Soil biodiversity

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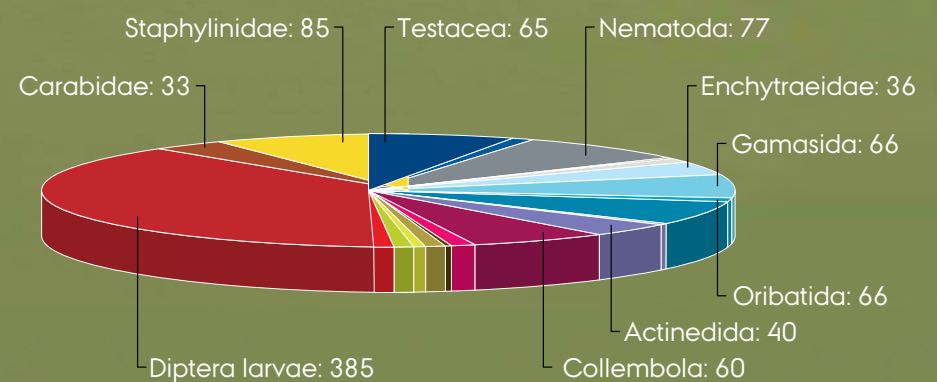
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EcoFINDERS

The novel EUROPEAN ATLAS OF SOIL BIODIVERSITY, published by the Joint Research Centre, presents an overview of soil biodiversity in Europe and assesses threats and the contributions to ecosystem services. It is intended for raising awareness of soil biodiversity and its crucial role in sustaining fertility and as a driver of organic matter decomposition and carbon sequestration. The awareness is needed for the proposed Soil Framework Directive by the European Commission in an attempt to prevent further soil degradation across the European Union, and to repair the damage that has already been done.

EUROPEAN ATLAS OF SOIL BIODIVERSITY
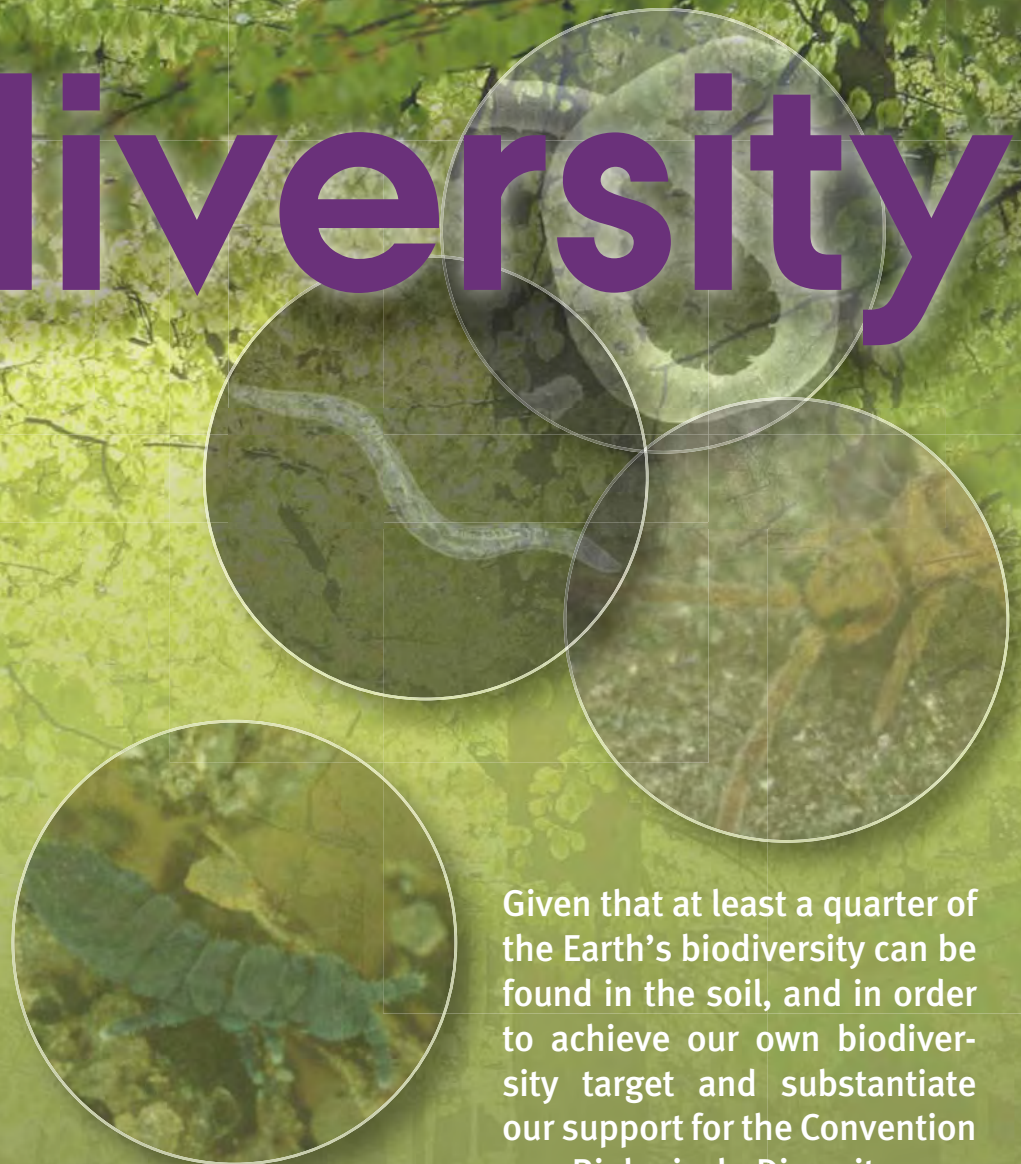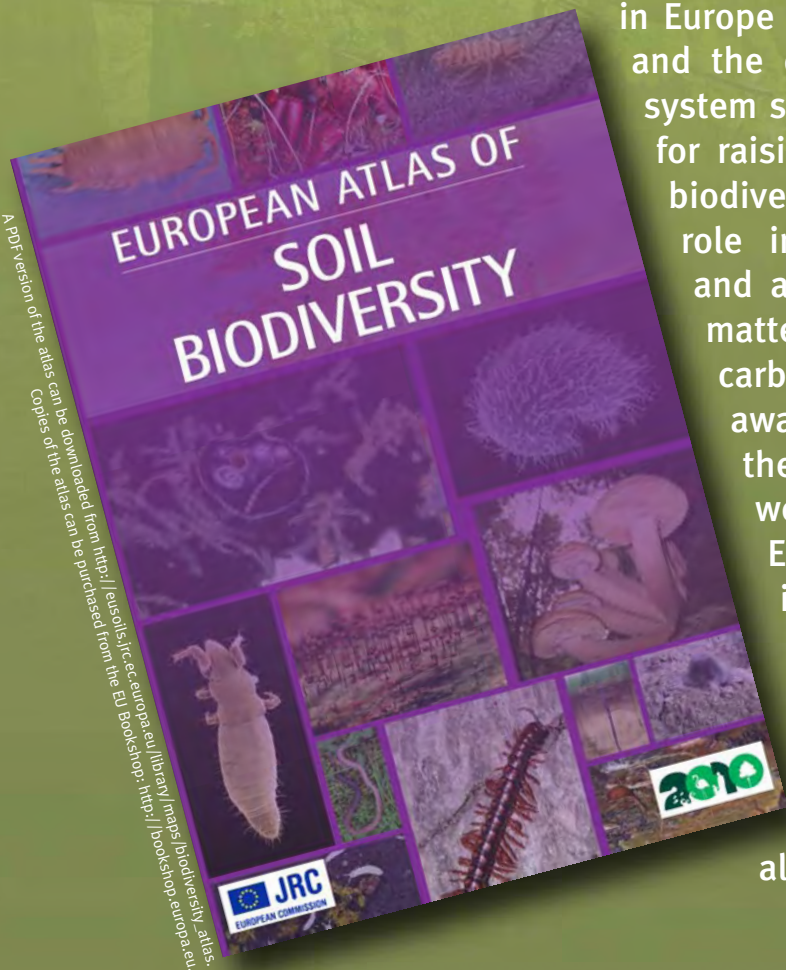
Given that at least a quarter of the Earth's biodiversity can be found in the soil, and in order to achieve our own biodiversity target and substantiate our support for the Convention on Biological Diversity, we must protect soil biodiversity.

Earthworm biomass in grassland soil is equivalent to having up to 5 cows per hectare

A normal grassland field can sustain 1 cow per hectare. The biomass of all soil organisms amounts to 10 tons per hectare.

Staphylinidae: 85
Testacea: 65
Nematoda: 77
Carabidae: 33
Enchytraeidae: 36
Gamasida: 66
Oribatida: 66
Actinedida: 40
Collembola: 60
Diptera larvae: 385

Estimated number of species among almost all taxonomic invertebrate groups found in a Danish beech forest floor.

A Danish beech forest is inhabited by about 1000 soil invertebrate species

Diversity was assessed in the Hestehave beech forest project, a main Danish contribution to IBP (International Biological Programme: 1964-1974). The project included an extensive soil biological study of soil microflora and the most important soil fauna groups. The pie diagram illustrates the species richness found in 3 hectares of beech forest soil based on the Hestehave results supplemented with results from similar German beech forests.

Approximate range of biomass of each major component of the biota in a typical temperate grassland soil.

	Biomass t ha^{-1}	Cow equivalents
Plant roots	20–90	100
Bacteria	1–2	2–4
Actinomycetes	0–2	0–4
Fungi	2–5	4–10
Protozoa	0–0.5	0–1
Nematodes	0–0.2	0–½
Earthworms	0–2.5	0–5
Other soil animals	0–0.5	0–1
Viruses	Negligible	

References

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Acknowledgement