

Interactive comment on “Disturbances can control fine-scale pedodiversity in old-growth forest: is the soil evolution theory disturbed as well?” by P. Šamonil et al.

P. Šamonil et al.

pavel.samonil@vukoz.cz

Received and published: 5 June 2014

Thank you for your professional opinion and generally positive assessment of our manuscript.

5491 21-23: As we mentioned in the paper, we expect significant spatial non-randomness of the disturbance events within the forest stand. Therefore, shortening of the rotation period on Podzols cannot completely exclude the existence of places that have not been disturbed for the entire Holocene.

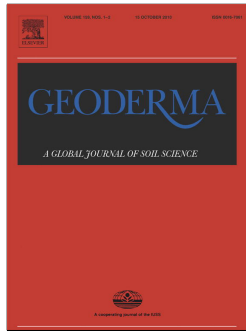
Now we suppose that we really have found such sites in Zofin. Visually undisturbed flat sites were selected for detailed measurements on Haplic Cambisols, Dystric Cambisols, Entic Podzols and Albic Podzols in 2013, two replications per soil taxonomical unit. We studied characteristics and past development of individual soil profiles and its surrounding (squares 44 x 44 m) using geophysics (ground penetration radar, seismic measurement), detailed soil chemical and physical analyses (for list of analyses see Šamonil et al. 2010), pedoanthracology and radiometry (mainly ¹⁴C). Although we are waiting for the results of some analyses, existing results of pedoanthracology (and soil analyses as well) support idea of long term absence of disturbances in some sites. Charcoal composition ≥ 2 mm described in 6 soil layers per profile revealed gradual development of woody species composition from spruce-pine forests (soil substratum horizon), through spruce, spruce-fir and finally to spruce-fir-beech forests. Picture of spruce-fir-beech forest acquired in upper mineral horizon corresponds to current woody species composition in Zofin. We expect that gradual changes of woody species composition (as well as gradual changes in soil properties) with increasing soil depth generally correspond to Holocene development of vegetation in region, which should be proved by results of extensive radiocarbon dating (not available at this moment). Woody species spreading as the last during the Holocene were not found in deeper soil horizons. These profiles probably have not been disturbed since early Holocene. Soil morphology revealed also some periglacial-like features, but it also requires deeper attention.

Reference:

Šamonil P., Tejnecký V., Borůvka L., Sebková B., Janík D., Sebek O., 2010. The role of tree uprooting in Cambisol development. *Geoderma* 159: 83-98.

Interactive comment on Biogeosciences Discuss., 11, 5471, 2014.

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>

Fig. 1.

C2123