Abstract

The research´s objective was to carry out a study of the conservation of the paramo during the last 20 years and of the ecosystem service of the soil in the Sicalpa micro-watershed, Colta canton. The satellite images were processed and the supervised classification model was applied, generating three use maps with five categories: Urban Zone (U), Intervention (I) corresponding to pasture and cultivation, Forest Plantation (FP), Wetland (H) and Paramo (Pa). The U category showed an increase from 0.5% to 2.6%, followed by I, which increased from 55.06% to 58.23%, and PF from 2.36% to 2.72%. H and Pa ecosystems decrease from 5.29% to 4.91% and Pa from 36.81% in 2001 to 31.54% in 2021. The inter-annual rate of change was calculated and it could be evidenced that for the 2001-2009 interval, the landscape experienced a process of rapid change presenting 0.80% threshold that exceeds the uniformity. While for the 2009-2021 interval, the landscape has a slow change process since its rate of change is 0.5% and does not exceed uniformity. The carbon stock in the soil was clearly identified in three groups (a) constituted by the geological formation Cangahua and Glacial Deposits with an average value of 176 Mg C/ha, (b), Yunguilla with an average value of 198 Mg C/ha, (c) Coluvioaluviales Deposits and colluvial deposits with 243 MgC/ha.

Key words: soil organic carbon, ecosystem services, paramo, transitions.

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