

Karakteristik Fisika Dan Kimia Tanah Pada Beberapa Tegakan Hutan Enam Dekade Pasca Rehabilitasi Di Petak 5 Wanagama

Rahma Zulfa Latifah¹, Daryono Prehaten², Suryo Hardiwinoto²

INTISARI

Wanagama awalnya merupakan kawasan bukit gundul “batu bertanah” yang direhabilitasi sejak 1960-an oleh Fakultas Kehutanan UGM bersama Dinas Kehutanan untuk memperbaiki kondisi lingkungan. Di Petak 5 berkembang tegakan dominan *Gliricidia sepium* (1970), *Acacia mangium* (1977), *Swietenia macrophylla* (1969), dan *Podocarpus neriifolius* (1983) yang memiliki karakteristik serasah dan pengaruh tapak berbeda. Penelitian ini bertujuan untuk menganalisis kondisi vegetasi serta karakteristik fisika dan kimia tanah, dan membandingkan kondisi tanah pada umur rehabilitasi empat dan enam dekade. Pengambilan data vegetasi dilakukan secara purposive sampling dengan tiga plot nested per tegakan, serta pengambilan sampel tanah terusik dan tidak terusik pada tiga titik diagonal dan tiga kedalaman (0-10, 10-20, dan 20-30 cm). Hasil menunjukkan bahwa kondisi vegetasi berbeda antar tegakan yang ditunjukkan oleh variasi dominansi spesies, penutupan tajuk, penutupan tumbuhan bawah, dan biomassa. Setelah enam dekade rehabilitasi, kualitas tanah juga berbeda antar tegakan, gamal unggul secara fisika seperti struktur remah, berat volume rendah, sedangkan secara kimia setiap tegakan memiliki keunggulan masing-masing. Secara umum, terjadi perbaikan sifat tanah dari empat ke enam dekade, ditandai peningkatan C-Organik, P-tersedia, penurunan berat volume, serta warna tanah yang lebih gelap, meskipun tingkat perbaikannya bervariasi antar tegakan.

Kata Kunci: Wanagama, rehabilitasi lahan, sifat tanah, tegakan, perkembangan tanah

¹ Mahasiswa Fakultas Kehutanan UGM

² Staff Pengajar Fakultas Kehutanan UGM

Physical and Chemical Characteristics of Soil in Several Forest Stands Six Decades After Rehabilitation in Plot 5, Wanagama

Rahma Zulfa Latifah¹, Daryono Prehaten², Suryo Hardiwinoto²

ABSTRACT

*Wanagama was originally a barren, rocky hillside that has been rehabilitated since the 1960s by the Faculty of Forestry at UGM in collaboration with the Forestry Service to improve environmental conditions. In Plot 5, dominant stands of *Gliricidia sepium* (1970), *Acacia mangium* (1977), *Swietenia macrophylla* (1969), and *Podocarpus neriifolius* (1983) have developed, each with distinct litter characteristics and site effects. This study aims to analyze vegetation conditions as well as soil physical and chemical characteristics, and to compare soil conditions at four and six decades of rehabilitation. Vegetation data were collected using purposive sampling with three nested plots per stand, and disturbed and undisturbed soil samples were collected at three diagonal points and three depths (0–10, 10–20, and 20–30 cm). Results indicate that vegetation conditions differ among stands, as evidenced by variations in species dominance, canopy cover, understory cover, and biomass. After six decades of rehabilitation, soil quality also differed among stands; gamal exhibited superior physical properties such as crumb structure and low bulk density, while chemically, each stand demonstrated distinct advantages. In general, soil properties improved from the fourth to the sixth decade, marked by increases in organic carbon and available phosphorus, a decrease in bulk density, and darker soil color, although the extent of improvement varied among stands.*

Keywords: Wanagama, land rehabilitation, soil properties, stands, soil development

¹ Mahasiswa Fakultas Kehutanan UGM

² Staff Pengajar Fakultas Kehutanan UGM