

**EARTHWORMS OF SPECIES-RICH GRASSLAND IN SOUTHWESTERN GERMANY. EFFECTS OF 44 YEARS OF SUCCESSION, MOWING, MULCHING AND GRAZING**

**REGENWURMZÖNOSEN AUF DER SCHWÄBISCHEN ALB. AUSWIRKUNGEN NACH 44 JAHREN LANDSCHAFTSPFLEGE UND SUKZESSION**

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**SUMMARY**

Earthworms are affected by increased land-use intensity and by cessation of land use as well. Changing vegetation, e.g. after natural succession of grasslands, is associated with earthworm population changes. The objective of this project was to compare the earthworm coenosis of succession plots and plots with low intensity-management (grazing, mulching and mowing) of two study sites (Hepsisau, St. Johann) in southwestern Germany. With unconventional landscape management practices like mulching, nutrient cycles change as biomass remains on the site and is not removed like in traditional land use (mowing, grazing). This underlines the importance to examine whether soil organisms, especially earthworms as ecosystem engineers, can adjust to the new nutrient conditions. The long-term research project "Offenhaltungsversuche Baden-Württemberg" offers an ideal platform for such studies. Earthworms were sampled combining the electric octet-method and handsorting in spring 2018. After 44 years of project duration earthworm biomass and abundance were different at the two calcareous study sites. In both succession plots, earthworm biomass and earthworm abundance were lower compared to the mulched plot due to slowly decomposable litter. In Hepsisau, no differences in earthworm biomass and abundance were detected between the differently managed plots. In St. Johann, differences could be detected, but earthworm biomass and abundance were highest in the mulching plot. These results underline the suitability of the mulching method for landscape management. At both sites endogeic earthworms dominated, probably due to low proportion of anecic earthworms for which site conditions are unfavourable in Hepsisau and St. Johann.

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