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Interactive comment on "Leaf wax n-alkanes in modern plants and topsoils from eastern Georgia (Caucasus) – implications for reconstructing regional paleovegetation" *by* Marcel Bliedtner et al.

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I would like to refer the authors to our manuscript (Holtvoeth et al., Biogeosciences, 13, 795-816, 2016) wherein we report the distributions of n-alkyl compounds from leaf litter and soils of the Ohrid Basin (Western Balkans). Similar to the authors we observe a bimodal n-alkane distribution in the topsoil from a beech forest, with the grass-derived C31 n-alkane dominating over the beech litter-derived C27 n-alkane.

Apart from a change in vegetation cover, another explanation for this observation would

be that n-alkanes from grasses overproportionally enter the soil lipid pool. In our study, the grasses contained about 4-times the amount of n-alkanes (32 vs. 142 microgram/gram dry weight). Furthermore, the autumnal grass biomass is less mobile than leaf litter and remains in-situ. Thus, the proportion of n-alkanes from the grassy undergrowth contributing the soil lipids is almost certainly higher than that from leaf litter. The amount of grass growing even underneath a closed deciduous canopy can vary greatly depending on a range of local factors such as substrate quality, soil moisture, slope and direction of slope etc., which may complicate the interpretation of n-alkane distributions in environmental archives. Generally, though, I agree with the authors that n-alkane distributions can provide useful paleoenvironmental proxies if calibrated locally, and I strongly support the approach to investigate the modern end-member lipid sources and pools, i.e. plant matter and soils, for such calibration.

With best wishes,

Jens Holtvoeth

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