

Natural control on coarse woody debris features in steep headwater of Borneo tropical forested catchments

ABSTRACT

Undisturbed upper forested catchments are important ecosystems because they serve as vital sources of clean and sustainable water resources. However, natural control on coarse woody debris (CWD) characteristics within these upper forested catchments remain poorly understood and often being neglected. This study aimed to assess the CWD characteristics based on natural control at two undisturbed steep upper forested catchments. Coarse woody debris survey was conducted at a 2-km-long upstream for each stream and divided into 100 sampling stations at 20 m interval. The methods applied were described to determine their distribution with respect to position, size, volume and decay class. The results demonstrated that 2.9 and 1.7 individual CWD were recorded at every 20 m interval at Sg. Kana Kanan and Sg. Kana Kiri, respectively. Natural control on diameter showed a reverse J-shaped distribution. As for volume per unit stream length (m^3/m) analysis, Sg. Kana Kanan and Sg. Kana Kiri recorded approximately 0.036 m^3/m and 0.022 m^3/m , respectively. The decay surveyed demonstrated that approximately 33.6 % of the survey materials fall into Class IV compared with 37.6% for Sg. Kana Kiri based on natural factor. The CWD patterns within both steep undisturbed catchments may contribute as a benchmarking in tropical hill forest ecosystems. The assessment of natural effect on CWD revealed that woody debris is an important component to be considered in any future hydrological studies.