RINAL SYAHPUTRA LUBIS. Estimation Correlation between Soil Characteristics Toward Reserved Carbon (Carbon Stock) in the Secondary Forest. Supervised by OMO RUSDIANA

Forest ecosystem is a unity which is closely related to the natural processes that have a complex role in maintaining the stability of constituent components of the ecosystem. The complex role of the forest is to maintain the stability of the global climate and soil protection. Related to global climate stability and international issues of climate change, forests have an important role as a source of carbon emissions (source) and carbon sinks and stores (sink). Related to the stability and the protection of soil, soil has characteristics that can help the growth of vegetation. The greater fertility of the soil, the greater expected growth of vegetation, it can be implied that the greater the carbon stored on the forest stand as well as on the under plants or litter. Therefore, this study aims to determine carbon deposits and the characteristics or site qualities in secondary forests, suspect and find out whether the characteristics of the soil has a high or low correlation to the carbon stored in secondary forest.

Carbon stored in secondary forests of 41948,75 kg/ha of which 91,36%, equivalent to 38326 kg/ha of carbon stored in standing and 8,64%, equivalent to 3622,75 kg/ha of carbon stored in plants and litter below. Then the results obtained from soil characteristics include pH = 4,22, CEC = 17,05 me/100gr, C-organic = 2,86 %, organic matter = 4,97 %, N-total = 0,27 %, C/N ratio = 10,73 %, P-total = 2,22 ppm, K-total = 0,34 me/100gr, bulk density = 1,1 gr/cm³, and soil porosity = 57,96 %. When viewed overall, whether chemical composition and nutrient content of soil, conclude that the soil fertility status fall into the low category. This is because the content of the element P in the soil is so low that indicates a low soil fertility.

After tested the correlation between soil characteristics and stored carbon (C-stock) is obtained that the pH, the C-organic, organic matter, total N, and K soil has a correlation or effect of carbon stored in the secondary forest.

Keywords : forest, role of forest stand, C-stock, soil, soil characteristics