

Use of Forest Data from the Ministry of Environmental Protection and Agriculture of Georgia to Assess Biomass and Carbon Sequestration in Stands of Scots Pine (*Pinus sylvestris*) and Caucasian Oak (*Quercus macranthera*) across Georgia

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Annotation

This study aims to assess the biomass and carbon sequestration potential of montane forests in Georgia through the combined use of data from the National Forest Inventory (NFI, 2020–2021) and field surveys conducted in the Akhaltsikhe region. The research focuses on two dominant forest species: Scots pine (*Pinus sylvestris* var. *hamata*) and Caucasian oak (*Quercus macranthera*).

The analysis is concentrated on ecologically comparable areas located at elevations of 1400–1850 m above sea level with eastern exposure. Regional growing stock volumes were derived from NFI data, while oven-dry wood density values obtained from field measurements were applied to estimate aboveground biomass and carbon stocks in accordance with IPCC guidelines.

The results indicate that *Pinus sylvestris* var. *hamata* exhibits higher biomass and carbon storage due to its broader regional distribution, whereas *Quercus macranthera* forms significant carbon reservoirs in more localized high-mountain regions. The study confirms that integrating national forest inventory data with local field measurements provides a reliable and practical approach for regional forest carbon assessment and establishes a foundation for future plot-based detailed studies.