

Supplementary materials

Table S1. Calendar of dendrometer (dRc) / sap flow rate (Q) measurements at the research site. *(X) – tree died: PP4 and PP5 in 2017; PP1 in 2020; PP6 in 2021.

Tree / Year	PP1 (X)	PP2	PP3	PP4 (X)	PP5 (X)	PP6 (X)	PP7	PP8	PP9	PP10	PP11	PP12	Number of trees / variables
2015	dRc/Q	dRc/Q	dRc/Q										3/6
2016	dRc/Q	dRc/Q	dRc/Q										3/6
2017	dRc/Q	dRc/Q	dRc/Q	Q	Q								5/8
2018	dRc/Q	dRc/Q	dRc/Q			Q	Q						5/8
2019	dRc/Q	dRc/Q	Q			dRc	dRc/Q	dRc/ Q					6/10
2020	dRc/Q	dRc/Q	Q			dRc/ Q	dRc/Q	dRc/ Q	dRc/ Q	Q			8/15
2021	dRc	dRc/Q	dRc/Q			dRc/ Q	dRc/Q	dRc/ Q	dRc/ Q	Q	Q	Q	9/14

(a) 17,3 m



(b) 9,3 m



(c) 5,3 m



(d) 1,3 m



(e) 0 m

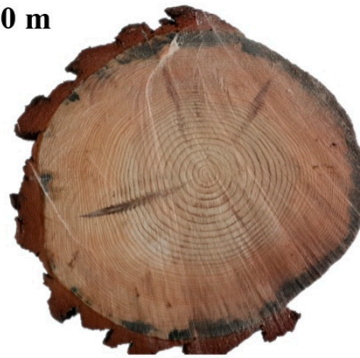


Figure S1. Disc cuts of the PPx (control) tree stem logged in June 2021, showing the distribution of ophiostomatoid fungi in wood (percent of total disc area) at the following trunk heights: **(a)** 17.3 m - 0%, **(b)** 9.3 m - 4%, **(c)** 5.3 m - 66%, **(d)** 1.3 m - 57%, and **(e)** 0 m - 8%.

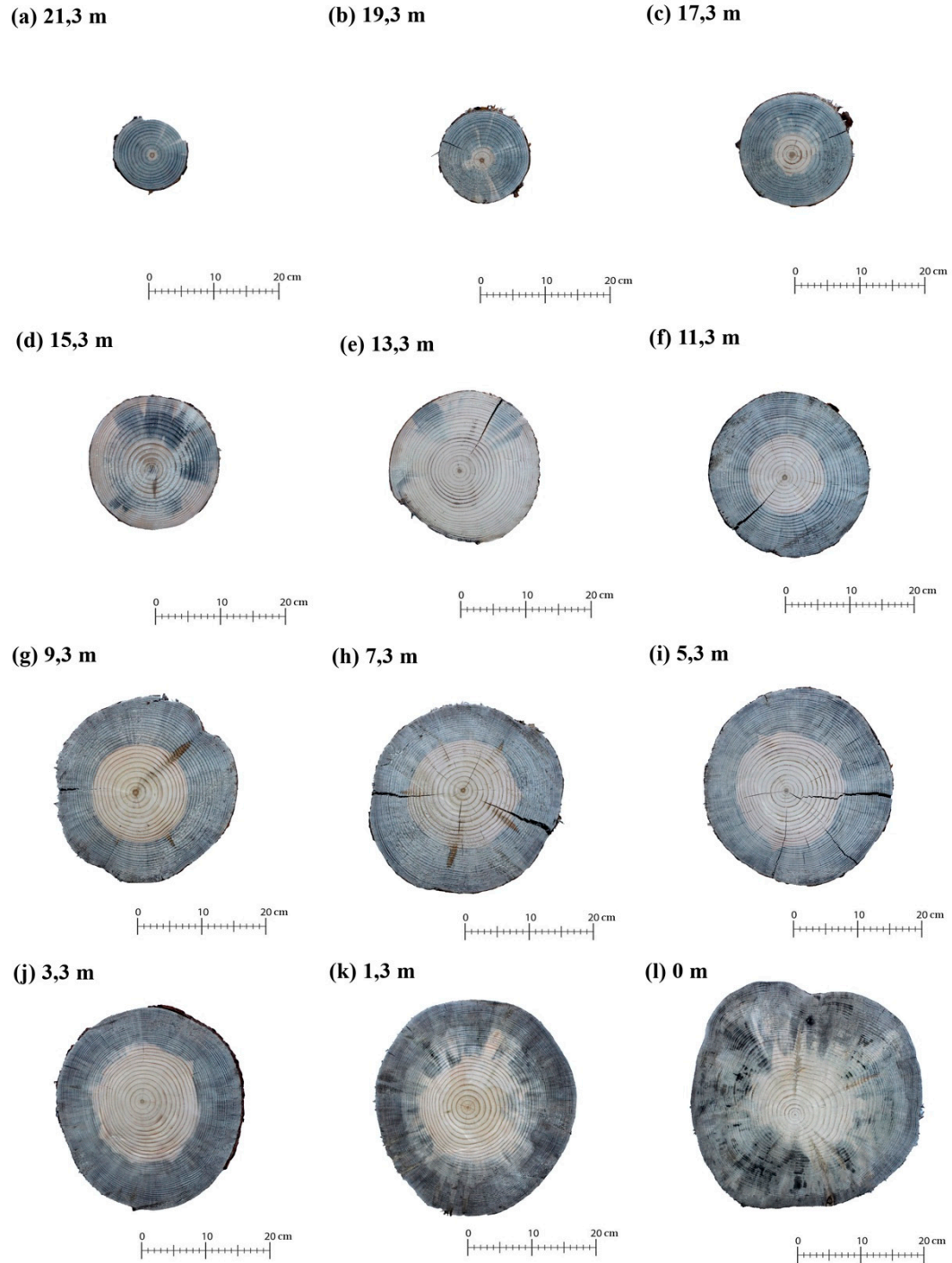


Figure S2. Disc cuts of the PP6 tree stem logged in October 2021, showing the distribution of ophiostomatoid fungi in wood (percent of total disc area) at the following trunk heights: (a) 21.3 m - 97%, (b) 19.3 m - 92%, (c) 17.3 m - 89%, (d) 15.3 m - 39%, (e) 13.3 m - 14%, (f) 11.3 m - 75%, (g) 9.3 m - 71%, (h) 7.3 m - 69%, (i) 5.3 m - 68%, (j) 3.3 m - 67%, (k) 1.3 m - 64%, and (l) 0 m - 72%.

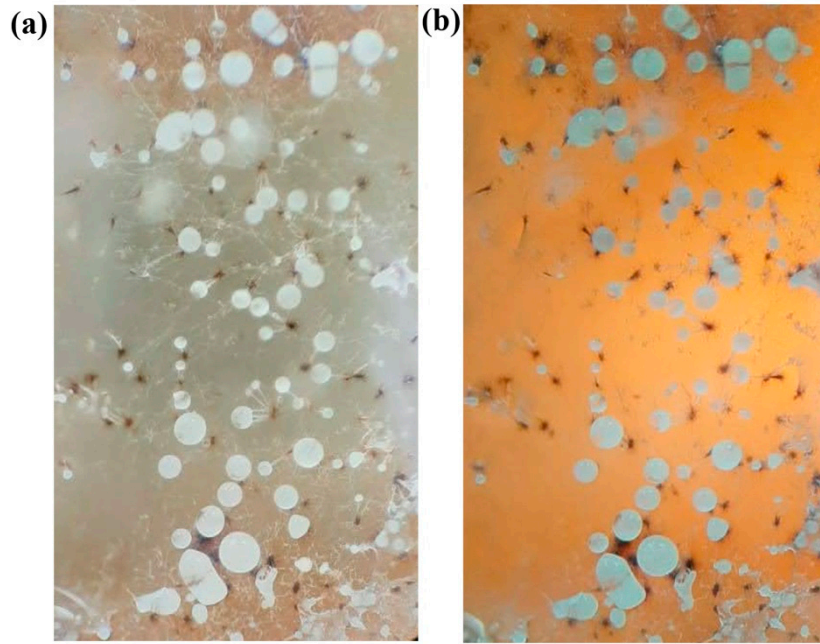


Figure S3. Microscope images of conidia droplets of ophiostomoid fungi *Pesotum piceae* cultivated from the stem wood samples extracted from the tree PP6. The images were taken in (a) top led lamp light and (b) bottom filament lamp light using the Micros MC100 microscope equipped with Levenhuk C1400NG digital camera.

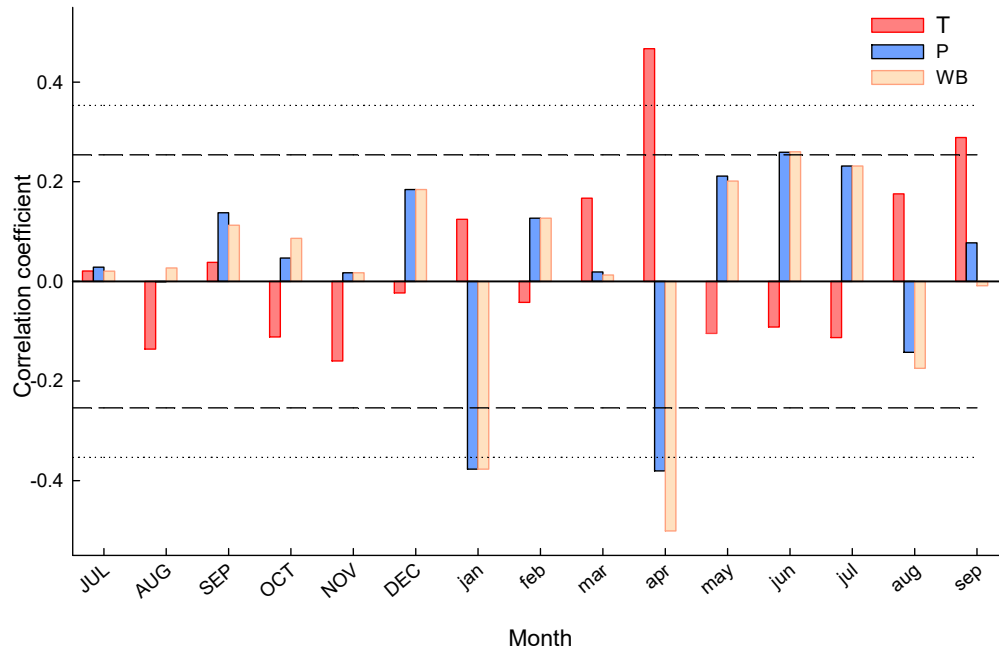


Figure S4. Correlations (Pearson's coefficient) between tree-ring width residual chronology of *Pinus sylvestris* with mean monthly temperature (T), total monthly precipitation (P), and water balance (WB) for the 1979–2021 period at Pogorelsky bor. Correlations were calculated from June of the previous year (uppercase letters) to September of the current growth year (lowercase letters). Dashed lines indicate $P < 0.05$, and dotted lines indicate $P < 0.01$.

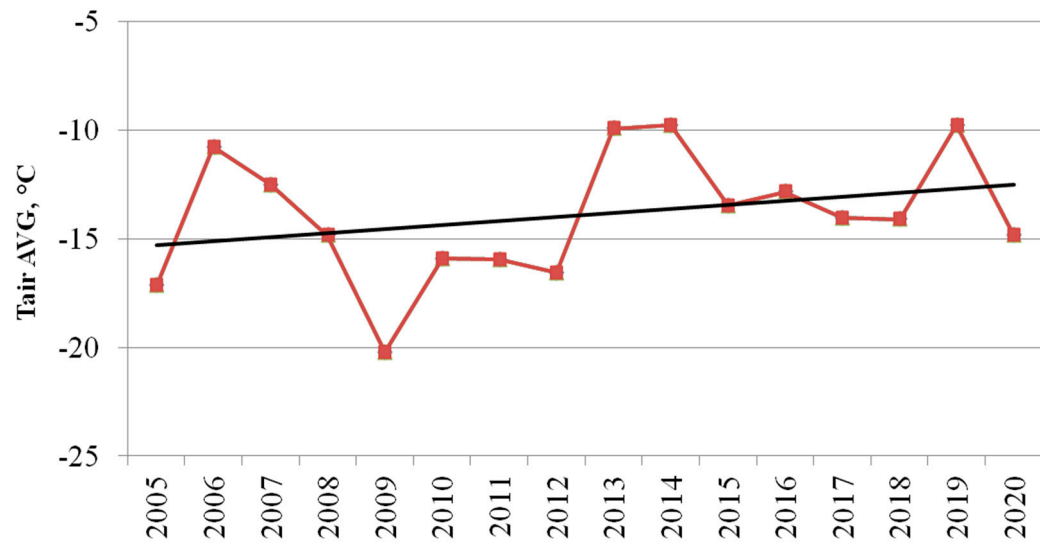


Figure S5. Mean November–March air temperature calculated from meteorological data recorded in the village of Sukhobuzimskoe (25 km northeast of the research plot), with a positive trend rate (black line, $y = 0.1857x - 15.502$ ($R^2 = 0.0898$)).