Supplementary 2. Additional details on forest simulations

1. Thinning intensity

Table S1 shows the thinning intensity for each scheme used in the forest growth simulations as a percentage of standing stock removal for different species. The BAU intensity was retrieved from the German NFI data (https://www.bundeswaldinventur.de/) and used as a base to derive the Increase/Decrease thinning intensity schemes.

Table S1. Thinning intensity in percentage (removal) of the standing stock for each thinning scheme. BAU stands for business-as-usual thinning intensity.

Species group	BAU	Increase	Decrease	No management
Acer (sycamore and Norway maple) (*Acer platanoides*)	34	44	24	0
Silver birch (*Betula pendula*)	34	44	24	0
Douglas fir (*Pseudotsuga menziesii*)	32	42	23	0
European beech (*Fagus sylvatica L.*)	18	23	12	0
European larch (*Larix decidua*)	38	49	27	0
Norway spruce (*Picea abies* (L.) H. Karst.)	16	20	11	0
Oaks (sessile and common) (*Quercus petraea/robur*)	22	28	15	0
Other broadleaves	34	44	24	0
Scots pine (*Pinus sylvestris*)	48	62	34	0
Silver fir (*Abies alba* Mill.)	26	34	18	0

2. Implementation of deadwood dynamics

To evaluate deadwood dynamics, we included the creation of snags and lying deadwood from (i) natural mortality and (ii) windstorms in the simulations' results. The deadwood from natural mortality was derived from the mortality routine of the model Sibyla and divided into snags (24.5%) and lying deadwood (75.5%), according to data from the German National Forest Inventory (https://www.bundeswaldinventur.de/). The deadwood arising from windstorm events was either included in the snag pool (standing deadwood), in the case of stem breakage or to the lying deadwood pool, in the case of tree uprooting. To define if a tree suffered breakage or uprooting, we applied a slenderness coefficient, namely the height/dbh ratio. If the ratio was below 0.85, the tree was assumed to be uprooted and the full volume input into the lying deadwood pool. In case the height/dbh ratio was above 0.85 (Gardiner et al. 2000), the tree was assume to break and create a snag. Furthermore, based on the average volume of snags in our research area, we input the broken tree portion into the lying deadwood pool. For scenarios applying salvage logging, this portion was removed. For the snags, we assumed a linear decay, with complete decay in a 20 years period (Russell et al. 2012; Meyer et al. 2009). For the lying deadwood decomposition, we applied an exponential volumetric decay according to Meyer et al. (2009).

References

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