

# Impact of natural grassland substitution by forestry on soil macrofauna

**ZERBINO, M.S.; BEMHAJA, M. INIA, Colonia, Uruguay**

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Soil ecosystem services are emergent properties resulting from the wide range of processes operating at much smaller scales, in which soil biota are involved. Soil macrofauna, invertebrates larger than 2 mm, play a key role in the preservation of soil structure and fertility as a consequence of their physical and metabolic activities. Besides, soil macrofauna have an essential role to promote soil microorganisms activities and thus in improving soil health and reducing the incidence of pests and soil-borne pathogens. Community composition depends on climatic, edaphic, topographic, vegetation conditions and land use. The aim of this study was to evaluate the changes on soil macrofauna communities as a consequence of substitution of natural vegetation by pinetrees. During fall 2008, sampling were made in two small adjacent watersheds in the Tacuarembó river basin: one natural cattle-grazed pasture, (M1), and a non-grazed natural vegetation that had been as replaced by *Pinus taeda* in 50% of the area. Samples from each watershed were taken from three topographic positions, high and mid-slope, and low zone. Natural vegetation was maintained at the M2 low zone (LWF). There was a strong association between vegetation communities and soil macrofauna communities. The highest and lowest values of density and richness by sampling unit were registered in LWF and M2 (high and mid-slope), respectively. Curculionidae and Chrysomelidae were the main taxa associated with M1 both in high and mid-slope. Elateridae, Scarabaeidae and Carabidae were the taxa found in low zone. Diplopoda and Dictyoptera were more abundant in high and mid-slope on M2 than M1, while Staphilinidae, Lepidoptera and Oligochaeta density were highest in LWF. M1 and M2 (high and mid-slope) shared 16% of the species. These results indicate that the replacement of natural vegetation by *Pinus taeda* cause important changes both on quantity and quality of soil macrofauna communities.

Key words: natural grassland, forestry, soil macrofauna

