

**Kadar Karbon Organik Tanah dan Akumulasi
Biomassa Seresah di Lantai Hutan
Taman Nasional Gunung Merapi 8 Tahun Pasca Erupsi**

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INTISARI

Erupsi pada tahun 2010 mengakibatkan kerusakan yang bervariasi di Taman Nasional Gunung Merapi (TNGM), mulai dari kerusakan akibat udara panas hingga akibat timbunan material vulkanik. Pada lokasi yang terkena udara panas terjadi kerusakan berupa matinya vegetasi dan hilangnya bahan organik tanah. Penelitian ini dilakukan untuk mengetahui kadar karbon organik tanah dan akumulasi biomassa seresah di lantai hutan TNGM 8 tahun pasca erupsi.

Penelitian dilakukan pada 3 tingkat kerusakan lokasi TNGM yang terkena udara panas, yaitu kerusakan ringan, sedang dan berat. Petak ukur (PU) bersarang (*nested sampling*) berukuran 20 x 20 m² dibuat pada setiap tingkat kerusakan sebanyak 3 ulangan dan dilakukan inventarisasi vegetasi (20 x 20 m² untuk pohon, 10 x 10 m² untuk tiang, 5 x 5 m² untuk pancang, 2 x 2 m² untuk semai dan 1 x 1 m² untuk tumbuhan bawah). Seresah diamati pada luasan 50 x 50 cm² sebanyak 3 ulangan di masing-masing PU. Sampel tanah yang mewakili tiap lapisan dan tingkat kerusakan diambil dari profil tanah 1 x 1 x 1 m³ dengan 3 ulangan di setiap PU. Uji kadar karbon organik tanah dilakukan dengan menggunakan metode Walkley & Black.

Hasil dari penelitian ini menunjukkan bahwa 8 tahun pasca erupsi, kadar karbon organik tanah pada lapisan atas telah mengalami peningkatan. Lokasi yang terkena kerusakan ringan memiliki kadar karbon organik yang tergolong sedang, pada lokasi kerusakan sedang dan berat tergolong rendah. Karbon organik tanah Lapisan 2 dan di bawahnya tergolong sangat rendah. Peningkatan kadar karbon organik terjadi karena pertumbuhan vegetasi pohon di atasnya yang memiliki kerapatan tertinggi pada lokasi kerusakan ringan dan terendah pada kerusakan berat.

Kata kunci:

Taman Nasional Gunung Merapi, karbon organik tanah, biomassa seresah, erupsi

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Soil Organic Carbon Content and Litter Biomass Accumulation on Forest Floor of Taman Nasional Gunung Merapi Eight Years After Eruption

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ABSTRACT

Eruptions in 2010 resulted in various damage of Taman Nasional Gunung Merapi (TNGM), ranging from the damage that caused by hot air to volcanic material deposits. In locations affected by hot air there is damage in the form of death vegetation and loss of soil organic matter. This research was conducted to determine the level of soil organic carbon and litter biomass accumulation on forest floor of TNGM 8 years after the eruption.

The study was conducted on TNGM locations which representing 3 levels of damage due to exposure to hot air, namely light, medium and heavy damage. Three replications nested sampling plots of 20 x 20 m² were made at each level of damage where vegetation inventory was carried out (20 x 20 m² for trees, 10 x 10 m² for poles, 5 x 5 m² for saplings, 2 x 2 m² for seedlings and 1 x 1 m² for understorey). Litter was observed in an area of 50 x 50 cm² with 3 replications in each plots. Soil samples representing each layer and level of damage were taken from the soil profile of 1 x 1 x 1 m³ with 3 replications in each plots. Analysis of organic carbon content was carried out using Walkley & Black method.

The results of this research indicated that 8 years after eruption, the level of soil organic carbon in the upper layer has increased. Location that affected by light damage had medium level of organic carbon while at location of medium and heavy damage was classified as low. At the 2nd layer and the deeper layer, the soil organic carbon was very low. The increasing levels of organic carbon occurred due to the growth of tree vegetation which has the highest density at the location of light damage and the lowest density at heavy damage.

Keyword:

Taman Nasional Gunung Merapi, soil organic carbon, litter biomass, eruption

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