potential to maximize outcomes while minimizing undesired effects (Dobor et al., 2020; Seidl et al., 2018). Furthermore, reducing the rotation length is only one possible option to address increasing disturbances, and should be applied in concert with other disturbance management approaches such as fostering disturbance resilience (Hlásny et al., 2019; Seidl, 2014). We conclude that addressing changing climate and disturbances regimes remains a major challenge for forest management in Central Europe, and while shortened rotation lengths can make a potential contribution, they are no silver bullet solution.

CRediT authorship contribution statement

Soňa Zimová: Data curation, Formal analysis. **Laura Dobor:** Methodology, Formal analysis, Writing - review & editing. **Tomáš Hlásny:** Methodology, Supervision, Writing - original draft. **Werner Rammer:** Software, Writing - review & editing. **Rupert Seidl:** Writing - review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Used climate model results and projected climate change

(See Table A1 and A2)

Table A1
Description of the used combinations of global and regional climate models.

	Global Climate Model		Regional Climate Model		
1	CM5A-MR	Institut Pierre-Simon Laplace, France (IPSL)	RCA4	Swedish Meteorological and Hydrological Institute, Rossby Centre, Sweden (SMHI)	Strandberg et al., 2014
2	CNRM-CM5	Météo-France / Centre National de Recherches Météorologiques, France (CNRM)	RCA4	Swedish Meteorological and Hydrological Institute, Rossby Centre, Sweden (SMHI)	Strandberg et al., 2014
3	EC-EARTH	Irish Centre for High-End Computing (ICHEC)	HIRHAM5	Danish Meteorological Institute, Denmark (DMI)	Christensen et al., 2007
4	EC-EARTH	Irish Centre for High-End Computing (ICHEC)	RACMO22E	Royal Netherlands Meteorological Institute, De Bilt, The Netherlands (KNMI)	van Meijgaard et al., 2008
5	EC-EARTH	Irish Centre for High-End Computing (ICHEC)	RCA4	Swedish Meteorological and Hydrological Institute, Rossby Centre, Sweden (SMHI)	Strandberg et al., 2014
6	MOHC-HADGEM2-ES	Met Office Hadley Centre, United Kingdom (MOHC)	RCA4	Swedish Meteorological and Hydrological Institute, Rossby Centre, Sweden (SMHI)	Strandberg et al.,2014
7	MPI-ESM-LR	Max Planck Institute for Meteorology, Germany (MPI)	RCA4	Swedish Meteorological and Hydrological Institute, Rossby Centre, Sweden (SMHI)	Strandberg et al.,2014

Table A2
Projected changes of temperature and precipitation in the growing season (April-September) for periods 2031–2060 and 2071–2100 based on six climate models and two RCP scenarios compared to the period 1996–2016.

	Expected changes for 2031–2060				Expected changes for 2071–2100			
Model	Temperature (IV-IX) [°C]		Precipitation (IV-IX) [%]		Temperature (IV-IX) [°C]		Precipitation (IV-IX) [%]	
RCP	RCP4.5	RCP8.5	RCP4.5	RCP8.5	RCP4.5	RCP8.5	RCP4.5	RCP8.5
1	0.9	1.5	−18.0	−10.3	1.9	4.0	–22.3	−21.2
2	0.2	0.3	−21.6	−7.2	1.1	2.7	−16.6	−15.5
3	0.9	1.0	−12.8	−4.1	0.9	2.7	4.2	3.7
4	0.2	0.7	−3.4	−5.0	1.0	2.7	−2.9	−8.7
5	0.8	1.4	–22.9	−16.7	1.6	3.6	−14.9	−24.0
6	1.1	1.7	−13.9	−15.4	2.1	4.1	−15.1	–22.7
7	0.7	1.1	−18.1	−7.4	1.1	3.3	−21.8	−19.9

Appendix B. Simulated time series of differences from the default rotation

(See Fig. B1)

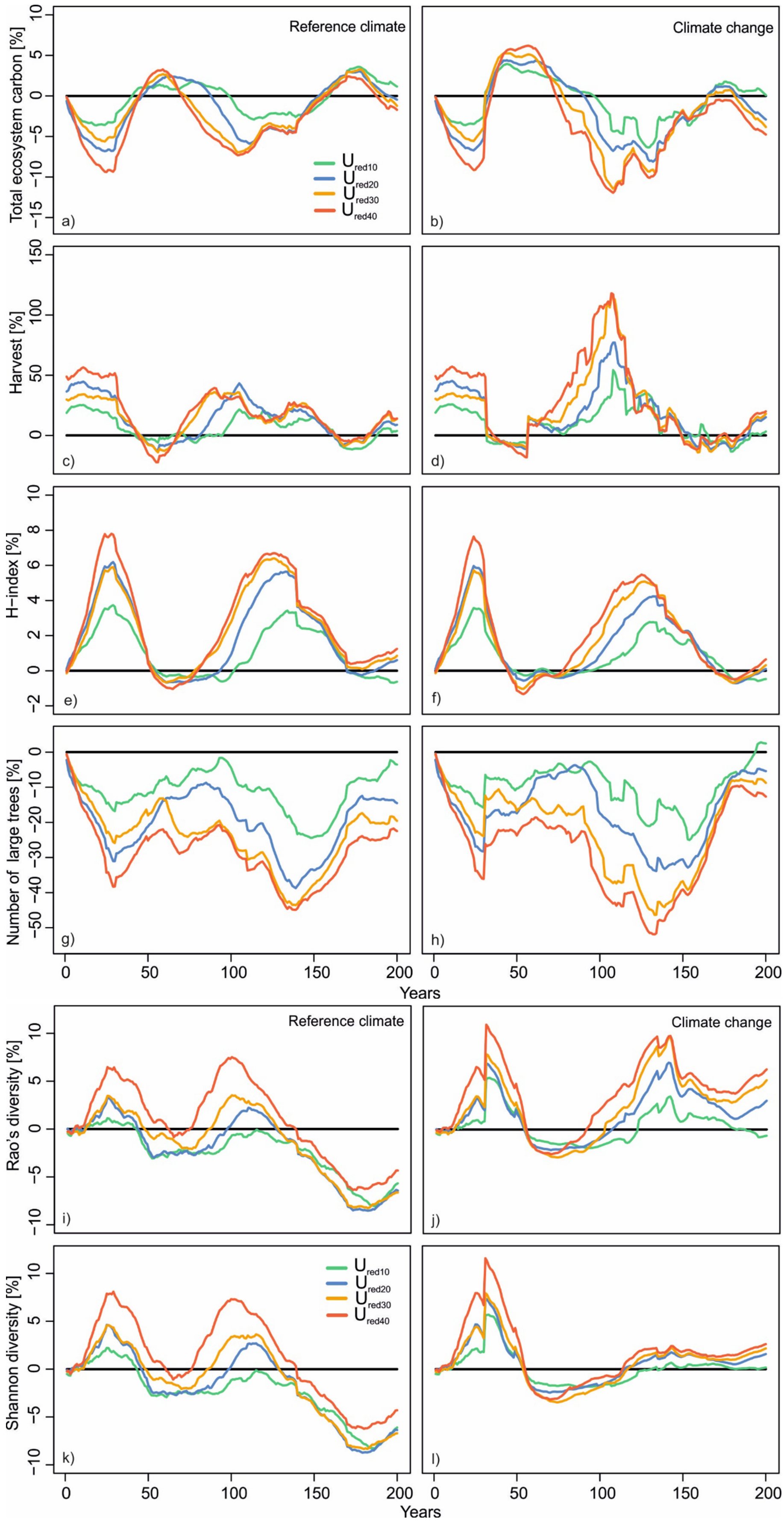

Fig. B1. Simulated time series of here tested forests development indicators. Relative differences of values reached under different levels of rotation length reduction (U_{red}) from the default rotation (U_{def}) are shown. The horizontal black line indicates the threshold of no difference from the default rotation.

Appendix C. Simulated time series of selected forest development indicators

(See Fig. C1)

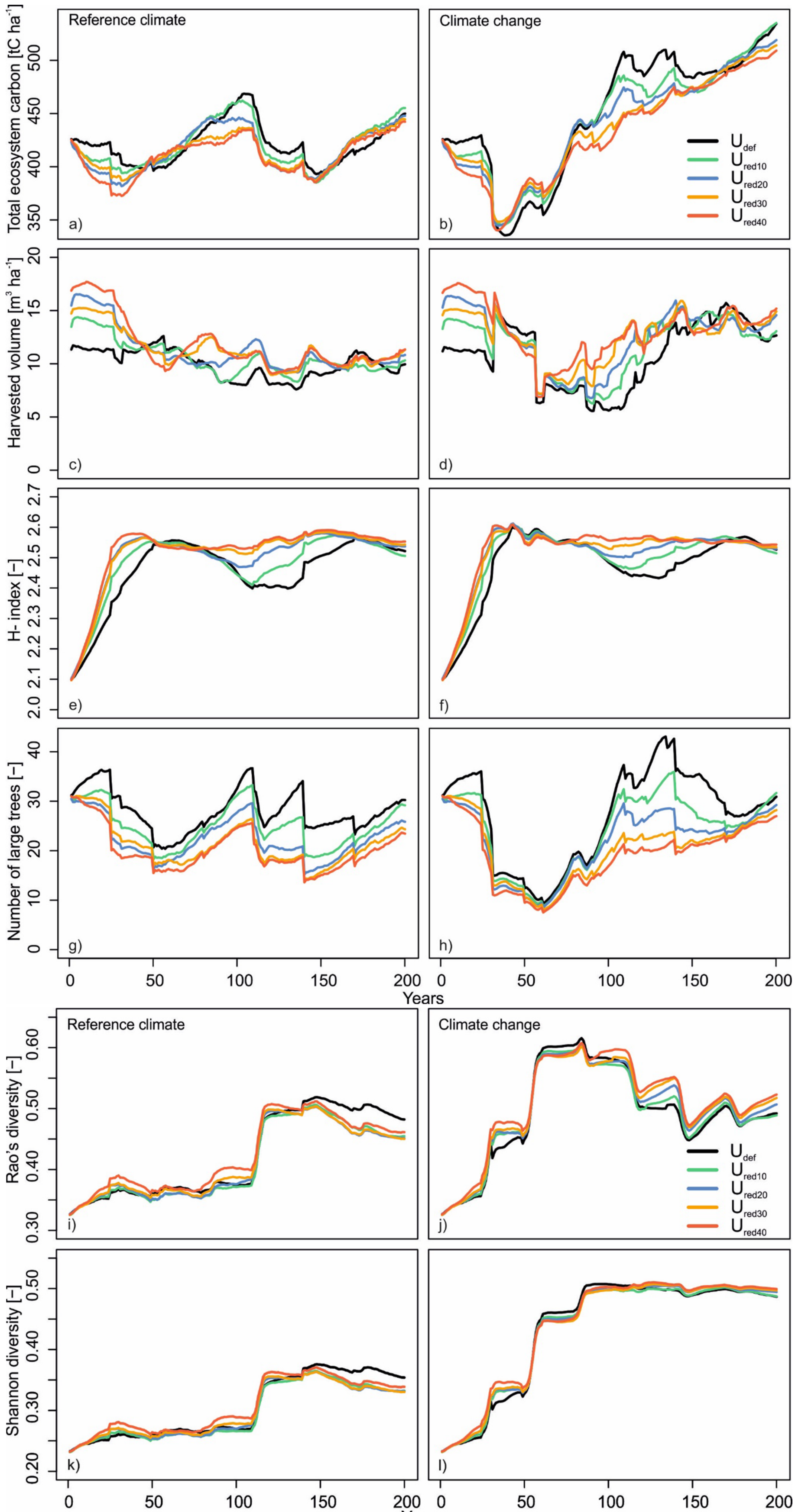

Fig. C1. Temporal evolution of selected forest development indicators in the study landscape under different levels of reduction (U_{red}) of the default (U_{def}) rotation period.

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