

A collaborative research project on

Estimation of Forest Carbon Pool in Western Ghats, Karnataka -Development of biomass expansion factors for major forest types

The TEAM of Forest Research Center (Indian Council of Forestry Research and Education) Hyderabad

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Introduction:

National Remote Sensing Agency has contemplated to assess forest carbon pool of Western Ghats using satellite remote sensing and ground based measurements. These studies require intensive ground based data with reference to below ground biomass, above ground biomass with respect to leaf, stem, branch and root. These inputs form primary basis for developing any expansion factor which may be based on relationships with easily measurable parameters like Diameter, Height and Canopy cover/ Leaf Area Index.

Forest Research Centre, Hyderabad a regional unit of Indian Council of Forestry Research and Education (ICFRE), Dehra Dun has the core competency in the field of forestry research and involved in several research projects in Andhra Pradesh as well as Karnataka. The scientists and officers of Forest Research Centre, Hyderabad, apart from being well trained and experienced in the tree volume and biomass estimation, have worked in close liaison with the state Forest Departments in the inaccessible areas of Western Ghats on this sponsored project especially Mr. P. Ramachandra DCF Haliyal has been very instrumental in helping in the execution of the project.

Objectives:

- To estimate the total biomass (both above ground as well as below ground) of various trees, shrubs and herbs through non –destructive methods.
- Develop biomass prediction equations based on girth/diameter and Leaf Area Index.

Study Area:

The study area is selected in Uttar Kannada (Karwar) district of fragile Western Ghats Ecosystem with greatest species diversity and represented by highly productive forests of the country. The study area located in parts of Haliyal and Yellapur forest divisions of Uttara Kannada district, the mid-western part of Karnataka state. It occupies the geographical position between 15° 01'15" to 15° 06'30" North latitude and 74° 42'34" to 74° 45'34" East longitude and by geographical area of 50 sq km. Geologically, it is a transitional zone between the younger rocks of Deccan trap formation and the older crystalline rocks of Archean shield of the Indian peninsula. It is a tract of hilly terrain with gentle slopes and broad valleys, with altitude ranging over 1000 m. The soil on the exposed slopes is shallow, and experiences southwest monsoon and mean rainfall about 3000 mm and is largely restricted to the months between June and October. The mean monthly temperature ranges from 25 to 33 °C and mean minimum monthly temperature ranges from 13 to 21 °C. The natural vegetation is a semi-evergreen type of forest along the western slopes, grading to secondary/ moist deciduous types in the lower