SOIL

Supplement of

Land use impact on carbon mineralization in well aerated soils is mainly explained by variations of particulate organic matter rather than of soil structure

Steffen Schlüter et al.

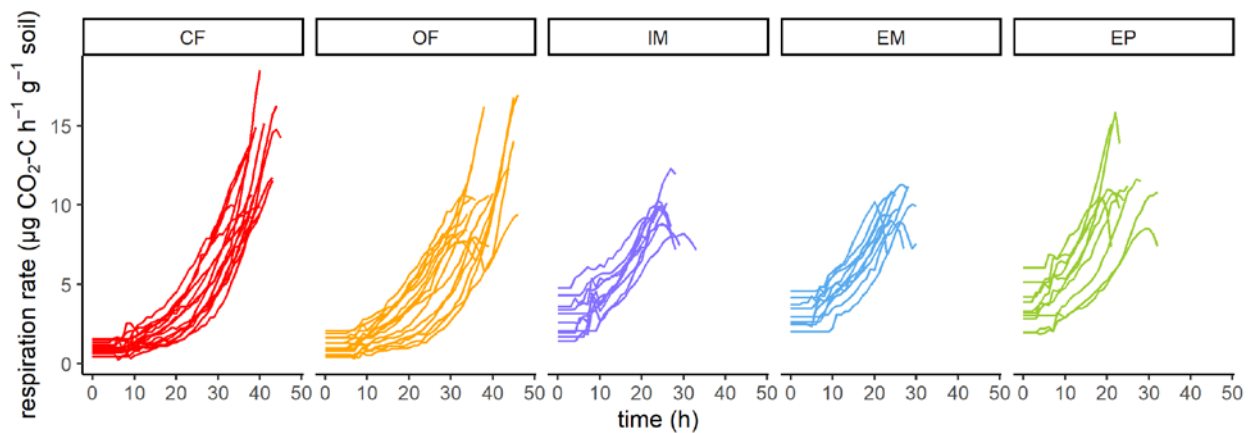*Correspondence to:* Steffen Schlüter (steffen.schlueter@ufz.de)

Figure S 1: Time series of CO_2 release for each replicate during substrate-induced respiration until the CO_2 capacity of the respirometer was reached (n=15 for CF, OF, n=10 for IM, EM, EP). CF conventional farming, OF organic farming, IM intensively managed meadow, EM extensively managed meadow, EP extensively managed pasture.
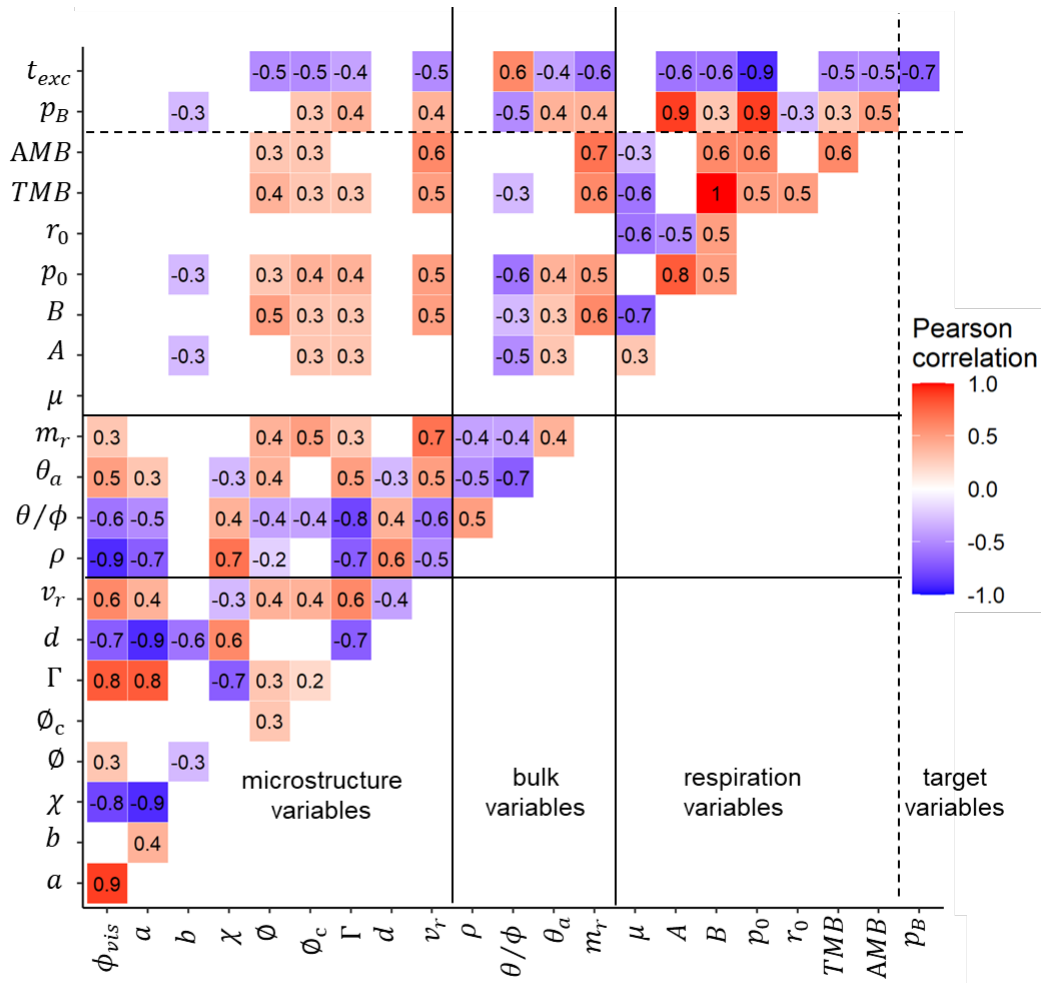
Figure S 2: Correlation matrix of all investigated properties based on all samples from all land uses: t_{exc} and p_B are considered target variables during partial least square regression, whereas all other properties are considered as explanatory variables. Only significant ($p<0.05$) correlations are displayed. Symbols represent: ϕ_{vis} – visible porosity, a – pore surface area density, b – mean breadth density, χ – Euler number density, $\emptyset$ – average pore diameter, $\emptyset_c$ – critical pore diameter, Γ – connection probability, d – average pore distance, v_r – POM volume fraction, ρ – bulk density, θ/ϕ – field water saturation, θ_a – air content after glucose addition, m_r – POM content, μ – growth rate, A – growth independent release CO_2 release rate, B – growth dependent release CO_2 release rate, p_0 – substrate induced CO_2 release, r_0 – active microbial fraction, TMB – total microbial biomass, AMB – active microbial biomass, p_B – basal respiration rate, t_{exc} – time until respirometer capacity excess.
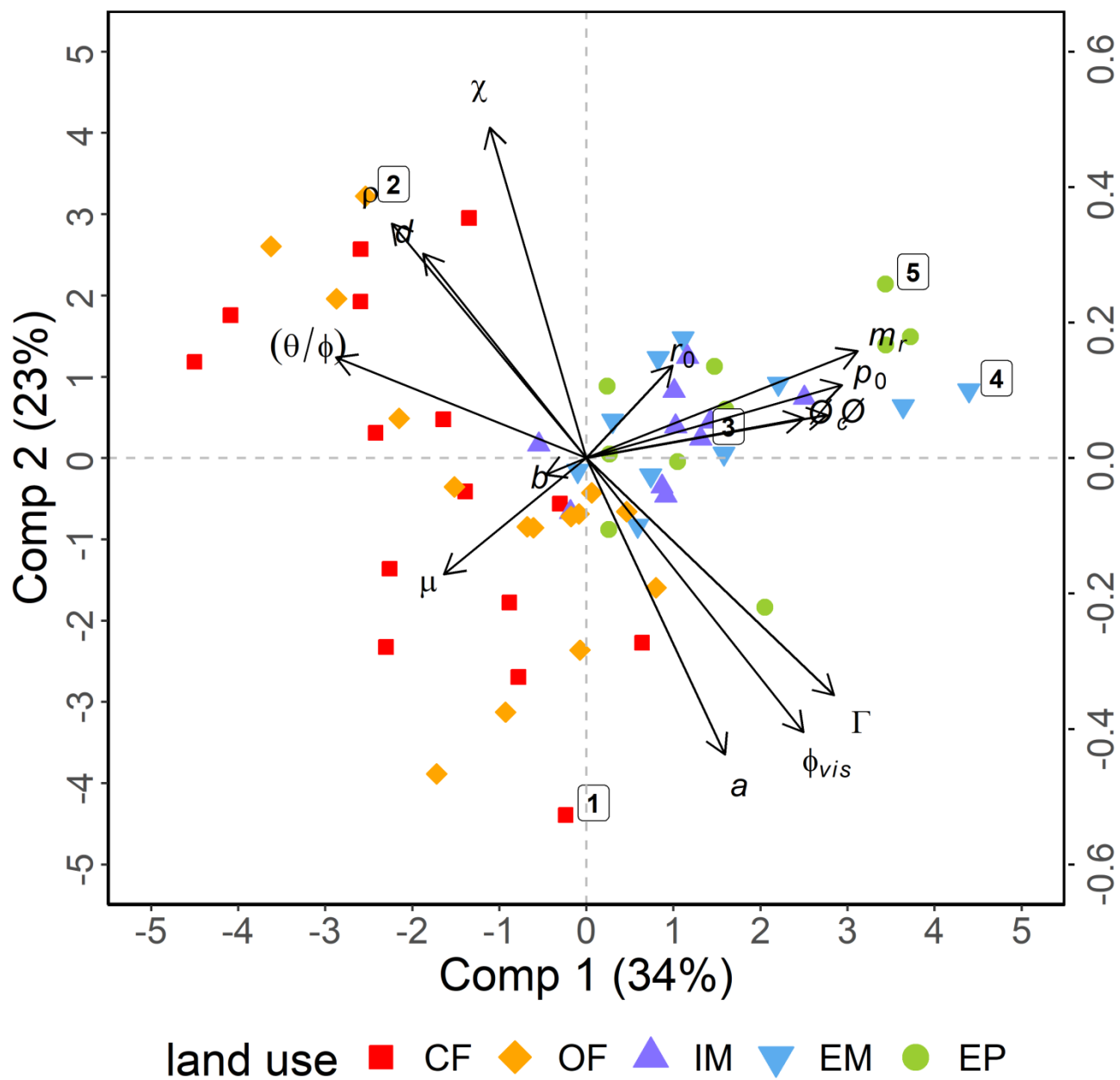
Figure S 3: Biplot for partial least square regression of basal respiration (p_B) with scores of individual samples from different land uses in the first principal components (1st xy-axis) and loadings (2nd y-axis) showing the influence of explanatory variables on components. The numbered labels (1-5) correspond to samples depicted in Fig. 3 of the main paper.
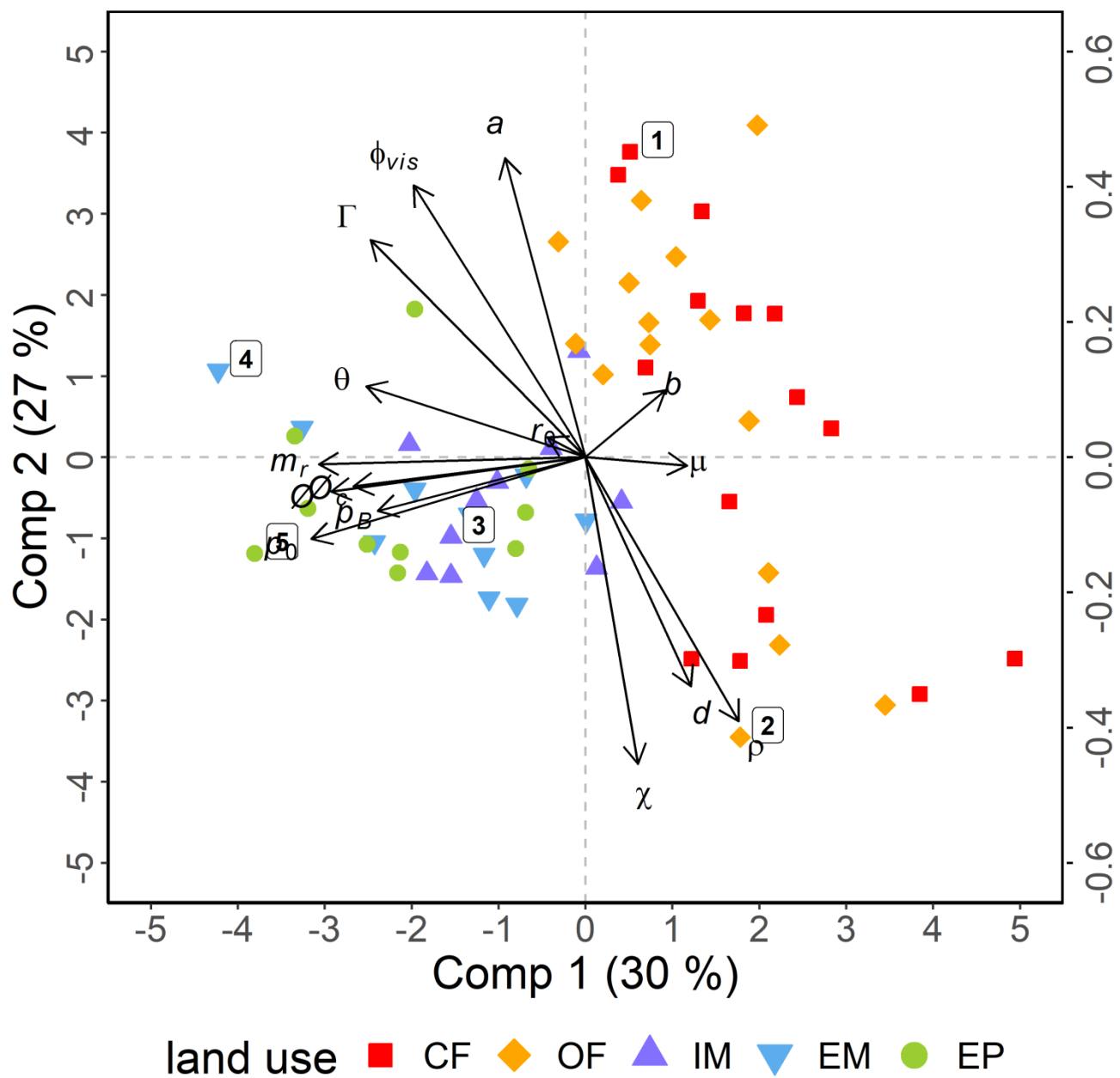
Figure S 4: Biplot for partial least square regression of time of capacity excess (t_{exc}) with scores of individual samples from different land uses in the first principal components (1st x-axis) and loadings (2nd y-axis) showing the influence of explanatory variables on components. The numbered labels (1-5) correspond to samples depicted in Fig. 3.