

Půdní biologie a vývoj půd na výsypkách

Jan Frouz

Univerzita Karlova, SoWa Biologické Centrum AVCR



Charles University
Environment Center

1992
-
2017



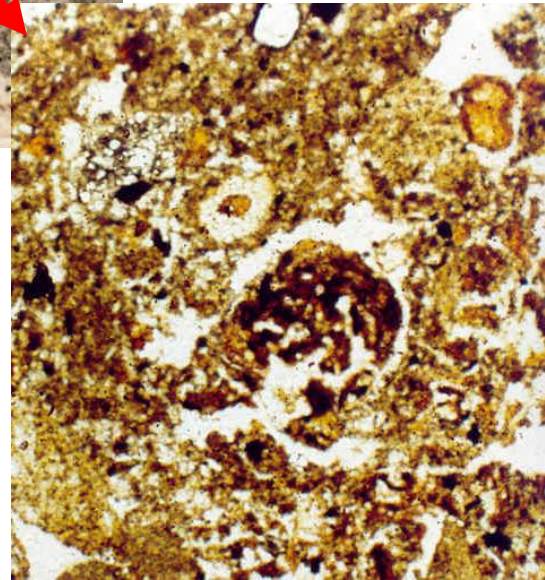
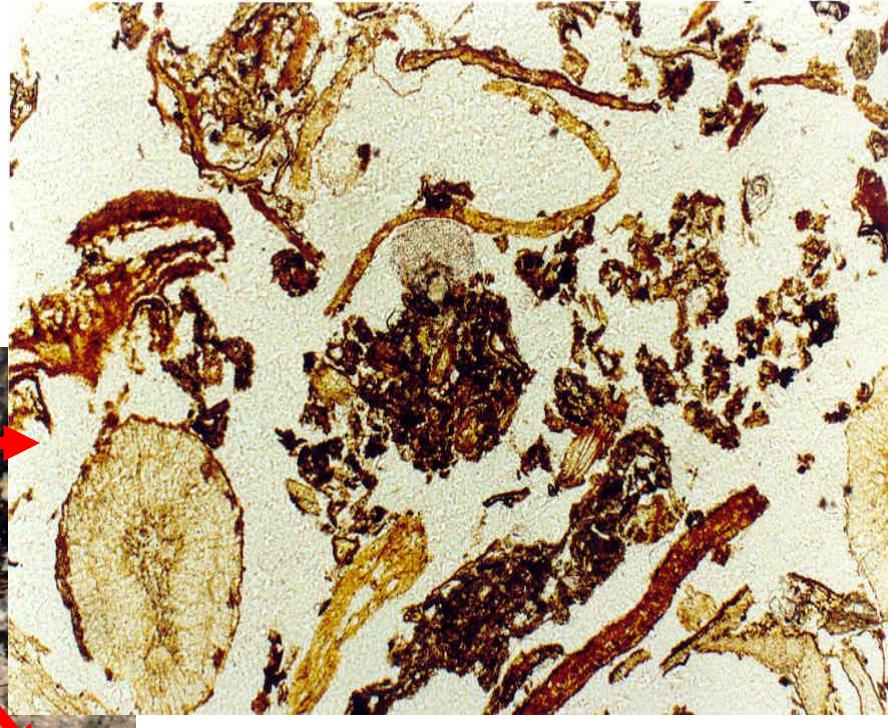
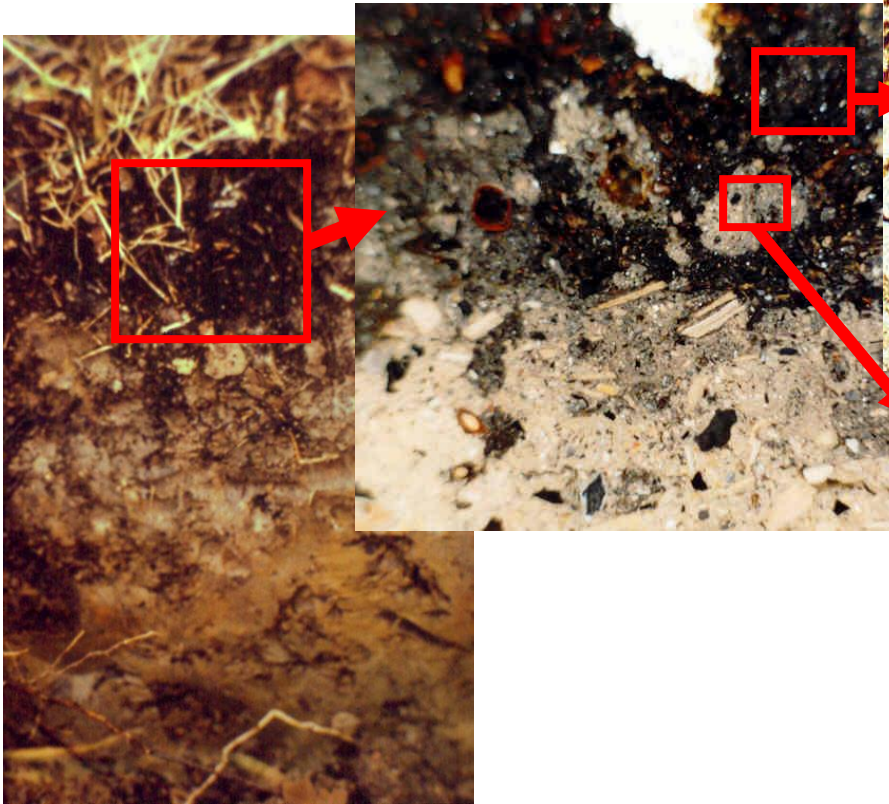
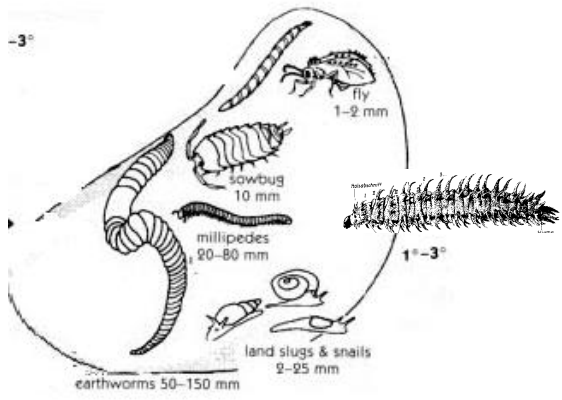
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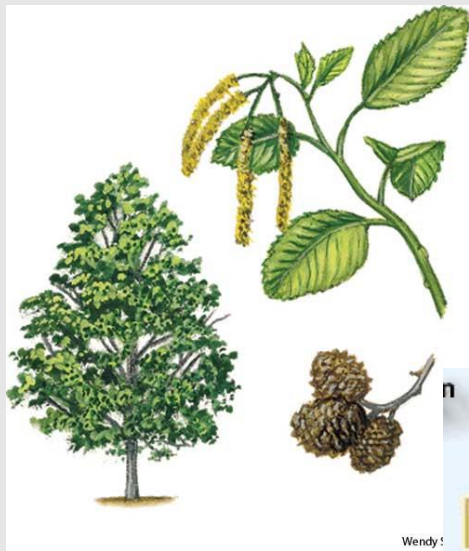
Univerzita Karlova
Centrum pro otázky
životního prostředí

SOWA Δ

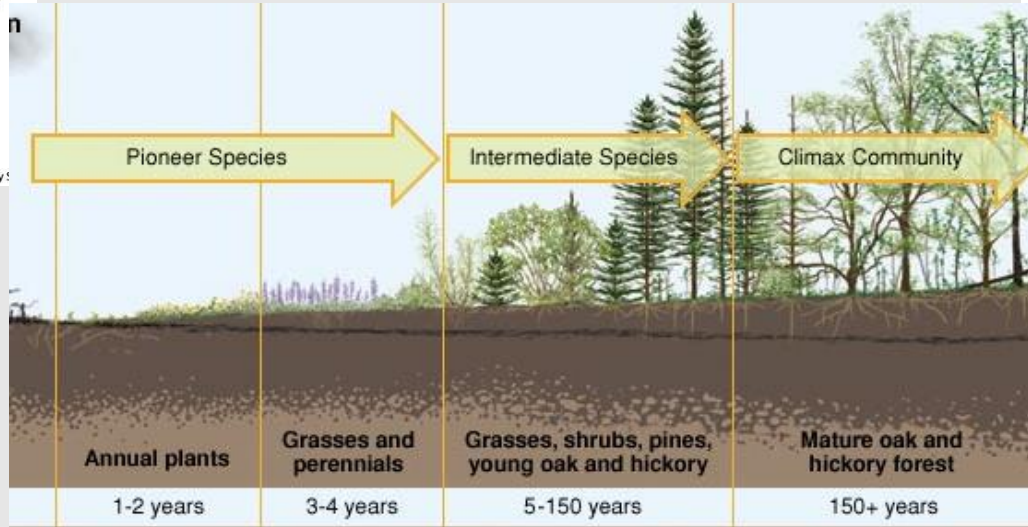
**Research
Infrastructure**







Wendy!

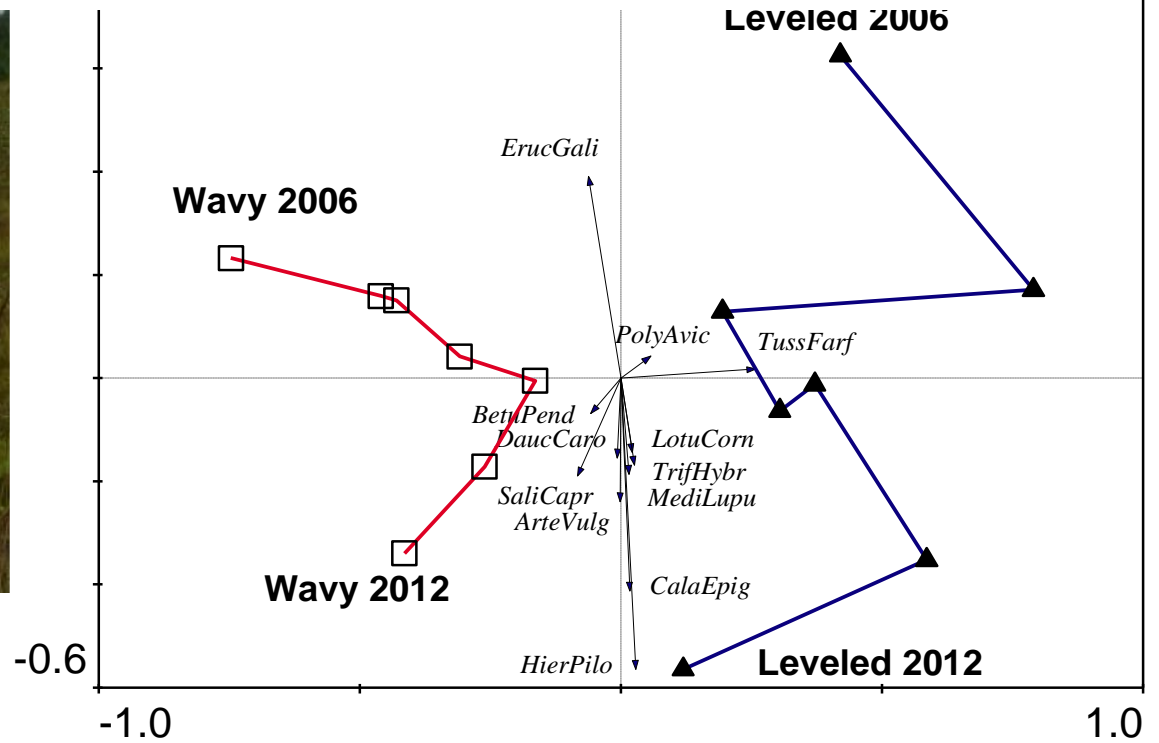
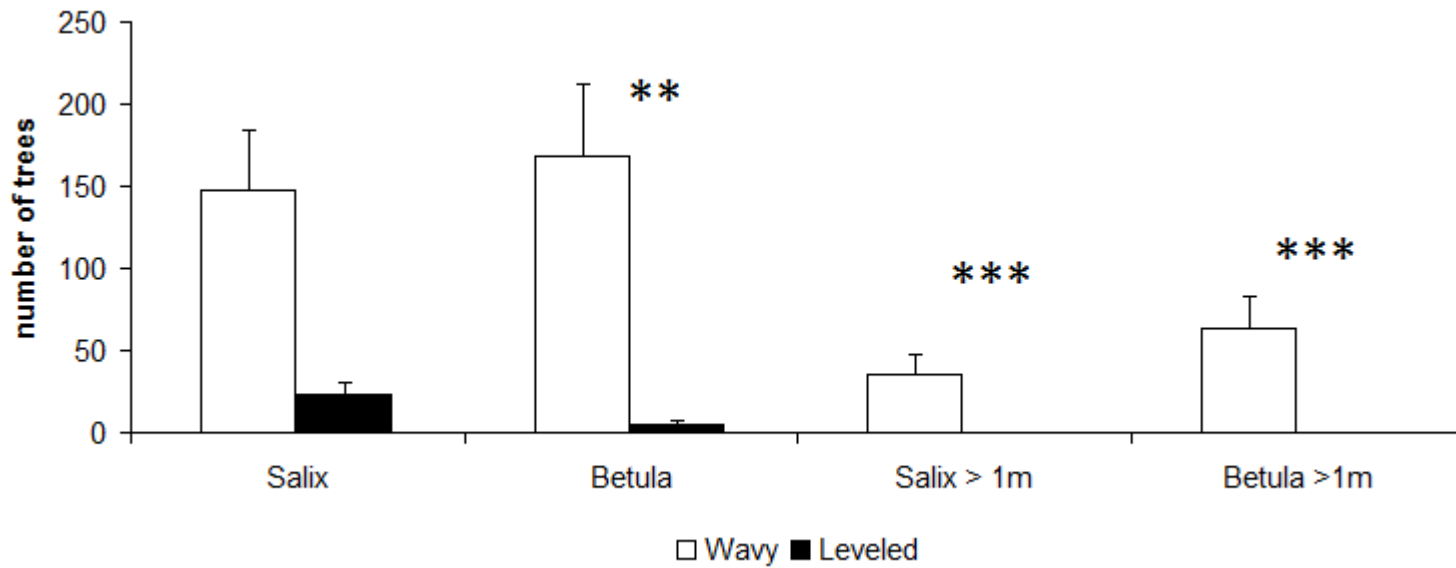


Successes

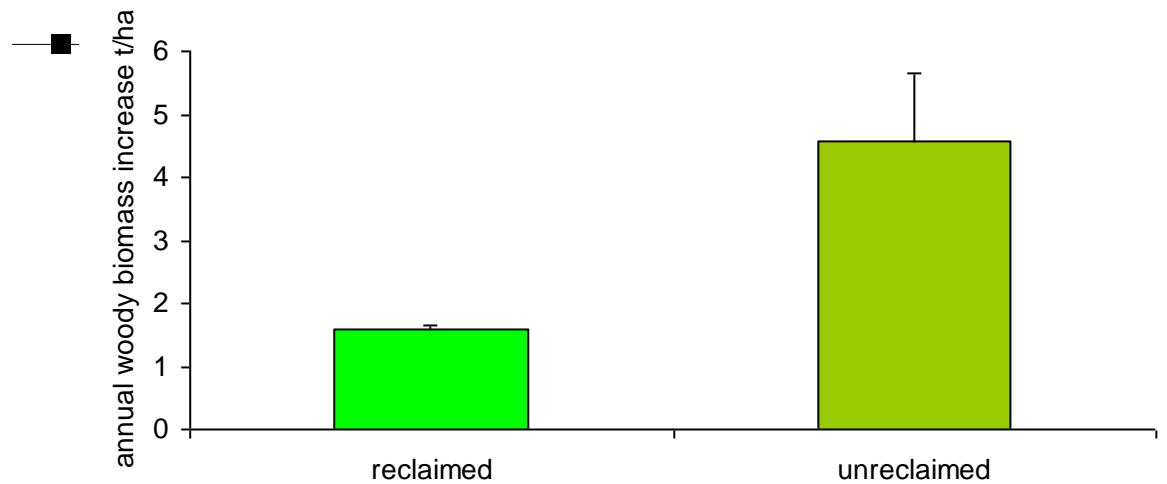
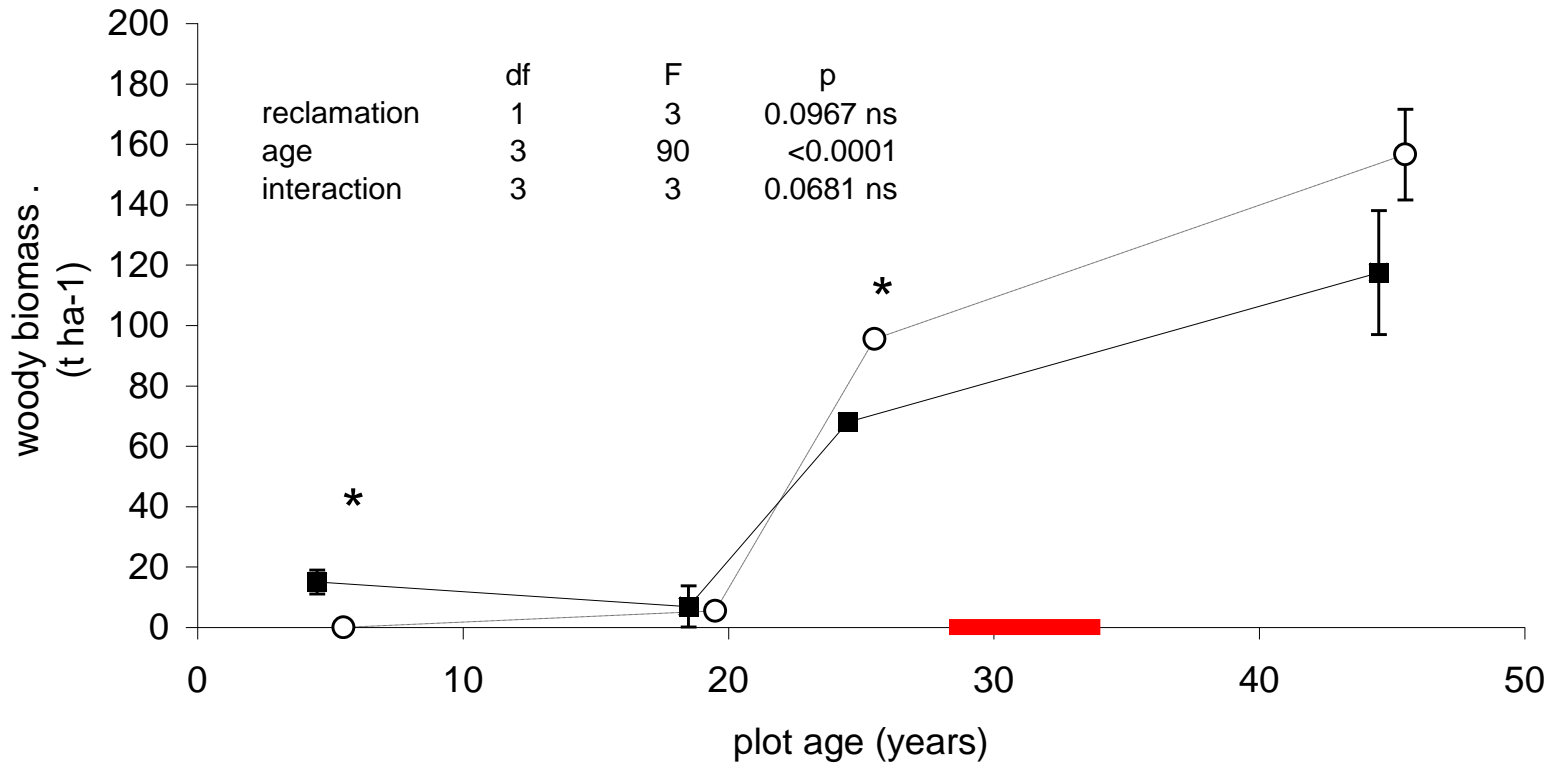


Recultivace

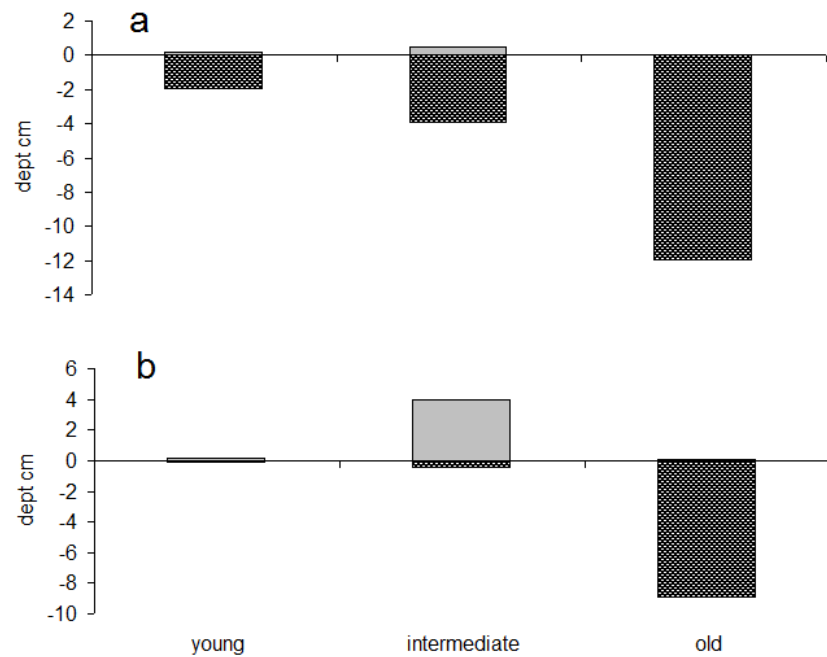
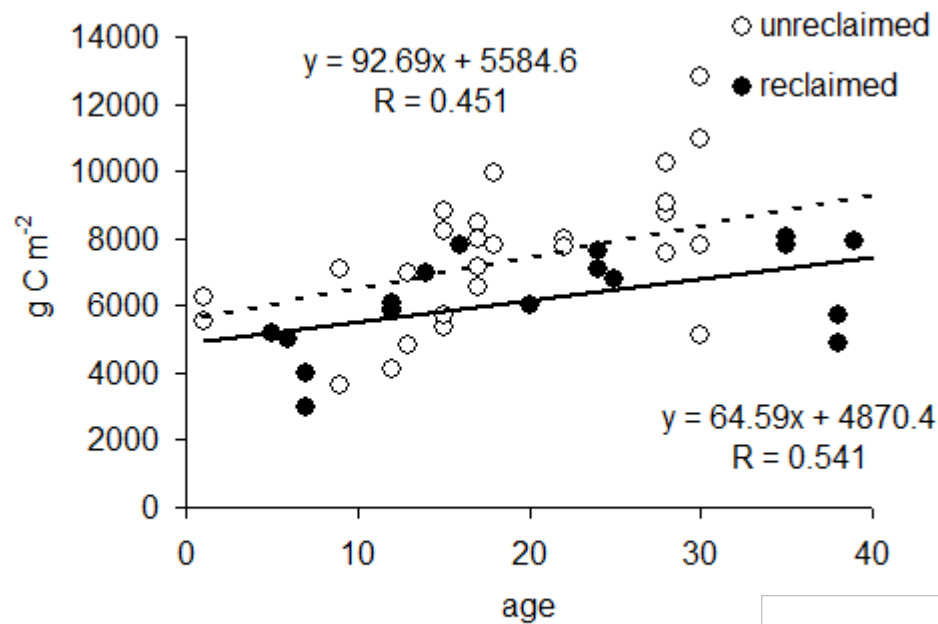


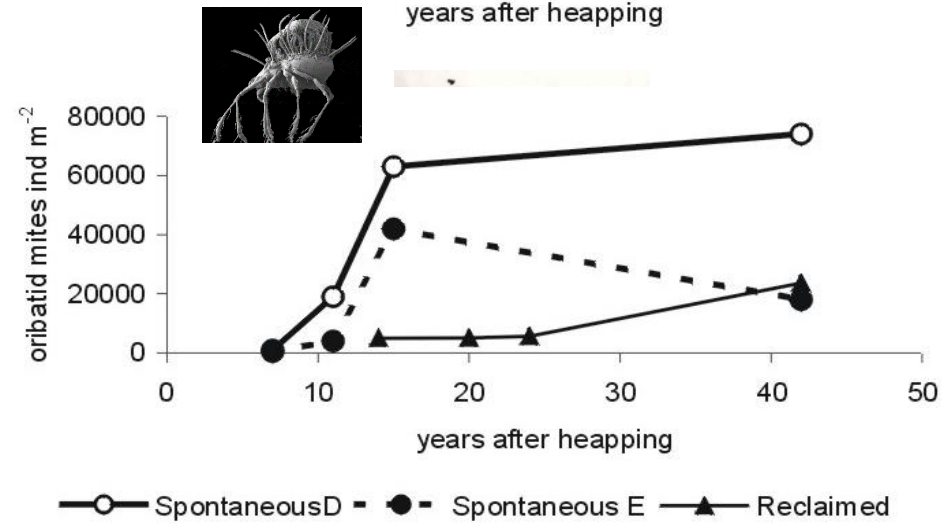
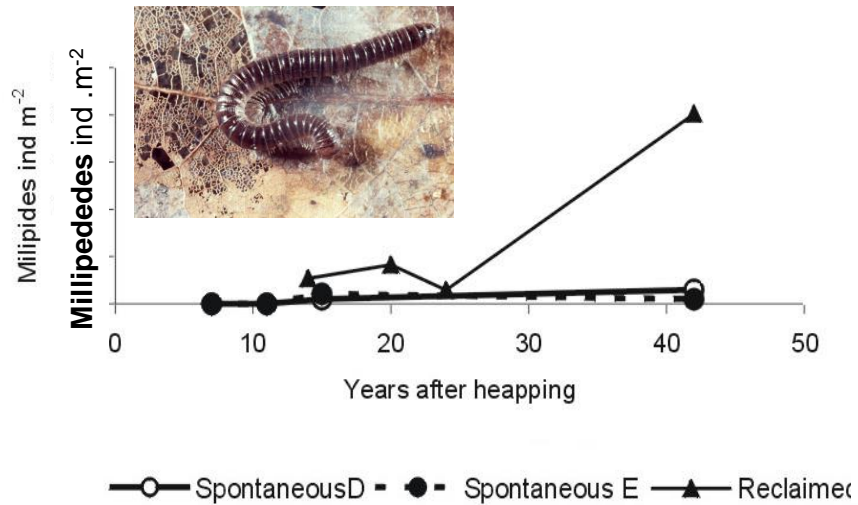
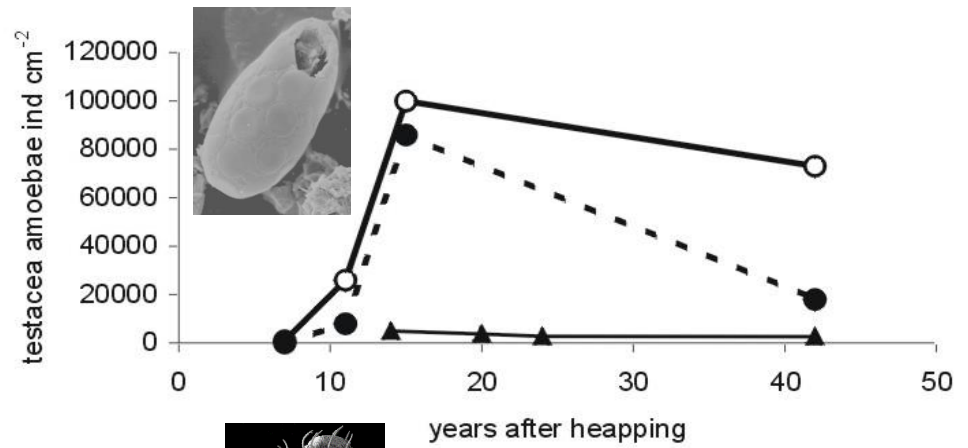
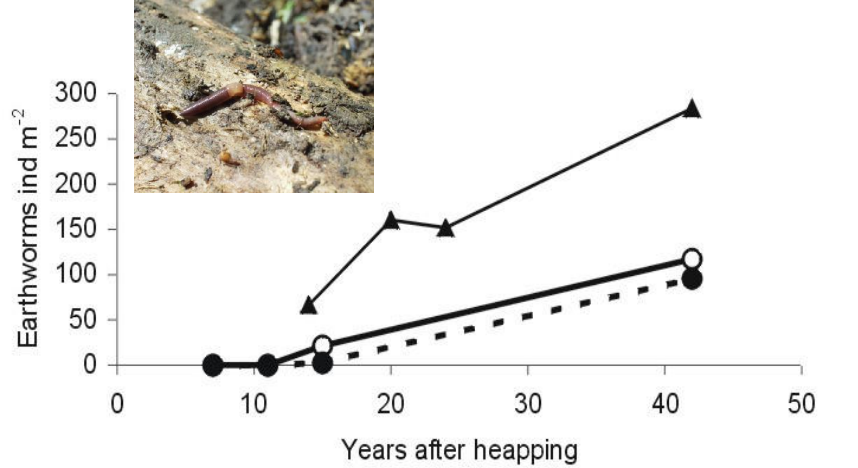






**Frouz et al., 2015,
Ecological Engineering, 84: 233-239.**





Frouz J. et al., 2001. Ecological Engineering, 17: 275-284,
 Frouz J, et al., 2008. European J Soil Biology 44(1): 109-121

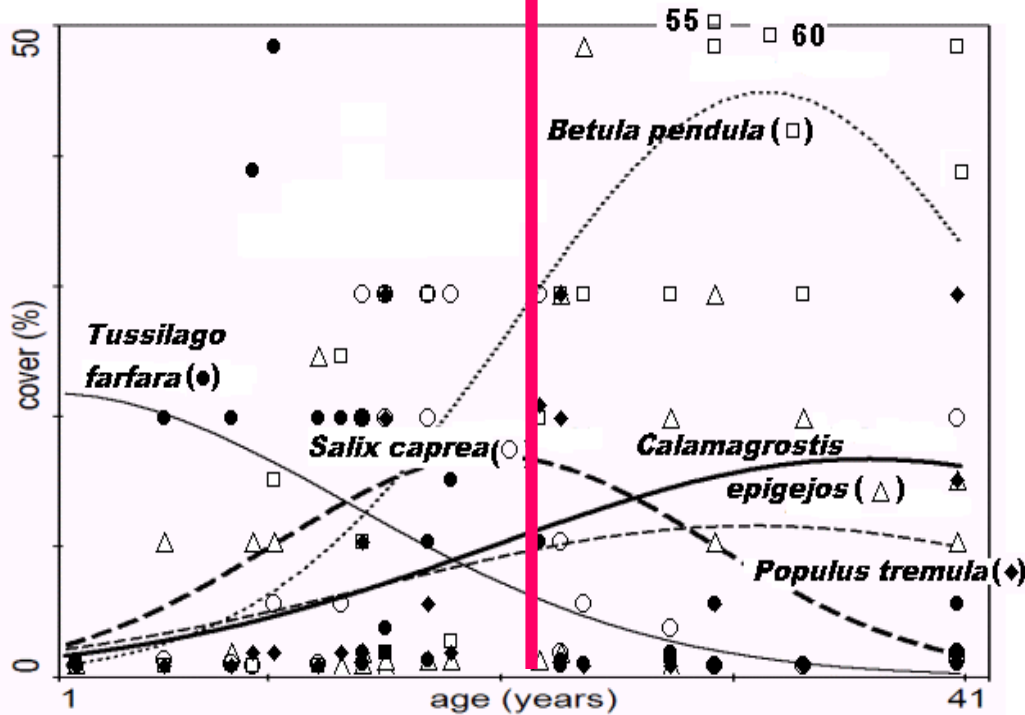
Rekultivace



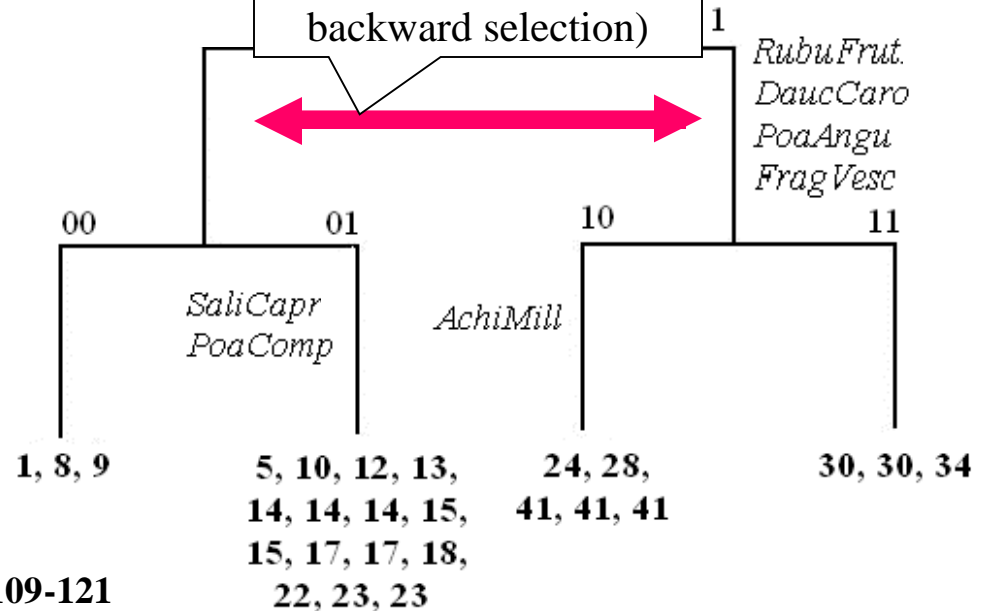
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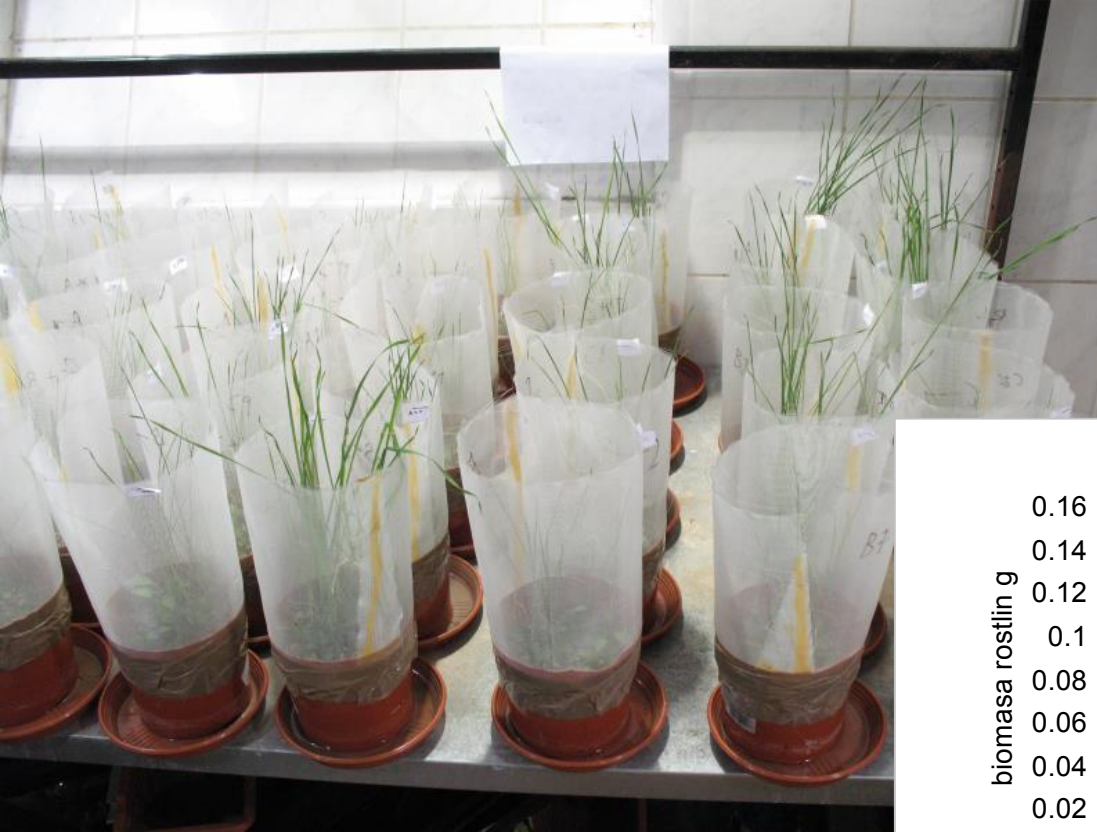


Plant community changes

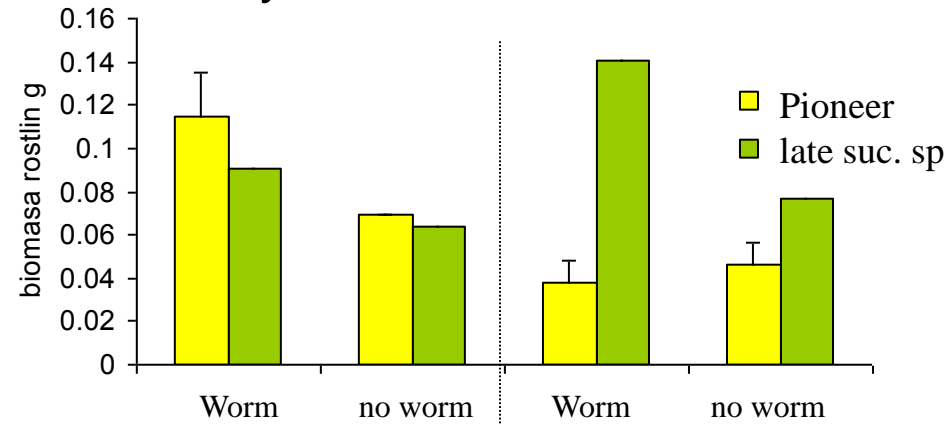


presence humus layer
is strongest predictor of
these groups
(discriminant analysis,
backward selection)

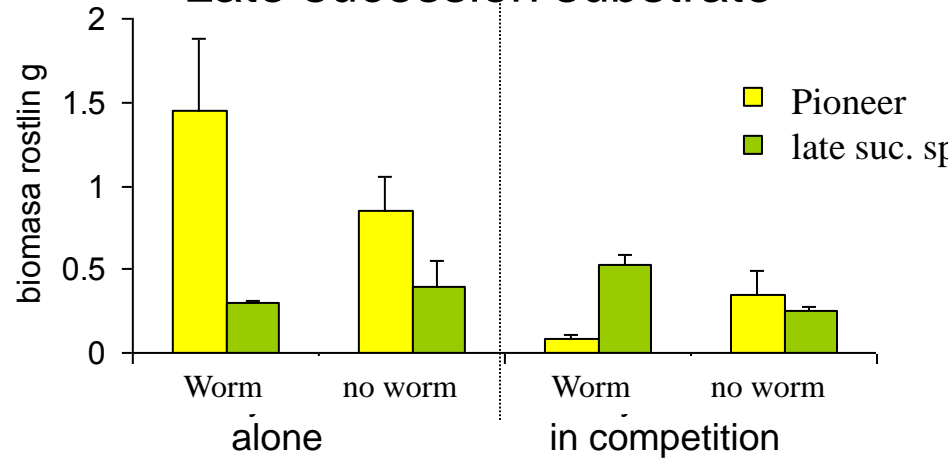


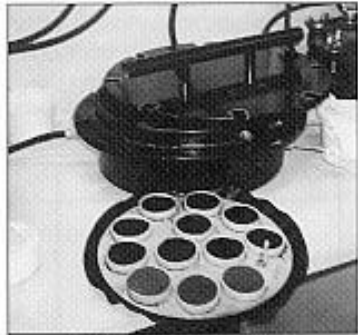


Early succession substrate



Late succession substrate





15 Bar laboratory apparatus



1/3 (.333) Bar laboratory apparatus

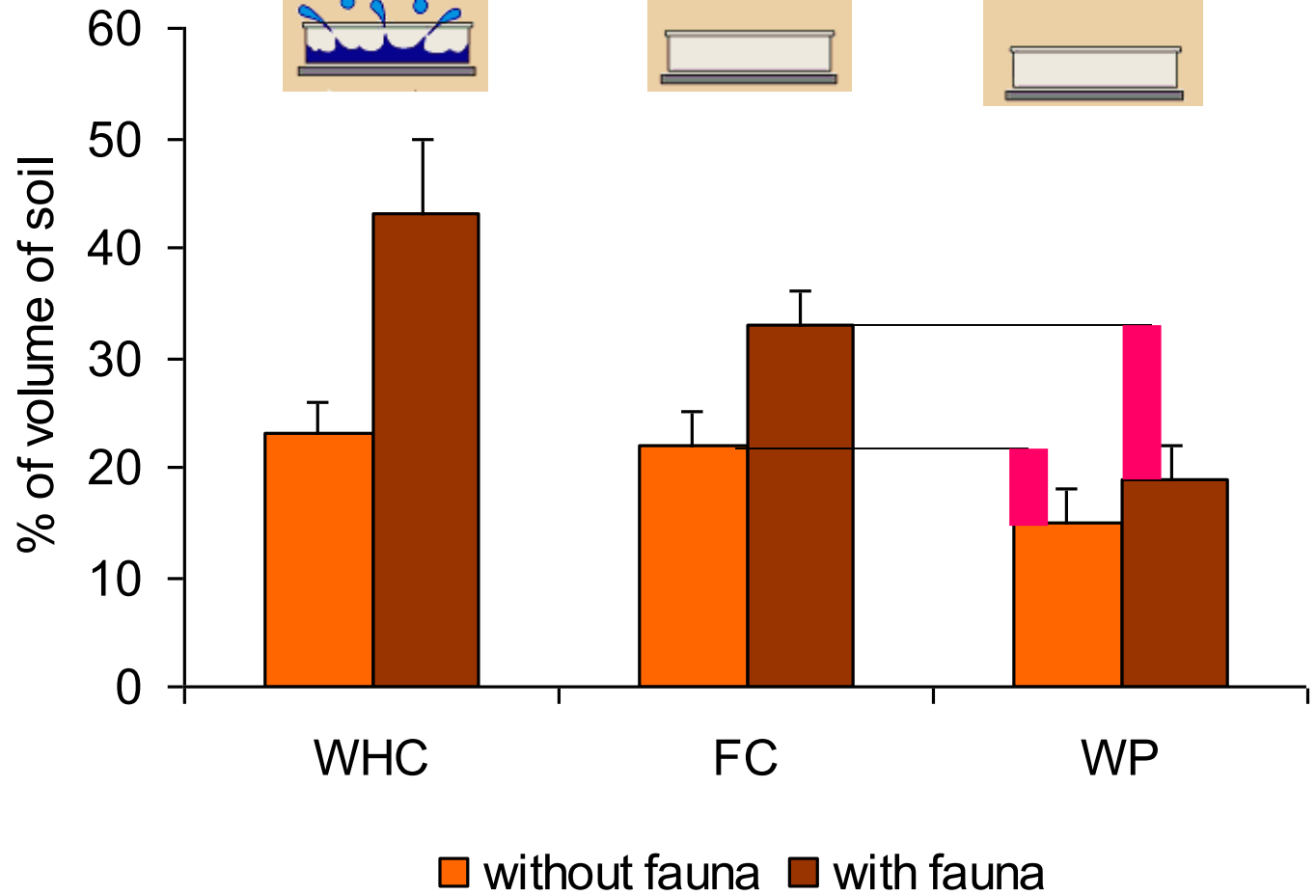
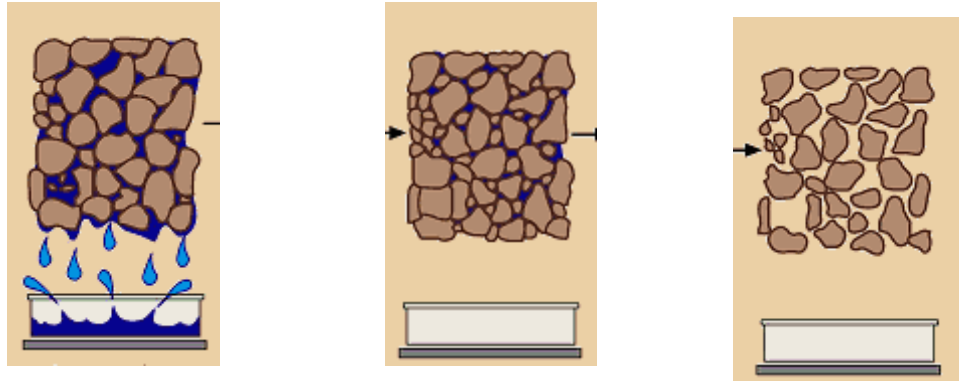




Fig. 1 Schematic diagram of sampling design. Samples were collected in *Salix caprea* monocenosis (SalM), *Calamagrostis epigejos* monocenosis (CalM) and in the contact zone of the two species (Mix).

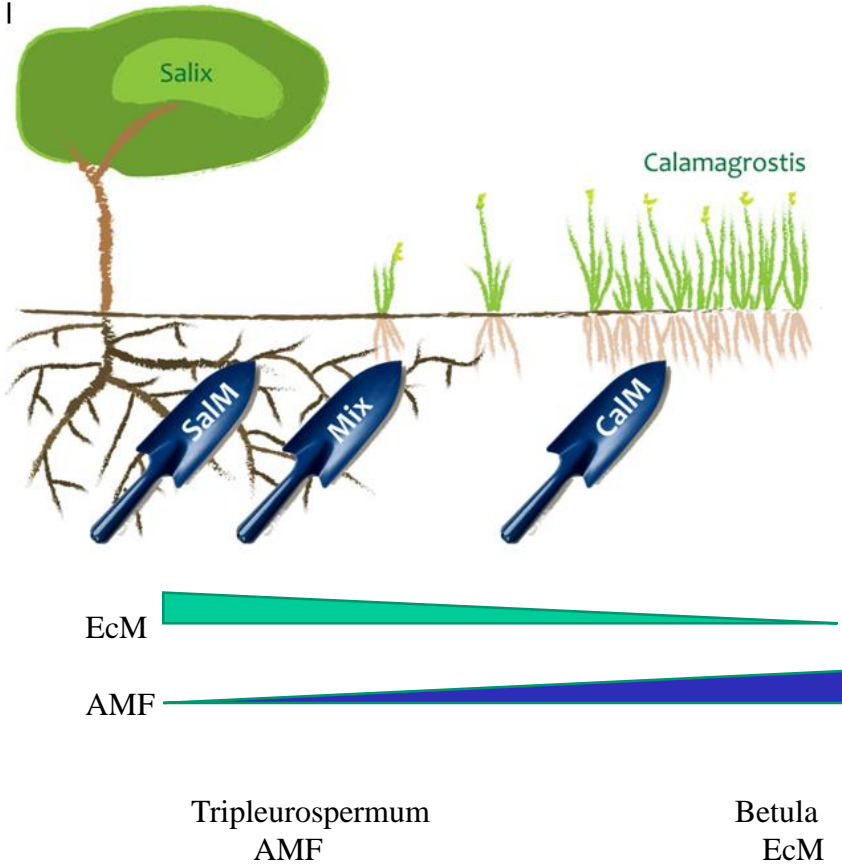
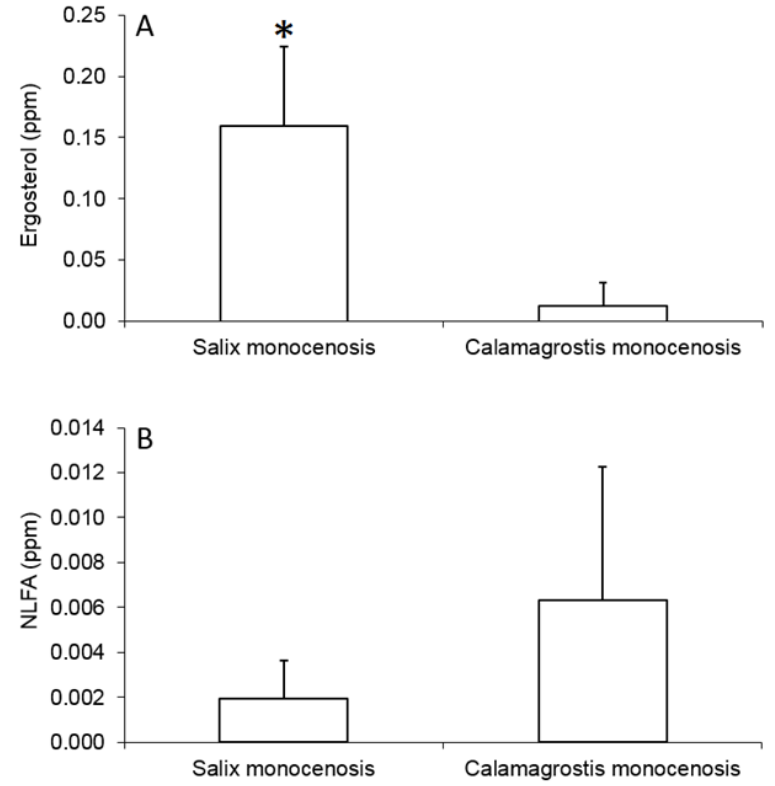
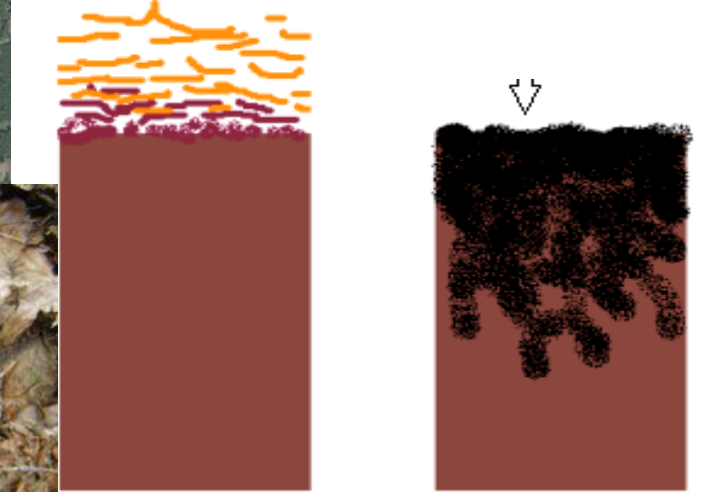
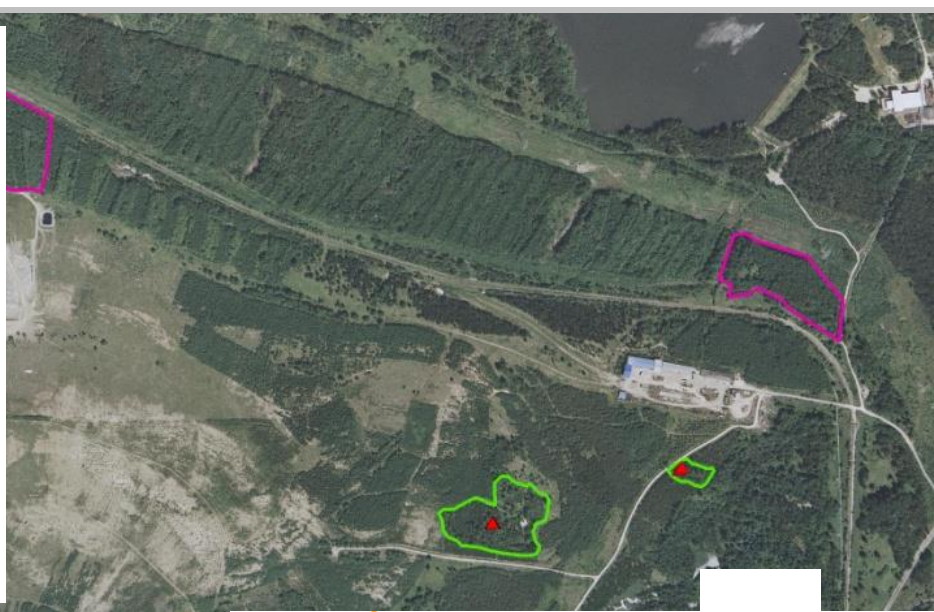
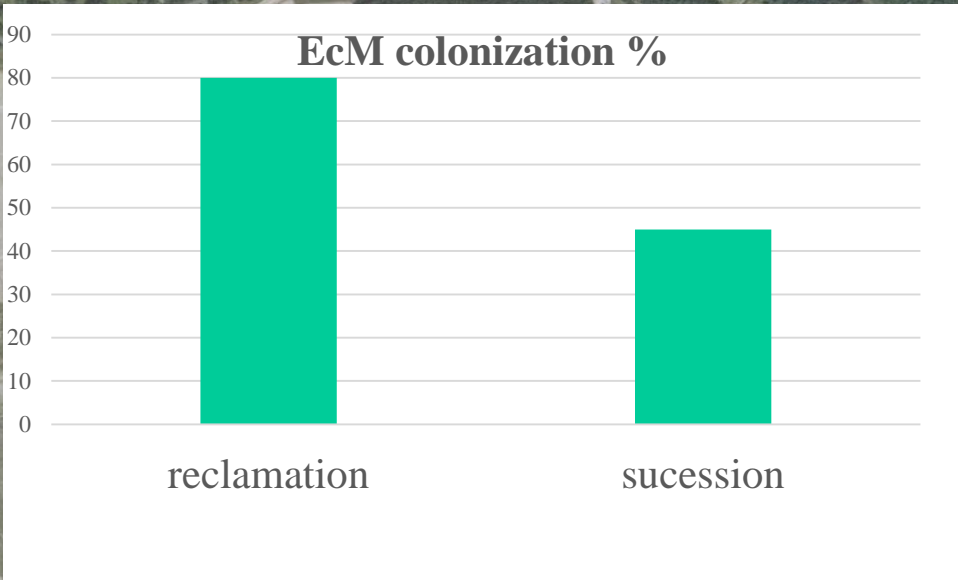


Fig. 2 Concentration of ergosterol (A) in sand bags was significantly higher in *S. caprea* monocenosis than in *C. epigejos* monocenosis ($p < 0.0001$). We observed a trend in concentration of NLFA (B) of slightly higher values in *C. epigejos* monocenosis than in *S. caprea* monocenosis ($p = 0.0746$).



Knoblochova et al., 2017. Mycorrhiza, DOI 10.1007/s00572-017-0792-x





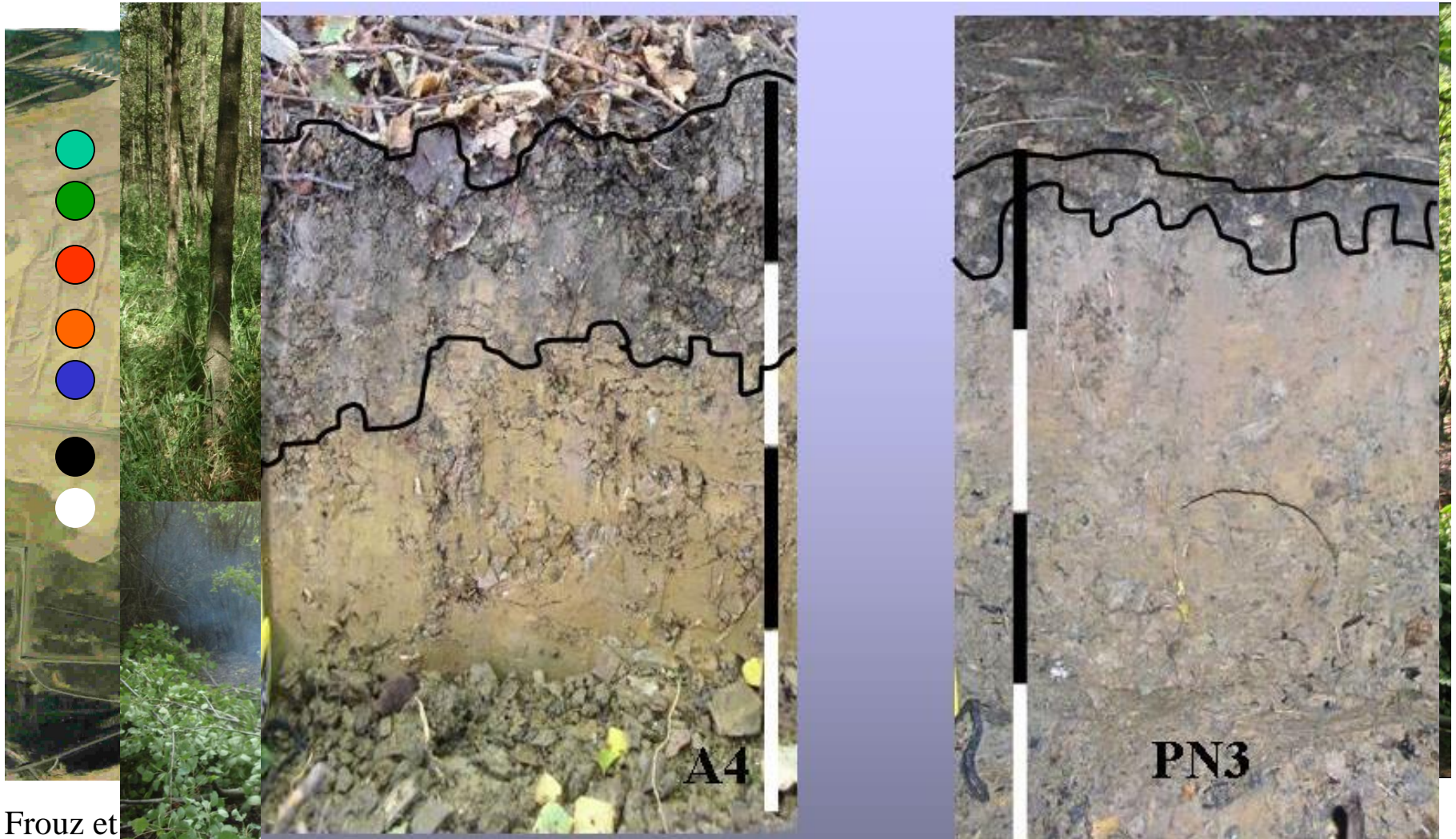
Better

Worse

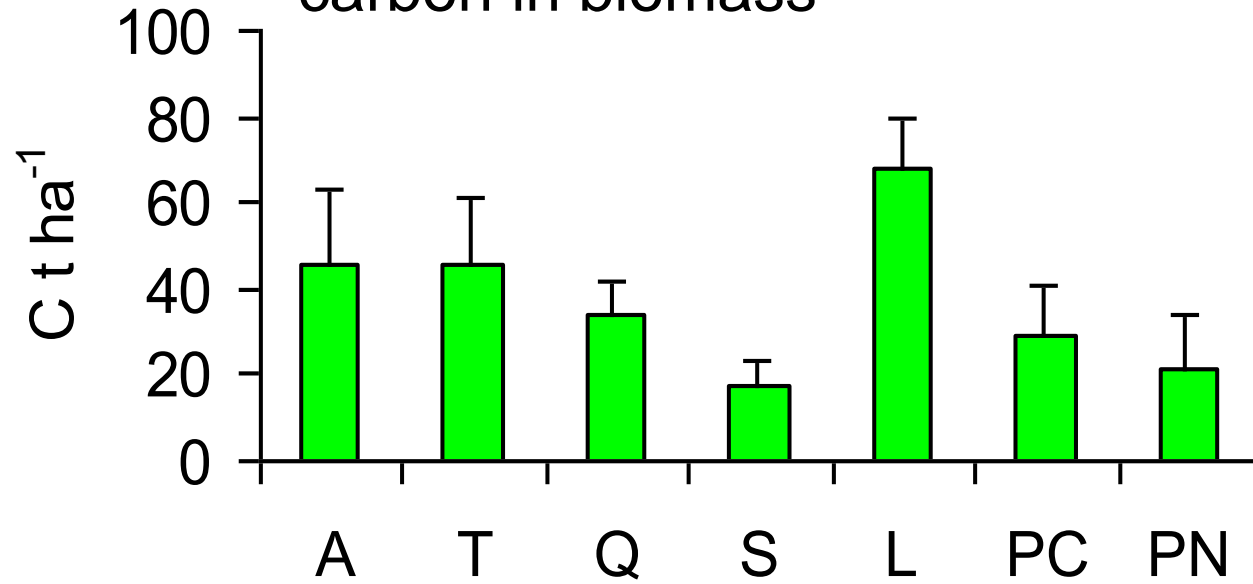


Establishment of late succession species

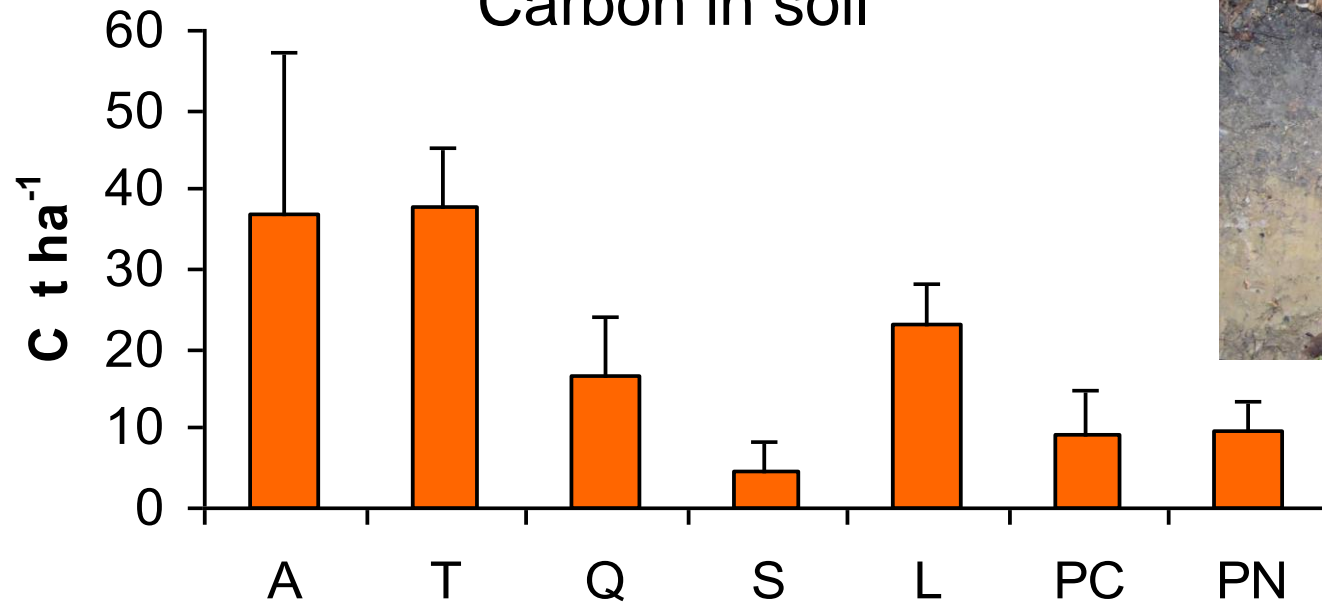
Carbon accumulation under variuos tree species



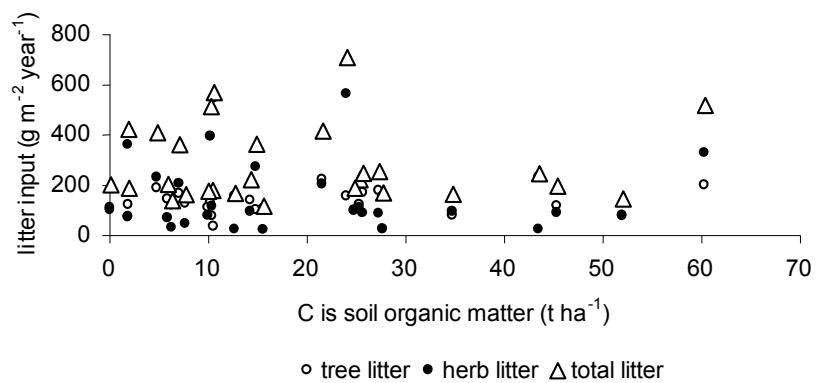
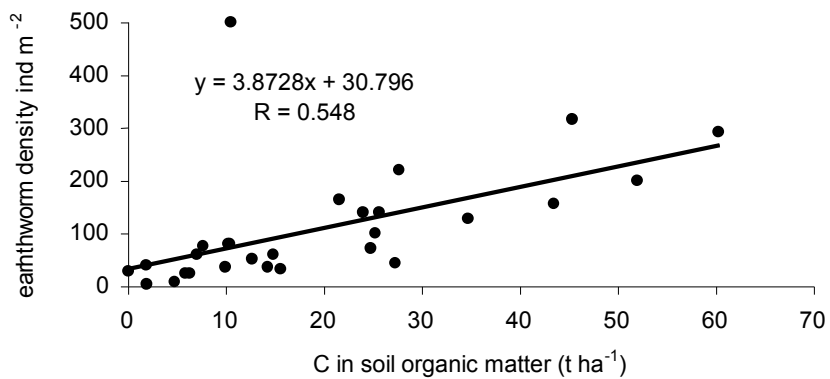
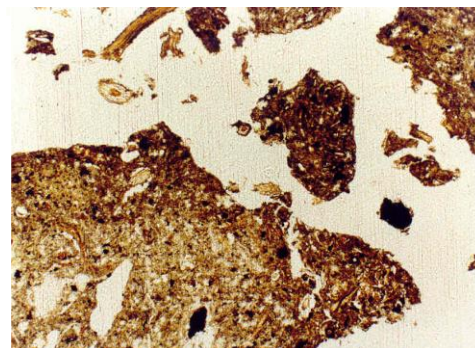
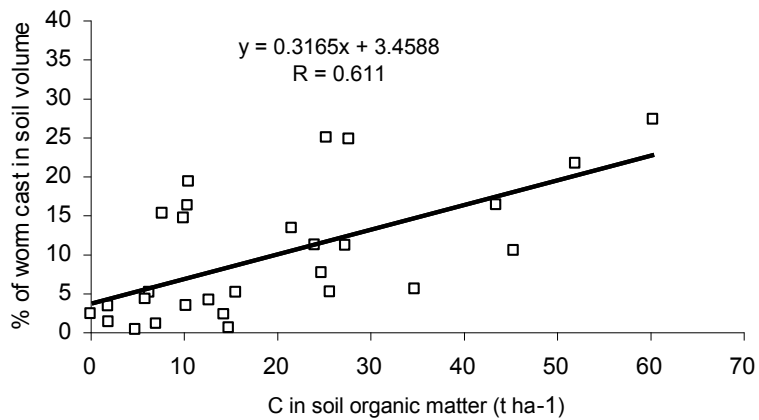
carbon in biomass

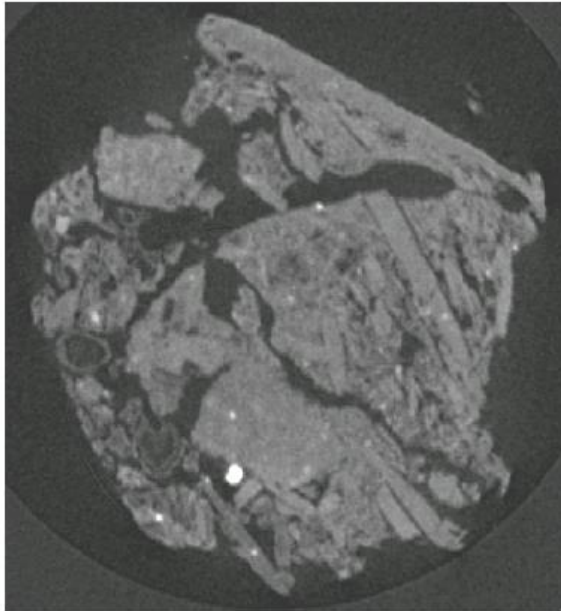


Carbon in soil

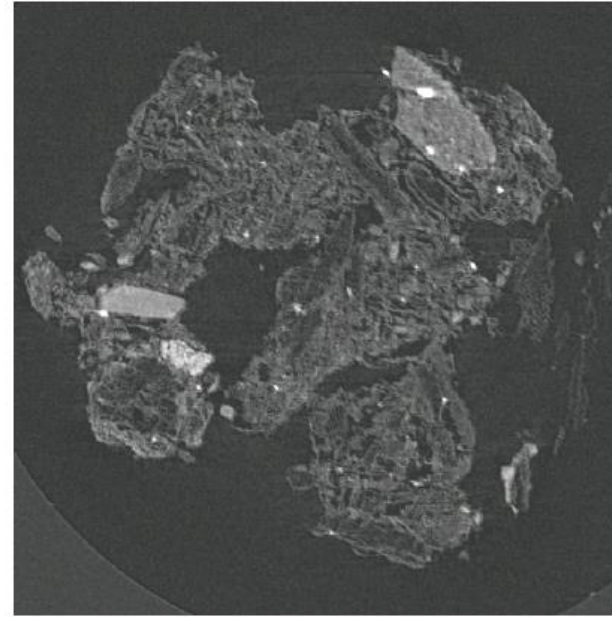


22-32
Old plots



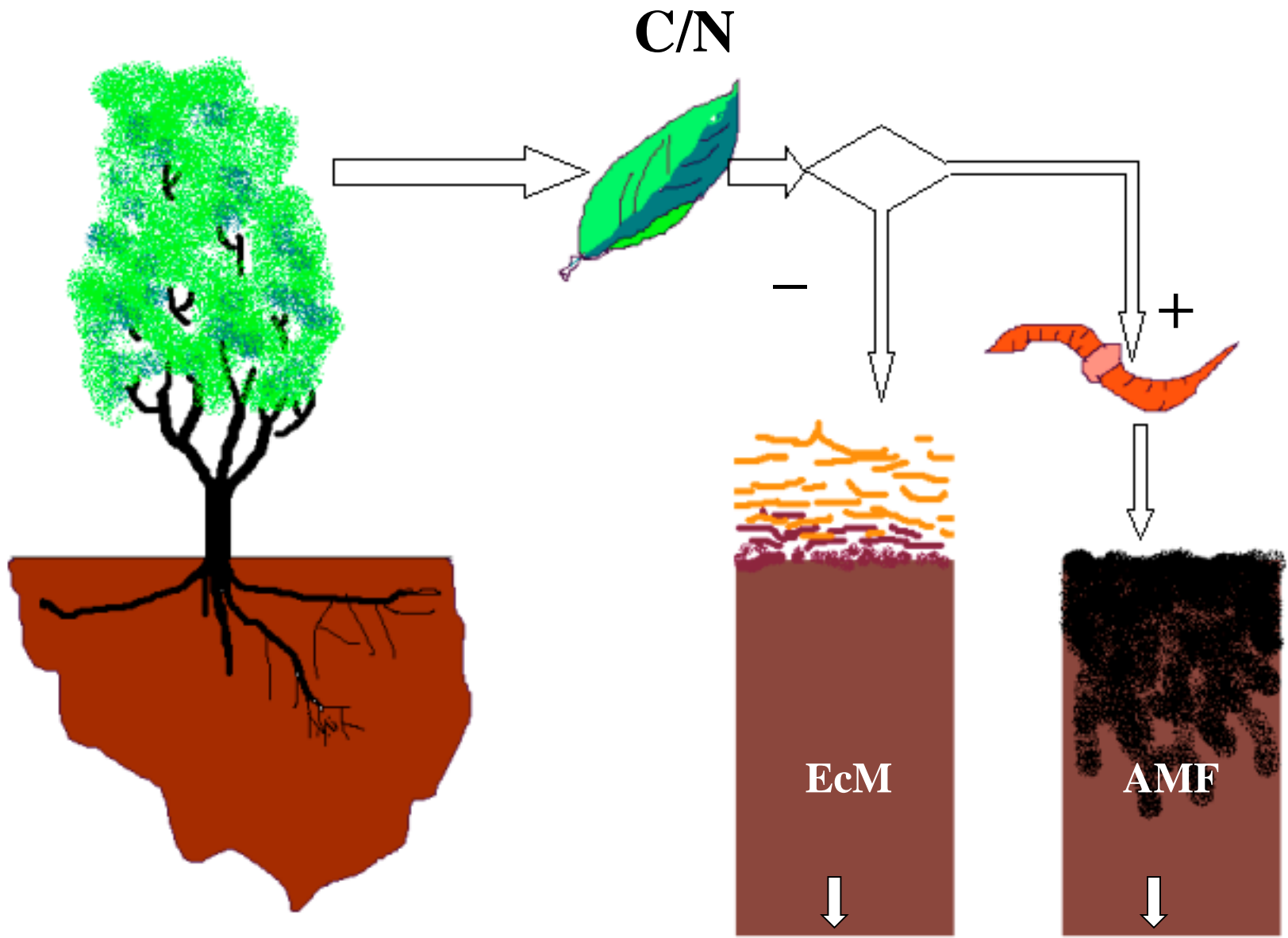


Other aggregates



Earthworm cast

	Other aggregates	Earthworm cast
Light POM	0.34 ± 0.21	0.84 ± 0.55
Bounded light POM	$0.18 \pm 0.12^*$	$1.34 \pm 0.43^*$

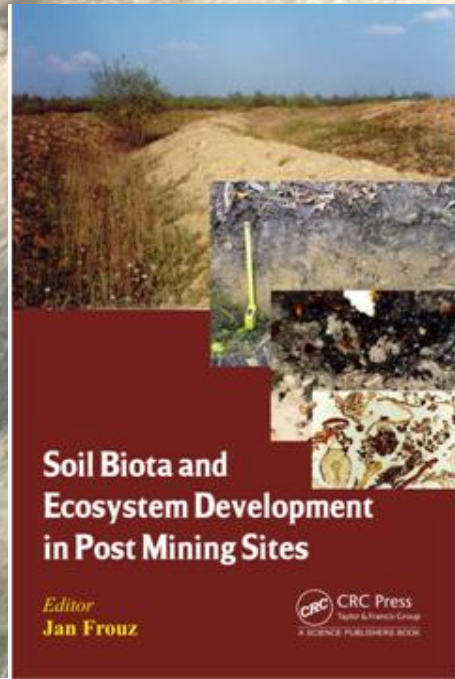


Frouz et al., 2013.
 Forest Ecology and Management,
 309: 87-95.

soil chemistry
 microbial properties
 mycorrhiza



Thank you for your attention



**Soil Biota and
Ecosystem Development
in Post Mining Sites**

Editor
Jan Frouz

 **CRC Press**
Taylor & Francis Group
A SCIENCE PUBLISHERS BOOK