land use changes and practices, thus we have to be very careful about forest conservation and carbon management that would sorted out the present growing climate change problems apart from various other tangible and non-tangible benefits.

Keywords: Tree species, basal area, biomass, carbon content, natural forest site, central Himalaya

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