Poster – Session 3

Earthworm abundance and biomass in native Brazilian Atlantic forest and *Araucaria angustifolia* and *Pinus elliotti* plantations collected using two sampling methods

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Earthworms are important indicators of environmental quality and management, such as the conversion impacts of native to planted forests. Nevertheless, little research has been conducted in this field in Latin America. Therefore, the present work was undertaken to determine the effect of native and exotic tree plantations on earthworm populations in the Atlantic Forest region of Southern Brazil. Earthworms were sampled in sixteen areas at the Embrapa Forestry Research Station in Colombo, Paraná State, Brazil, including five areas with *Ombrophyllous* mixed forests (Atlantic forest with native *Araucaria angustifolia* trees), five *A. angustifolia* plantations and six *Pinus elliotti* plantations (PP). All the Araucaria and Pine plantations were established between 1979-1987. Two sampling methods were used: a) excavation of 40 × 40 cm monoliths and manual sorting of the soil at the depths of 0-10 and 10-20 cm, and b) application of 20-L of diluted formaldehyde (0,5%) on an area of 1m2. Earthworm species density and biomass obtained with each sampling method were assessed and compared across the areas. The most abundant species were *Pontoscolex corethrurus*, a peregrine species and *Amynthas gracilis*, an exotic. A few individuals of *Amynthas corticis* and *Metaphire schmardae* (exotics) and of the native species *Urobenus brasiliensis* and *Andiorrhinus sp.*, were also found. The highest abundance of earthworms was encountered using hand-sorting in Pine plantations (116 ind/m2), followed by the Araucaria plantations (64 ind/m2) and the lowest abundance was found in the native forests (38 ind/m2). On the other hand, biomass was similar in the Araucaria and Pine plantations (around 25-26 g/m2), and the lowest biomass was found in the native forests (12 g/m2). With the formaldehyde sampling, earthworm abundance was much lower, ranging from 11 (Araucaria plantations) to 20 ind/m2 (native forests). Biomass ranged from 6.6 (Araucaria plantations) to around 9 g/m2 (native forests and Pine plantations). Therefore, although all species were collected using the formaldehyde method, hand-sorting for earthworms was much more efficient for extracting earthworms from the studied forest ecosystems.