

Supplementary Materials:

Tree stem volume of eastern beech [64]:

$$V = (0.397641 \cdot h - 1.16988) \frac{dbh^2}{10000} \quad (1)$$

where dbh = tree diameter at breast height (cm), h = tree height (m).

Tree stem volume of sessile oak [65]:

$$V = \left(a_1 + \frac{a_2}{h} + \frac{a_3}{h^2} + \frac{a_4}{dbh} + a_5 \cdot \frac{h}{dbh} + a_6 \cdot \frac{h^2}{dbh} + \frac{a_7}{dbh^2} + a_8 \cdot \frac{h}{dbh^2} + a_9 \cdot \frac{h^2}{dbh^2} + a_{10} \cdot dbh^3 + a_{11} \cdot \frac{h}{dbh^3} + a_{12} \cdot \frac{h^2}{dbh^3} \right) \cdot \frac{\pi \cdot dbh^2}{40000} \cdot h \quad (2)$$

where a = parameters of the equation, h = tree height (m), and dbh = tree diameter at breast height (cm).

Näslund function [66] for height–diameter relationship:

$$h = \frac{dbh^2}{(a + b \cdot dbh)^2} + 1.3 \quad (3)$$

where h = tree height (m), dbh = tree diameter at breast height, and (cm) a and b = parameters of the equation.

Pielou-Mountford index of nonrandomness [67,68]:

$$\alpha = \frac{1}{n} \pi \left(\frac{N}{P} \right) \sum_{i=1}^n \omega'_i \quad (4)$$

where n = number of sample points, N = number of trees in a sample plot, P = sample plot area (m²), and ω'_i = quadratic distance from sample point to the nearest tree (m).

Clark-Evans index of aggregation [69]:

$$R = \frac{\frac{1}{N} \cdot \sum_{i=1}^N r_i}{0.5 \sqrt{\frac{P}{N}} + 0.0514 \cdot \frac{u}{N} + 0.041 \cdot \left(\frac{u}{N} \right)^2} \quad (5)$$

where r_i = distances between two nearest neighbors (m), N = number of trees in sample plot, P = plot area (m²), and u = perimeter of sample plot (m).

David-Moore index of cluster size [71]:

$$ICS = \frac{s^2}{\bar{x}} - 1 \quad (6)$$

where s^2 = sample variance and \bar{x} = sample mean of quadrat counts.

Species richness index [73]:

$$D = \frac{m - 1}{\ln(N)} \quad (7)$$

where m = number of tree species and N = number of trees per hectare.

Species diversity index [74]:

$$H' = \frac{-\sum_{i=1}^m [w_i \cdot \ln(w_i)]}{\ln(10)} \quad (8)$$

where m = number of tree species, w_i = basal area proportions of individual tree species, $\ln(10)$ = 10 tree species were set as a default for the forest stand rich in tree species.

Species evenness index [75]:

$$E = \frac{H' \cdot \ln(10)}{\ln(m)} \quad (9)$$

where H' = Entropy H' according to Shannon [74]—Equation (8), m = number of tree species.

Diameter differentiation index [76]:

$$TM_d = \frac{1}{n} \cdot \sum_{i=1}^n (1 - rd_{ij}) \quad (10)$$

where rd = ratio between larger and smaller diameter of all nearest neighboring trees in a stand.

Height differentiation index [76]:

$$TM_h = \frac{1}{n} \cdot \sum_{i=1}^n (1 - rh_{ij}) \quad (11)$$

where rh = ratio between larger and smaller height of all nearest neighboring trees in a stand.

Crown differentiation index [77]:

$$K = [1 - \log (HCB_{\min})] + \left(1 - \frac{CD_{\min}}{CD_{\max}}\right) \quad (12)$$

where HCB_{\min} = minimum height to crown base (m), CD_{\min} = minimum crown diameter (m), and CD_{\max} = maximum crown diameter (m).

Arten-profile index [78]:

$$Ap = \frac{-\sum_{i=1}^m \sum_{j=1}^3 [p_{ij} \cdot \ln (p_{ij})]}{\ln (3 \cdot m)} \quad (13)$$

where m = number of tree species and p_{ij} = proportion of basal area of trees of i th tree species in j th stand layer.

Total diversity index [77]:

$$B = \left\{ 4[\log(m) \cdot (1.5 - Z_{\max} - Z_{\min})] + 3 \left(1 - \frac{h_{\min}}{h_{\max}}\right) + \left(1 - \frac{r_{\min}}{r_{\max}}\right) + [1 - \log (HCB_{\min})] + \left(1 - \frac{CD_{\min}}{CD_{\max}}\right) \right\} \quad (14)$$

where m = number of tree species, Z_{\max} = maximum tree species proportion, Z_{\min} = minimum tree species proportion, h_{\min} = minimum tree height in the stand (m), h_{\max} = maximum tree height in the stand (m), r_{\min} = minimum tree spacing (m), r_{\max} = maximum tree spacing (m), HCB_{\min} = minimum height to crown base (m), CD_{\min} = minimum crown diameter (m), and CD_{\max} = maximum crown diameter (m).

Stand density index [79]:

$$SDI = N \cdot \left(\frac{25}{dbh_g}\right)^{-1.605} \quad (15)$$

where dbh_g = quadratic mean diameter (cm) and N = number of trees per hectare.

Crown closure [80]:

$$CC = 100 \cdot (1 - e^{-1 \cdot PCA}) \quad (16)$$

where PCA = crown projection area per hectare (ha).