

GENERAL INFORMATION

author(s)	De Bakker D, Desender K, Grootaert P
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supervisor	
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MATERIALS & METHODS

study area	5 n (scientific zone) – soil fauna plots = level II plots
time period	March 1997–April 1998
goal	identification of certain groups of invertebrates and an analysis of their indicator value for forest classification
set-up	50+6 plots in Flanders: most plots are also part of other networks invertebrate sampling: <ul style="list-style-type: none"> - 3 ground-active invertebrate traps: depth 10 cm, diameter 9.5 cm, partly filled with 4 % formaldehyde - 3 white and 3 yellow fly traps (in 49 plots): 9 cm tall, 9.5 cm diameter, partly filled with 4 % formaldehyde
data collection	invertebrate sampling: <ul style="list-style-type: none"> - traps emptied every 2 weeks - sorting and identification of all samples (1.5 man-year) - all ground beetles and spiders identified (year-round) - the fly species Empididae, Dolichopodidae, and Syrphidae identified (only present for certain periods of the year) - other species only fragmentarily identified <p>data on soil texture, light availability, soil moisture, litter weight, soil pH, soil N are from De Vos 1998-1999</p> <p>vegetation data from Van Den Meersschaut 1999: cover of the different layers, percentage of dead wood, presence of vegetation lumps, thickness of the litter layer</p>
remarks	main interest: spiders (Araneae), ground beetles (Carabidae), flies (Empididae, Dolichopodidae)

RESULTS

	Araneae	Carabidae	Empididae	Dolichopodidae
distance to the nearest forest edge	-		-	
% forest area surrounding the plot		-		-
clay content	-		+	
LAI	-		-	
soil pH		+		+
soil N				+

In small forests, the edge effect might be higher, which might result in a higher number of species coming from other habitat types.

Ordination of the soil fauna plots based on the soil fauna data and the habitat characteristics used in this study gave similar clusters of plots.

- Spiders and flies seem to respond mainly to soil composition and texture: a different group of species on sandy soils and on loamy soils. For spiders, the second ordination axis distinguishes between dry and large vs. moist and rich forests with a higher altitude. For flies, the first axis already shows a class of moist, rich forests; the second axis shows the moist but poor sites.
- Old large forests at a relatively high altitude show a distinct ground beetle composition, with mainly wingless species. There was also a cluster with species of moist forests, and a distinction based on soil texture and richness.

For spiders, the sampling period (spring-summer vs. autumn-winter) affects the ordination. Year-round sampling is recommended for spiders and ground beetles. Long-term data on population dynamics are also needed.