ABSTRACT

Erosion is one of the causes of critical land, such as the conversion of forest to agricultural land which has a negative impact on watershed ecology and the sustainability of natural resources. The negative impact caused by agricultural activities is erosion which can reduce land productivity or lower soil fertility. This study aims to determine erosion prediction using the Universal Soil Loss Equation (USLE) and Revised Soil Loss Equation (RUSLE) methods and to obtain a comparison of erosion prediction values using the USLE and RUSLE methods in the research. This research was conducted in the Bawang Gajah Sub DAS, Central Aceh Regency. The research was conducted in December 2024 - February 2025. This research uses a survey method with four stages, namely the preparation stage, the preliminary survey stage, the main survey stage, and the data analysis and presentation of results stage. The results showed that the highest predicted erosion values occurred in Land Mapping Unit (LMU) 3, namely 3,442.85 tons/ha/year using the USLE method and 1,881.59 tons/ha/year using the RUSLE method. Meanwhile, the lowest predicted erosion values were found in LMU 9, namely 7.00 tons/ha/year using the USLE method and 2.49 tons/ha/year using the RUSLE method. The comparison of USLE to RUSLE erosion predictions shows a ratio of 1 : 0,42. There are 8 LMU whose erosion values are above the erosion tolerance value, namely LMU 3, LMU 4, LMU 5, LMU 6, LMU 7, LMU 10, LMU 11, LMU 14. For these areas, conservation measures such as bench terracing, contour terracing, cover crop leguminosa, and straw mulching are recommended. There are 2 LMU namely LMU 2 and LMU 9 showed erosion values below the tolerable limit, therefore, plant management must be maintained or conservation measures can be taken in the form of mulching so that the erosion level does not become high.

Keywords: Conservation Measures, Land Mapping Unit, Tolerable Soil Loss, Vegetation