

## Investigation of Carbon Stock Changes in Forests of Uludağ National Park

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**Abstract:** In this study, it was aimed to evaluate the temporal changes in the amount of carbon stock held in the stands of Uludağ National Park with the help of biomass equations (BE) and biomass expansion factor (BEF) methods. For this purpose, the changes in the amount of stand carbon stock for the 1994-2012 and 2014-2033 plan periods of Uludağ National Park were tried to be determined by using BE and BEF methods. Previously determined biomass equations (BE) were used for the species represented in the types of biomass to make biomass and carbon calculations using the biomass equations method. For species that do not have biomass equations, calculations were made by averaging the biomass amounts given by coniferous tree species and broadleaf tree species according to diameters from the existing biomass equations. It was calculated that in the 1994-2012 plan period in Uludağ National Park, 447,265.46 tons of total carbon was stored by the BE method and 346,131.39 tons by the BEF method in all stand types. In the 2014-2023 plan period, the carbon stored in all stands was calculated as 483.917.06 tons by BE method and as 313.331.79 tons by BEF method. According to BE and BEF calculations; It showed that the amount of carbon stored in the forests of Uludağ National Park decreased in coniferous and broad-leaved forests during the 20-year period from 1994 to 2014, while it increased in mixed forests. The most important deficiency encountered in the study is the inability to calculate the carbon storage amounts precisely because of the lack of biomass equations for broad-leaved species.

**Keywords:** Forest biomass, Carbon, Allometric biomass equations, Biomass expansion factor (BEF), Uludağ National Park.