CARBON STORAGE IN AFROMONTANE RAIN FORESTS OF THE EASTERN ARC MOUNTAINS OF TANZANIA: THEIR NET CONTRIBUTION TO ATMOSPHERIC CARBON

Munishi, P.K.T. and Shear, T. H. *Journal* of *Tropical Forest Science* 16(1): 78-93, *2004*

With the increasing concern about rising atmospheric carbon dioxide Concentration and its implications for global climate, the role of terrestrial vegetation and especially tropical forest management have received attention as a means of mitigating carbon (c) emissions. Thus, inventorying carbon pools in these ecosystems has become important for understanding the global C budget. Tree dimensions, wood basic density and analyses of soil C concentration were used to quantify the biomass and C pools of the Eastern Arc Mountains of Tanzania. Tree C density was estimated as product of wood volume, basic density, and promotion of C in wood. Soil C density was estimated as product of soil volume, bulk density and per cent C. Tree biomass was 1055 ± 35 and 790 ± 20 t ha' for the Usambaras and Ulugurus respectively. This aggregated to 517 ± 17 t ha' C in the Usambara and 388 ± 10 t ha' in the Ulugurus. The soil organic C density was 418 ± 100 t ha-1 in the Usambara and 295 ± 53 t ha-1 in the Ulugurus. id-altitude plant ommunities had higher C storage potential compared with high altitude plants. This capacity for C storage, population pressure and the extensiveness of these forests in the region make their conservation a global significance for C emission mitigation.

Key words: *Biomass - plant communities - soil organic carbon - mitigation.*