

## GENERAL INFORMATION

author(s)	Muys B
year	1986
English title	Study of the earthworms in different stands of the Aelmoeseneie forest (Gontrode)
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## MATERIALS & METHODS

study area	5b, 5e, 5f, 5g, 5j, 5n
time period	August 1984–January 1986
goal	<ul style="list-style-type: none"> <li>- Which species occur in the forest, in which numbers and biomass?</li> <li>- Does the occurrence of earthworms differ between forest types, and why?</li> <li>- Are the earthworms affected by seasonal variation?</li> <li>- How are earthworms distributed with depth?</li> <li>- How is the situation with regard to earthworms in other forests?</li> </ul>
set-up	earthworm sampling: 4 stands, 12 months, 6 samples per stand (= 288 samples) <ul style="list-style-type: none"> <li>- 25 cm x 25 cm x 25 cm samples</li> <li>- handsorting</li> </ul> conversion of fresh to dry biomass <ul style="list-style-type: none"> <li>- 240 earthworms, (non-)pigmented and in 5 length classes</li> </ul> ecological factors <ul style="list-style-type: none"> <li>- 200 cm x 50 cm x 55 cm pit</li> <li>- 30 soil samples = 6 at each of the 5 depths (0, 5, 10, 20, 50 cm)</li> </ul>
data collection	earthworm sampling: species, biomass (after 1 month in formaldehyde) biomass conversion: fresh biomass, biomass after 1 month formaldehyde, dry biomass soil samples: pH (H <sub>2</sub> O), C (Walkley&Black), N
remarks	Discussion and test of different methods to extract earthworms Sampling in the oak and beech stands was not random between July-October

## RESULTS

13 species of earthworms were found. The genus *Allobophora* occurs most frequently in the samples (*A. limicola* below beech, *A. caliginosa* in the other stands); the genera *Eiseniella*, *Dendrobaena*, *Octolasion* occur sporadically. Two species associations were found: *Allobophora* association and *Eiseniella tetraedra-Dendrobaena mammalis*. The three groups of earthworm species were found below ash and poplar; no anecic species were found below oak and beech. However, the results for oak and beech are not comparable with those for ash and poplar as the sampling was not done similarly and as most of the samples did not contain any earthworms.

The activity of the different species varies with time, which implies that year-round sampling is important. The number and biomass are largest in spring and autumn and lowest in summer and winter. Most earthworms occur in the upper 20 cm of the soil.

The dry biomass is 20 or 25 % of the fresh biomass for pigmented or non-pigmented species.

Earthworm occurrence is strongly correlated with pH (+), C/N-ratio (-), humus content at 5 cm depth (-). Litter with a high C/N ratio causes bad decomposition, accumulation of organic matter, acidification, and loss of earthworm species.

	<b>beech</b>	<b>oak</b>	<b>ash</b>	<b>poplar</b>
number of species	3	7	12	12
density (m <sup>-2</sup> )	4	25	92	212
biomass (g m <sup>-2</sup> )	0.5	4	17	37

The beech/oak and the ash/poplar are two different biological systems. Earthworms are important for the functioning of an ecosystem.