

**THE ABUNDANCE OF SOIL MACROFAUNA IN PEATLAND AFTER  
FIRE TO SUPPORT A STRATEGY FOR SUSTAINABLE PEATLAND  
REHABILITATION (A Case Study in Sungai Tohor Village, East Tebing  
Tinggi Sub-district, Meranti Island Regency, Riau Province)**

By

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**Abstract**

Peatland is a land formed from the decay process of vegetation that lasted for thousands of years. Fires in peatland are common, especially during the dry season. It will greatly affect changes in physical and chemical properties of peatland where macrofauna existed.

The purposes of this study were to determine soil macrofauna families in burned and unburned peatland areas, and to determine the impact of the fire on the abundance of soil macrofauna families in peatland. The data collection methods used were monolith and pitfall trap methods. The measurement of environmental factors was studied in Soil Science Laboratory, Faculty of Agriculture, Gadjah Mada University, Yogyakarta.

The results of this study indicated that the largest family in unburned rubber vegetation was Formicidae with the number of 348 individual/m<sup>2</sup> (monolith) and 455 individual/m<sup>2</sup> (pitfall trap), while the largest family in the burned vegetation was Formicidae with the number of 192 individual/m<sup>2</sup> (monolith) and 106 individual/m<sup>2</sup> (pitfall trap). The largest family in unburned sago vegetation was Formicidae with the number of 181 individual/m<sup>2</sup> (monolith) and 180 individual/m<sup>2</sup> (pitfall trap), while the largest families in the burned vegetation were Rhinitermitidae with the number of 196 individual/m<sup>2</sup> (monolith) and Formicidae with the number of 119 individual/m<sup>2</sup> (pitfall trap). The impact of the fire on the abundance of soil macrofauna was there were several families not found after the fire, i.e. Trichonischidae and Staphylinidae families in rubber vegetation, and Trichonischidae and Blattidae families in sago vegetation. There were also several new species emerging, i.e. Blaberidae family in rubber area, and Scolopendromorpha, Formicidae, and Blaberidae families in monolith sago area.

**Keywords:** *Fire, Abundance, Peatland, Soil Macrofauna.*

**KELIMPAHAN MAKROFAUNA TANAH DI LAHAN GAMBUT PASCA  
KEBAKARAN UNTUK MENDUKUNG STRATEGI REHABILITASI  
LAHAN GAMBUT BERKELANJUTAN  
(Studi Kasus di Desa Sungai Tohor Kecamatan Tebing Tinggi Timur  
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**INTISARI**

Lahan gambut merupakan lahan yang terbentuk dari proses pembusukan vegetasi yang berlangsung selama ribuan tahun. Kebakaran pada lahan gambut sering terjadi khususnya saat musim kering (kemarau) akan sangat mempengaruhi perubahan sifat fisik dan kimia lahan gambut di mana makrofauna berada.

Tujuan dari penelitian ini adalah untuk mengetahui famili makrofauna tanah di kawasan gambut pasca terbakar dan tidak terbakar serta mengetahui dampak kebakaran yang terjadi terhadap kelimpahan famili makrofauna tanah di lahan gambut. Metode pengambilan data dilakukan dengan metode *monolith* dan *pitfall trap*. Pengukuran faktor lingkungan diteliti di Laboratorium Ilmu Tanah Pertanian Universitas Gajah Mada Yogyakarta.

Hasil Penelitian ini menunjukkan vegetasi karet tidak terbakar famili terbesar yaitu Formicidae dengan jumlah 348 individu/m<sup>2</sup> (*monolith*) dan 455 individu/m<sup>2</sup> (*pitfall trap*) sedangkan vegetasi pasca terbakar yaitu Formicidae dengan jumlah 192 individu/m<sup>2</sup> (*monolith*) dan 106 individu/m<sup>2</sup> (*pitfall trap*). Vegetasi sagu tidak terbakar dengan famili terbesar yaitu Formicidae 181 individu/m<sup>2</sup> (*monolith*) dan 180 individu/m<sup>2</sup> (*pitfall trap*) sedangkan vegetasi pasca terbakar famili terbesar yaitu Rhinitermitidae sebanyak 196 individu/m<sup>2</sup> (*monolith*) dan Formicidae 119 individu/m<sup>2</sup> (*pitfall trap*). Dampak kebakaran yang terjadi terhadap kelimpahan makrofauna tanah adalah terdapat beberapa famili yang tidak ditemukan setelah terjadinya kebakaran yaitu pada vegetasi karet adalah famili *Trichonischidae* dan *Staphylinidae* serta pada vegetasi sagu adalah famili *Trichonischidae* dan *Blattidae*. Ada beberapa spesies baru juga yang muncul adalah famili Blaberidae di lahan karet dan famili Scolopendromorpha, Formicidae, Blaberidae di lahan sagu *monolith*.

**Kata Kunci:** Kebakaran, Kelimpahan, Lahan Gambut, Makrofauna Tanah,