

**Abstract:** Carbon sequestration is one of the most important processes in the soil. There is three times more carbon in soil than in the atmosphere, significant part of this soil carbon is deposited in the forest soils of North America, Europe and Asia. Soil, compared with biomass, is able to store carbon for a long time and protect it from decomposition and release back to the air. Carbon sequestration and its stock in soil are influenced by many factors (climate, bedrock, biological activity, relief and land use). Forest soils contain large amount of carbon and with adequate management and tree species composition is possible to increase final amount of soil carbon. This thesis is about, besides other things, measuring soil carbon in different depths and comparing the final results in total amount of carbon in soil. Practical part compare amount of carbon in forest soils of two main tree species in Czech mountain forests: beech and spruce, where the largest amount of soil carbon is stored in the Czech Republic.