



**Example of BSc thesis related to the Biodiverse agroecosystem Research Line of the Wageningen University Soil Science cluster**

## **Earthworms in the Food Forest “Droevendaal”**



(Source photo: Kees van Veluw 10-2021)

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### **Abstract**

In this study, earthworm biodiversity and abundance in Food Forest Droevendaal in Wageningen is investigated. This is done because the food forest needs a performative and healthy plant growth for fulfilling all its tasks (food production, nature refuge, recreation, study area, carbon storage, generating income). Since earthworms are ecosystem engineers, improving key soil properties like nutrient cycling and water storage (Edwards, 2004), an increased earthworm abundance could benefit the food forest. Earthworm biodiversity and abundance were determined in four sampling areas in the food forest and related to pH, texture, soil depth, soil moisture, water holding capacity and nitrogen and phosphorus bioavailability of the food forest's soil. It was found that the earthworm abundance in the Food Forest Droevendaal is generally low and that coarse texture and low pH might be the limiting factors for earthworm development. Furthermore, no clear correlation was found between earthworm abundance and the fulfilment of ecosystem services (nutrient provision, water holding capacity). This either means that factors like nitrogen deposition and other soil decomposers are more important for regulating nutrient concentration, or that the number of soil and earthworm samples was too small to identify the expected positive correlation. To improve texture and pH for earthworms, it is not recommended to take measures with a large intrusion into the food forest, but only easily implementable measures like increasing organic matter input and, when importing soil in future, choosing fine textured calcareous soils to slightly improve living conditions for earthworms in Food Forest Droevendaal.

### **Reference**

#### **Edwards, 2004**

Edwards, C.A. (2004). The Importance of Earthworms as Key Representatives of the Soil Fauna. In C.A. Edwards (Ed.). Second Edition. Earthworm Ecology (p. 5). Boca Raton, London, New York, Washington DC: CRC Press