

## **PEMODELAN SPASIAL LAHAN KRITIS DAS JUWANA JAWA TENGAH**

Petra Ihsan Wicaksana<sup>1</sup>, Emma Soraya<sup>2</sup>

### **INTISARI**

Lahan kritis merupakan lahan yang kehilangan fungsinya dalam mengatur tata air dan mendukung produktivitas, sehingga mengganggu ekosistem Daerah Aliran Sungai (DAS). Secara global dan di Indonesia, lahan kritis tersebar sangat luas serta memerlukan penanganan. Penyebab lahan kritis yaitu topologi curam, erosi tanah, dan minimnya tutupan vegetasi. Salah satu wilayah terdampak lahan kritis adalah DAS Juwana yang memiliki luas 130.328 ha. Penelitian sebelumnya hanya mencakup wilayah Hulu Muria dan sudah lama dilakukan, diperlukan pemetaan lahan kritis terkini untuk menentukan prioritas penanganan. Penelitian ini bertujuan membuat model spasial untuk memetakan lahan kritis terkini di DAS Juwana.

Metode penelitian menggunakan pendekatan pemodelan spasial skoring. Data yang digunakan meliputi peta tutupan lahan dan kelerengan, jenis tanah, curah hujan, serta DEM SRTM. Tingkat Bahaya Erosi (TBE) dikelaskan dari hasil perhitungan erosi model RUSLE. Faktor LS didapat dari data DEM, faktor R dengan interpolasi IDW, faktor K dan CP dengan skoring. Tutupan lahan, kelerengan dan TBE diolah berdasarkan Perdirjen PDASHL No. P.3/2018 untuk menghasilkan peta lahan kritis DAS Juwana.

Hasil penelitian menunjukkan lahan sangat kritis dan kritis di DAS Juwana seluas 30.826,72 ha (23,66%), yang sebagian besar tersebar di tutupan lahan pertanian lahan kering campur dengan kelerengan curam dan tingkat bahaya erosi sedang hingga berat. Lahan agak kritis (6,99%), potensial kritis (12,22%), dan tidak kritis (57,14%). Lahan sangat kritis dan kritis menjadi prioritas utama pemulihan fungsi lahan, lahan agak kritis dan potensial kritis menjadi prioritas kedua pencegahan penurunan fungsi lahan, lahan tidak kritis menjadi prioritas ketiga yang dipertahankan fungsi lahannya.

Kata kunci: Lahan Kritis, DAS Juwana, SIG, Skoring, RUSLE

---

<sup>1</sup> Mahasiswa Fakultas Kehutanan UGM

<sup>2</sup> Dosen Fakultas Kehutanan UGM

## **SPATIAL MODELING OF CRITICAL LAND JUWANA WATERSHED, CENTRAL JAVA**

Petra Ihsan Wicaksana<sup>1</sup>, Emma Soraya<sup>2</sup>

### ***ABSTRACT***

*Critical land is land that has lost its function in regulating water management and supporting productivity, thus disrupting the ecosystem of the watershed. Globally and in Indonesia, critical land is widespread and requires management. The causes of critical land include steep topology, soil erosion, and minimal vegetation cover. One area affected by critical land is the Juwana Watershed, which covers 130,328 ha. Previous research only covered the Hulu Muria area and has been conducted for a long time. Update critical land mapping is needed to determine management priorities. This study aims to create a spatial model to map the current critical land in the Juwana Watershed.*

*The research method uses a spatial scoring modeling approach. The data used include land cover and slope maps, soil type, rainfall, and the SRTM DEM. The Erosion Hazard Level (EBH) is classified based on the results of the RUSLE erosion model. The LS factor is obtained from the DEM data, the R factor through IDW interpolation, and the K and CP factors through scoring. Land cover, slope, and Erosion Hazard Level (EBH) are processed based on Perdirjen PDASHL No. P.3/2018 to produce a map of critical land in the Juwana Watershed.*

*The research results show that very critical and critical land in the Juwana Watershed covers 30,826.72 ha (23.66%), mostly spread across mixed dryland agricultural land with steep slopes and moderate to severe erosion hazards. Land is somewhat critical (6.99%), potentially critical (12.22%), and non-critical (57.14%). Very critical and critical land is the top priority for land function restoration, somewhat critical and potentially critical land is the second priority for preventing land function degradation, and non-critical land is the third priority for maintaining its land function.*

*Keywords: Critical Land, Juwana Watershed, GIS, Scoring, RUSLE*

---

<sup>1</sup> Student, Faculty of Forestry, UGM

<sup>2</sup> Lecturer, Faculty of Forestry, UGM