

## GENERAL INFORMATION

<b>author(s)</b>	Sisselaar DJA
<b>year</b>	1991
<b>English title</b>	An investigation of the relationships between earthworm populations and tree species composition along a transect in the Aelmoeseneie forest (Gontrode)
<b>original title</b>	Een onderzoek naar de relaties tussen regenwormpopulaties en de boomsoortensamenstelling langs een transect in het Aelmoeseneiebos te Gontrode
<b>reference</b>	MscThesis, Ghent University,
<b>pages</b>	65
<b>type</b>	dissertation (d2)
<b>ecosystem service</b>	supporting – soil formation and fertility
<b>keywords</b>	soil fauna – litter – tree species effect – soil regeneration
<b>taxa</b>	
<b>project</b>	restoration of degraded forest soils via tree species composition and earthworm activity (Bart Muys)
<b>supervisor</b>	Lust N
<b>institution</b>	Faculty of Agricultural Sciences, Laboratory of Forestry
<b>document</b>	hardcopy
<b>data</b>	<i>Table 1, p 35-38, Table 5 (bijlage)</i> Flora&Fauna.xls

## MATERIALS & METHODS

<b>study area</b>	5a, 5b, 5c, 5d, 5e, 5i, 5j, 5l, 5n
<b>time period</b>	spring 1990
<b>goal</b>	Classification of the effect of tree species composition on earth worm communities and litter quality <ul style="list-style-type: none"> <li>- relationship between pH and earthworm biomass</li> <li>- relationship between humus quality / litter quantity and earthworm biomass</li> <li>- correlation between tree species and earthworm biomass</li> </ul>
<b>set-up</b>	<ul style="list-style-type: none"> <li>- E-W transect 650 m</li> <li>- 1 m<sup>2</sup> plots at 30 m (oak-beech) or 15 m (poplar, ash, sycamore) distance</li> <li>- two 0.5 m<sup>2</sup> subplots</li> </ul>
<b>data collection</b>	<u>earthworms per subplot</u> <ul style="list-style-type: none"> <li>- fraction 1 = formalin method (2 x 10 l 0.125 % solution, 2 x 10 l 0.250 % solution, time span = 10 min)</li> <li>- fraction 2 = wet sieving of soil (20 dm<sup>3</sup> soil sample, 48 h in a solution of 10 l water + 100 cm<sup>3</sup> Natriummetafosfaat (Na<sub>6</sub>(PO<sub>3</sub>)<sub>6</sub>) + 1 l formaline)</li> <li>- fraction 3 = sorting of ectorganic layer (10 dm<sup>2</sup>)</li> </ul> <u>determining factors</u> <ul style="list-style-type: none"> <li>- dry weight litter (g/m<sup>2</sup>)</li> <li>- % crown cover per tree species (crown projections on graph paper)</li> <li>- pH(H<sub>2</sub>O) (0-10 cm soil sample at 1 m from the plot center)</li> <li>- mF, mR, mN (vegetation relevés of 25 m<sup>2</sup>, Braun-Blanquet)</li> </ul>
<b>remarks</b>	No map of transect! Contact Bart Muys

## RESULTS

3 groups of plots: mull, acid mull, mor-moder

Earthwormbiomass (total, epigeic, endogeic, epi-anecic) positively correlated with pH(H<sub>2</sub>O), mF and litter quality, negatively with the amount of litter

- > 2/3 beech/oak: no earthworms
- < 1/2 oak/beech/rowan + ash/sycamore: max 4 g/m<sup>2</sup> earthworms (epigeic + epi-anecic *Lumbricus rubellus*)
- < 1/3 beech/oak + ash/hazel/sycamore: 12-38 g/m<sup>2</sup> earthworms (epigeic, endogeic, epi-anecic, vnl. *Lumbricus rubellus*, no *Lumbricus terrestris*)
- poplar: 16-108 g/m<sup>2</sup>

