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(*Quercus robur*)

(*Fagus sylvatica*)

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	<i>(Carpinus betulus L.)</i>
	<i>(Acer insigne Boiss)</i>
	<i>(Alnus subcordata Meyer)</i>
	<i>(Fagus orientalis Lipsky)</i>

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Evaluation of earthworm abundance and vertical distribution pattern in some forest types of Shast-Kolateh

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Abstract

Earthworm activities have an important effect on soil physical and chemical properties, soil fertility and plants growth. The number of studies about interactions between environmental factors and earthworms has strongly increased during last decade, showing the importance of earthworm ecology. Earthworm biomass is a suitable indicator for detecting trends in soil fertility, hummus quality, pollution and soil productivity. There is limited information on earthworm abundance in forest types of the Caspian region and it's relation to soil characteristics. Abundance and vertical distribution of earthworms within 20 cm depth of some forest types in Shast-Kolateh were determined and compared in this study. Nine forest types were investigated including Beech, Beech-hornbeam, Hornbeam, Oak, Oak-hornbeam, Alder, Maple, Ironwood and Ironwood-hornbeam. In each forest type, 10 soil samples (50×50 cm) were taken by digging into 20 cm depth and earthworms hand-sorted from 0-10 and 10-20 cm layers. Soil samples were taken from each layer simultaneously to measure physical and chemical properties including texture, moisture, bulk density, pH, nitrogen, organic carbon, K, P, Ca and cation exchange capacity. The number of earthworms was between 37 and 154 ind/m² while thier biomass was between 5.9 and 12.1 gr/m². Approximately 86 and 82 percent of earthworm number and biomass were found in 0-10 cm layer, respectively. The result indicates that forest types can be classified according to potential of stand productivity using earthworm abundance. According to this study, the forest types can be classified into three groups. The most important factors determining earthworm abundance and vertical distribution were soil pH, moisture, C/N ratio, phosphate amount and soil texture.

Keywords: Earthworm, Abundance, Distribution, Caspian forests, Soil