**Supplementary information:**

Figure S1. Correspondence analysis (CA) of the abundance of understory plant species in burned (unlogged) stands. The scores of the first CA axis were extracted to be used as an understory vegetation index. Only plant species present in more than 3 stands were considered. Bet pen = *Betula pendula*; Bet pub = *Betula pubescens*; Cal arun = *Calamagrostis arundinacea*; Cal vulg = *Calluna vulgaris*; Car pi = *Carex pilulifera*; Cer pur = *Ceratodon purpureus*; Des fle = *Deschampsia flexuosa*; Epi ang = *Epilobium angustifolium*; Epi mon = *Epilobium montanum*; Luz pi = *Luzula pilosa*; Mar poly = *Marchantia polymorpha*; Pi syl = *Pinus sylvestris*; Po nu = *Pohlia nutans*; Poly ju = *Polytrichum juniperum*; Poly pill = *Polytrichum pilliferum*; Poly sp = *Polytrichum* sp.; Po tre = *Populus tremula*; Pte aqui = *Pteridium aquilinum*; Rub ida = *Rubus idaeus*; Sa ca = *Salix caprea*; Se syl = *Senecio sylvaticum*; Tri eu = *Trientalis europaea*; Vac myrt = *Vaccinum myrtillus*; Vac vitis.idaea = *Vaccinum vitis.idaea*.



Figure S2. Principal component analysis (PCA) of the proportion of dead trees, *P. sylvestris* root biomass (g m-2) and deposited litter (g m-2) in burned (unlogged) stands. The scores of the first PCA axis were extracted to be further used as a crown-fire severity index.



Figure S3. Principal component analysis (PCA) of the mor depth (mm), C stocks (g m-2) and C:N ratio in burned (unlogged) stands. The scores of the first PCA axis were extracted to be further used as a ground-fire severity index.



Figure S4. Variation in fungal community composition in the organic mor layer and mineral soil across burned (unlogged) stands and unburned stands, as visualized by detrended correspondence analysis (DCA). In all graphs, white symbols represent unburned stands while black symbols represent burned stands. The organic mor layer is indicated by circles and the mineral soil by triangles.

