

## No-tillage improves earthworm species richness in southern Brazil<sup>1</sup>

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This study aimed to assess the species richness of earthworms in sites under no-tillage (NT), integration crop-livestock with no-tillage (ICL) and fragments of native forest (NF) used as a reference, in the state of Santa Catarina, Brazil. We sampled 75 sites, 25 for each land use system. The sampling methods were quantitative (standard and adapted *Tropical Soil Biology and Fertility Method*) and also qualitative (random digging) to obtain a higher number of individuals and consequent higher earthworm species richness. A total of 45 species of earthworms were identified. The fragments of native forest had the lowest richness (22 species), while the agricultural sites (NT and ICL) showed similar species richness (30 species). Many juvenile specimens were only identified to one of the four families: Glossoscolecidae, Megascolecidae, Ocnerodrilidae and Acanthodrilidae. There were six new species records for the State of Santa Catarina in this study: *Andiorrhinus duseni*, *Amythas corticis*, *Amythas morrissi*, *Octolasion tyrtaeum*, *Bimastos parvus* and *Dichogaster gracilis*. The first is a native species and the others are exotic (introduced). Of the 45 identified species, 67% are native and 31% are exotic species. In the sampled sites, the percentages of native/exotic were: 86/14, 57/43 and 53/47 respectively in the NF, ICL and NT sites. The results show that, despite the lower species richness in the NF sites, these areas are still conserving native populations. While the higher richness in the agricultural sites (ICL and NT = 30) is due to the presence of exotic earthworms. Even so, the agricultural sites are shown to be adequate to maintain native species due the presence of them in these sites. However, it is also necessary to analyze the quantitative data to know the abundances of each species in the sampled sites. Both natural and agricultural sites can be dominated by one or a few species, either exotic and/or native. It is noteworthy that almost all the encountered species of the native genera *Glossoscolex* and *Fimoscolex* are new species and need to be described and named ( $\cong$  24 species).