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Carbon and Nutrients Stocks in the Mineral Soil of Old High Forest Chestnut Stands

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The organic C of the soil is the major stock of the terrestrial biosphere with great importance for the balance of carbon at the global scale. Nowadays, a reliable estimate of the stored C, in the mineral soil pool of forest ecosystems, is of great importance in helping Governments to make decisions in carrying out the Kyoto Protocol. In this study the quantification of C and nutrients stocks in the mineral-soil compartment for old high-forest Chestnut (*Castanea sativa*) stands was done. The study was developed in the Northern of Portugal in the mountains of Bornes, Marão and Padrela (Regional level) where the species occupy a considerable area. On average 54.5, 184.2 and 59.5 Mg ha⁻¹ of C were stored between 0-80 cm of depth of the mineral soil in these mountains, respectively. The quantity of C in Marão is significantly different from the other sites. In the stands of Bornes and Padrela the soil profiles are less developed than in Marão and C stocks abruptly decrease according to depth. On average the nutrients stored between 0-80 cm of depth ranged from 191 kg ha⁻¹- 512 kg ha⁻¹ for the K; 9 kg ha⁻¹ – 37 kg ha⁻¹ for the P and 4 Mg ha⁻¹– 16 Mg ha⁻¹ for the N.