

An investigation of soil and litter macrofauna of different habitats in Mawarala MAB forest reserve in Matara

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A preliminary study was conducted to find out the diversity of soil and litter macrofauna in three different habitats namely natural forest area (NF), disturbed forest area (DF) and riverine forest area (RF) in Mawarala MAB forest situated in Matara district. Plots of 20m × 20m were selected in each of the three habitats. Soil and litter samples were collected randomly from five sub plots (20cm × 20cm × 10cm) from each main plot. Samples were collected once in a month and were separated using a set of sieves. The animals in each of the fractions (above 0.2mm mesh size) were sorted out and identified using the keys. Soil pH and organic content were measured by using pH meter and muffle furnace respectively. The highest diversity and the abundance of **litter macrofauna** (13 taxa and 29 individuals per m², Shannon – Weiner Index 2.225 and Evenness Index 0.843) were recorded in NF. Lowest diversity of **litter macrofauna** (9 taxa, Shannon – Weiner Index, 1.792 and Evenness Index 0.721) was found in RF. In **soil macrofauna** the highest diversity was observed in DF (Shannon – Weiner Index 2.104) and the lowest diversity was observed in NF (Shannon – Weiner Index 1.870). Common litter macrofouna taxons found in all the three habitats were Lumbricidae, Araniae, Isopoda, Chilopoda, Diplopoda, Coleoptera, Hymenoptera, Dermoptera and Hemiptera. Nematodes were found only in the DF. Mites (Acarina), Gastropods, Homepterans and Isopterans insects were only present in the NF. Eight taxons of soil macrofouna namely Lumbricidae, Araniae, Isopoda, Chilopoda, Coleoptera, Hymenoptera, Dermoptera and Isoptera were common to all habitats. Homopteran and Hemipteran insects were found only in DF, while nematodes belonged to family Mermithidae were observed in RF and DF. Total abundance of animals was higher in the litter than the soil. Litter layer in NF provides a rich habitat for different macrofauna that decompose litter to form organic matter. The lowest diversity recorded in soil macrofauna in the NF area indicates that, not only the organic matter but also some other factors may involve in resulting the abundance of organisms in the soil. Thickness of litter layer was ≥4cm in NF area, may act as a barrier for aeration and light penetration that could make soil less suitable habitats for different organisms dwelling in the soil.

Keywords: Diversity, Habitats, Litter, Macrofauna, Soil.

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