How are the saprophagous macrofauna likely to respond to global change in temperate forest soils?

J.F. David & D. Gillon Centre d'Ecologie Fonctionnelle & Evolutive C.N.R.S. Montpellier, France

Functional groups in earthworms and macroarthropods

	Fragmentation of	Incorporation into the	Organo- mineral mixina
		aeep son	
1	epigeic		
2	epi-anecic	epi-anecic	epi-anecic
3		anecic	anecic
4			endogeic

Global change effects on the saprophagous macrofauna

Increased temperature	direct effects	indirect effects — via changes in litter composition
Elevated CO ₂		indirect effects — via changes in litter quality

Methods of study

- experimental approach
- short term

- natural gradient approach
- Iong term

Methods of study

- experimental approach
- short term

- natural gradient approach
- Iong term

Mediterranean forest soils vs. Atlantic & Nordic forest soils









Results — total community biomass in Europe



Results — total community biomass in Europe



Results — total community biomass in Europe



Total biomass and mean temperature



Functional structure: Nordic site



Functional structure: Atlantic sites



Functional structure: Mediterranean sites



Total biomass of communities including the Mediterranean endemics



Total biomass of communities after removing the endemics





We have compared

saprophagous macrofauna communities

inhabiting mull soils

in NW Europe

and in the Mediterranean region...

 A number of saprophagous species that occur in mull soils of NW Europe also occur in Mediterranean mull soils

- A number of saprophagous species that occur in mull soils of NW Europe also occur in Mediterranean mull soils
- They belong to the four functional groups

- A number of saprophagous species that occur in mull soils of NW Europe also occur in Mediterranean mull soils
- They belong to the four functional groups
- Under Mediterranean conditions, these species reach as great an overall biomass as in NW Europe

- A number of saprophagous species that occur in mull soils of NW Europe also occur in Mediterranean mull soils
- They belong to the four functional groups
- Under Mediterranean conditions, these species reach as great an overall biomass as in NW Europe
- The results suggest that the saprophagous macrofauna of NW Europe will be little affected by global change