

Fig. S4 Structural equation models on the effects of earthworm and types of deposited compounds (N, Na, PAHs) on fauna-driven (large mesh size litterbags) and microbial-driven decomposition (small mesh size litterbags) in deciduous (upper six graphs) and coniferous forest (lower six graphs). Arrows represent causal pathways. Solid arrows represent marginally significant relationships ($P \leq 0.1$), dashed grey arrows represent non-significant relationships ($P > 0.1$). Red arrows refer to negative effects, green arrows to positive effects. Arrow width represents the standardized path coefficients. Non-standardized path coefficients associated with each solid arrow are shown (\dagger) $P \leq 0.1$, (*) $P \leq 0.05$, (**) $P \leq 0.01$, (***) $P \leq 0.001$; $n = 80$ (2 deposited compounds treatments \times 2 earthworm treatments \times 4 replicates \times 5 sampling times). SIR_C, microbial biomass in soil underneath coarse litterbags, pH_C, soil pH underneath coarse litterbags, SIR_F, microbial biomass in soil underneath fine litterbags, pH_F, soil pH underneath fine litterbags, M_loss_C, fauna-driven litter decomposition (i.e., the difference in mass loss between coarse and fine litterbags), M_loss_F, microbe-driven litter mass loss (fine litterbags).