Trentanovi G, Corli A, Orsenigo S, Ghirelli P, Chiarabaglio PM, Traversi L, Traversari S, Vannucchi F, Giovannelli A (2025). **Consistency among forest structure and biodiversity potential index (IBP): an assessment of stand structural complexity for floodplain poplar woodlands.**
iForest – Biogeosciences and Forestry – doi: 10.3832/ifor4945-018

Supplementary Material

Fig. S1 - Diameter distribution (number of trees per ha) for DBH classes (10 cm) for the different management types (cul= cultivated; sem= seminatural; nat= natural).

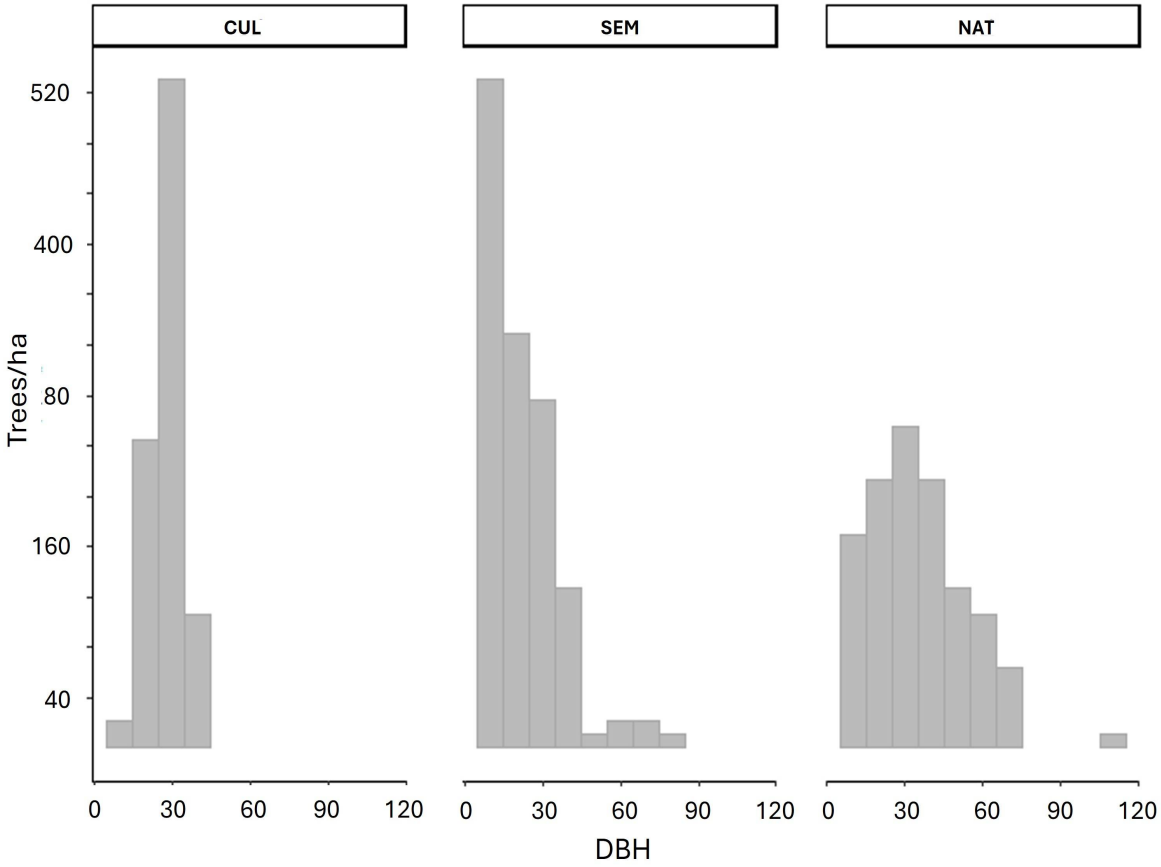
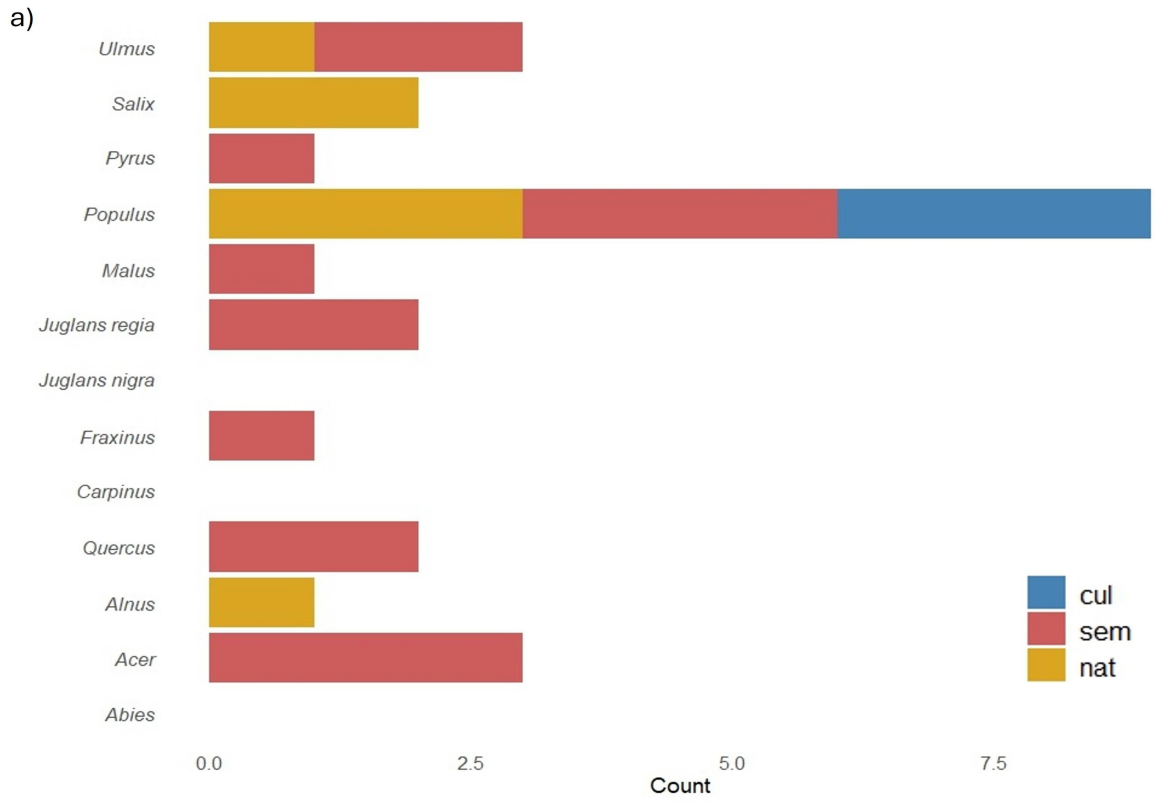


Fig. S2 - Tree species mean basal (mq ha^{-1}) area distribution for management type (cul= cultivated; sem= seminatural; nat= natural).

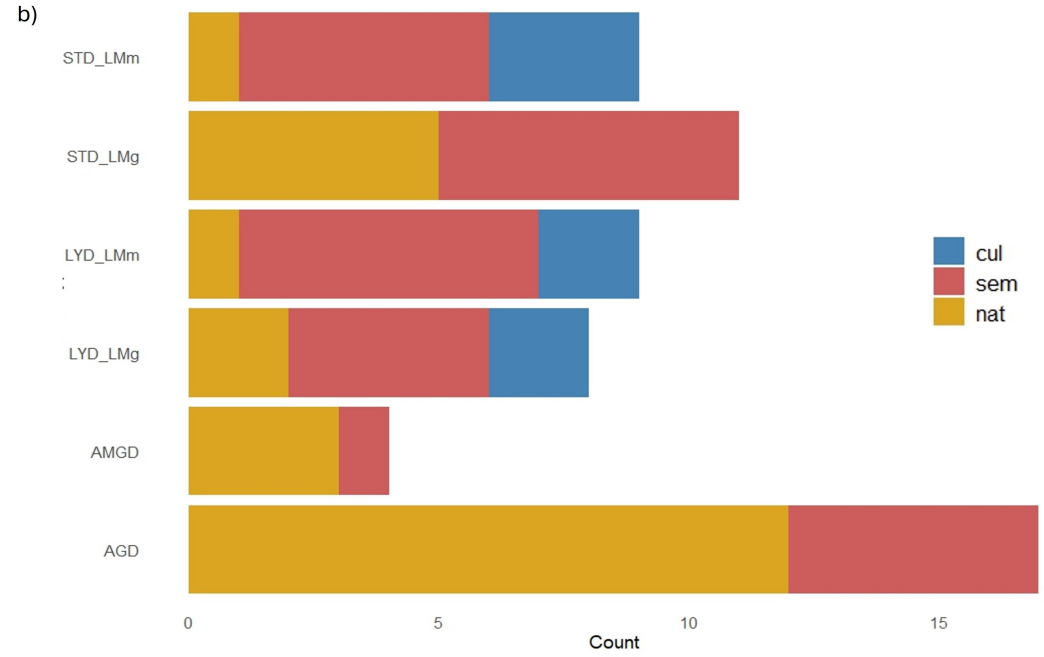
Fig. S3 - Abundance score of (a) native tree taxonomic groups. "*Quercus*" refer to broadleave species; (b) living and deadwood large size elements; (c) dendro-micro-habitats, and its distribution among stand management types (cul= cultivated; sem= seminatural; nat= natural). For (b), codes are: STD_LMm = standing dead tree, medium dimension (17.5 < DBH < 37.5 cm), STD_LMg = standing dead tree, big dimension (DBH > 37.5 cm), LYD_LMm = lying dead tree, medium dimension (17.5 < diameter < 37.5 cm), LYD_LMg = lying dead tree, big dimension (diameter > 37.5 cm), AGD = living trees of big dimension (DBH > 67.5 cm), AMGD = living trees of medium-big dimension (47.5 < DBH < 67.5 cm).

a)



(Fig. S3 – continued)

b)



c)

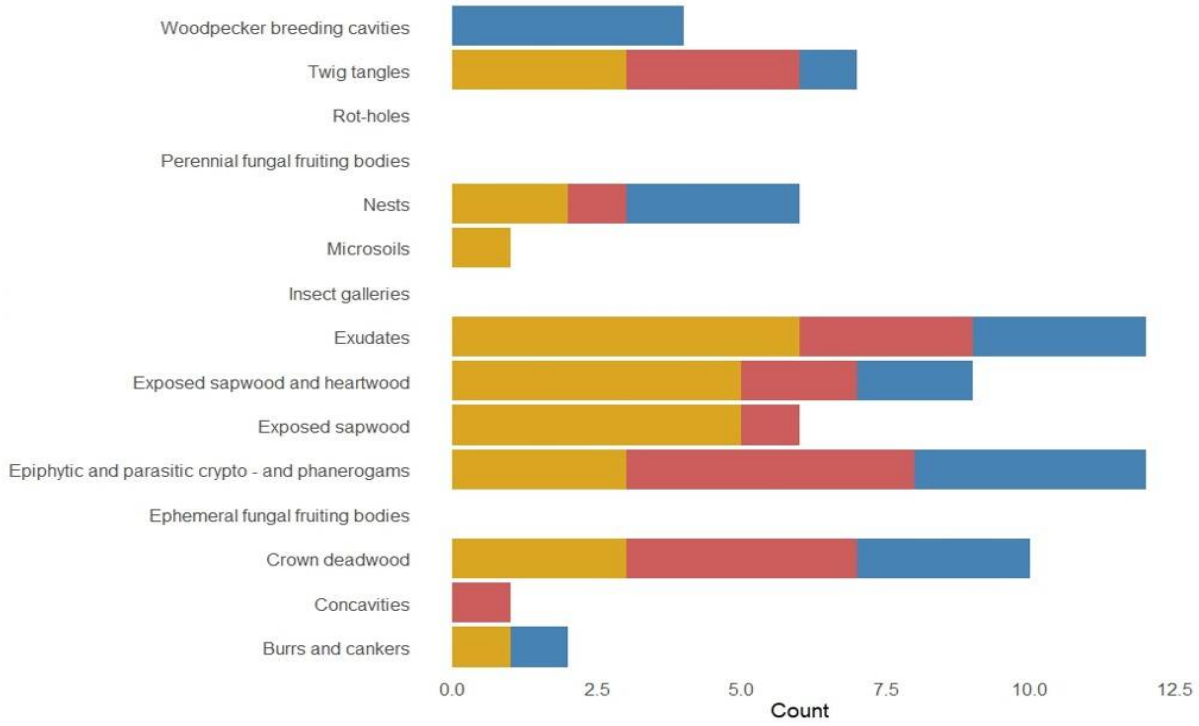


Fig. S4 - Pearson's correlation matrix and correlation tests (via the asterisks next to the coefficients, "***" $p < 0.001$, "**" $p < 0.01$, "*" $p < 0.05$) among all structural parameters and indices

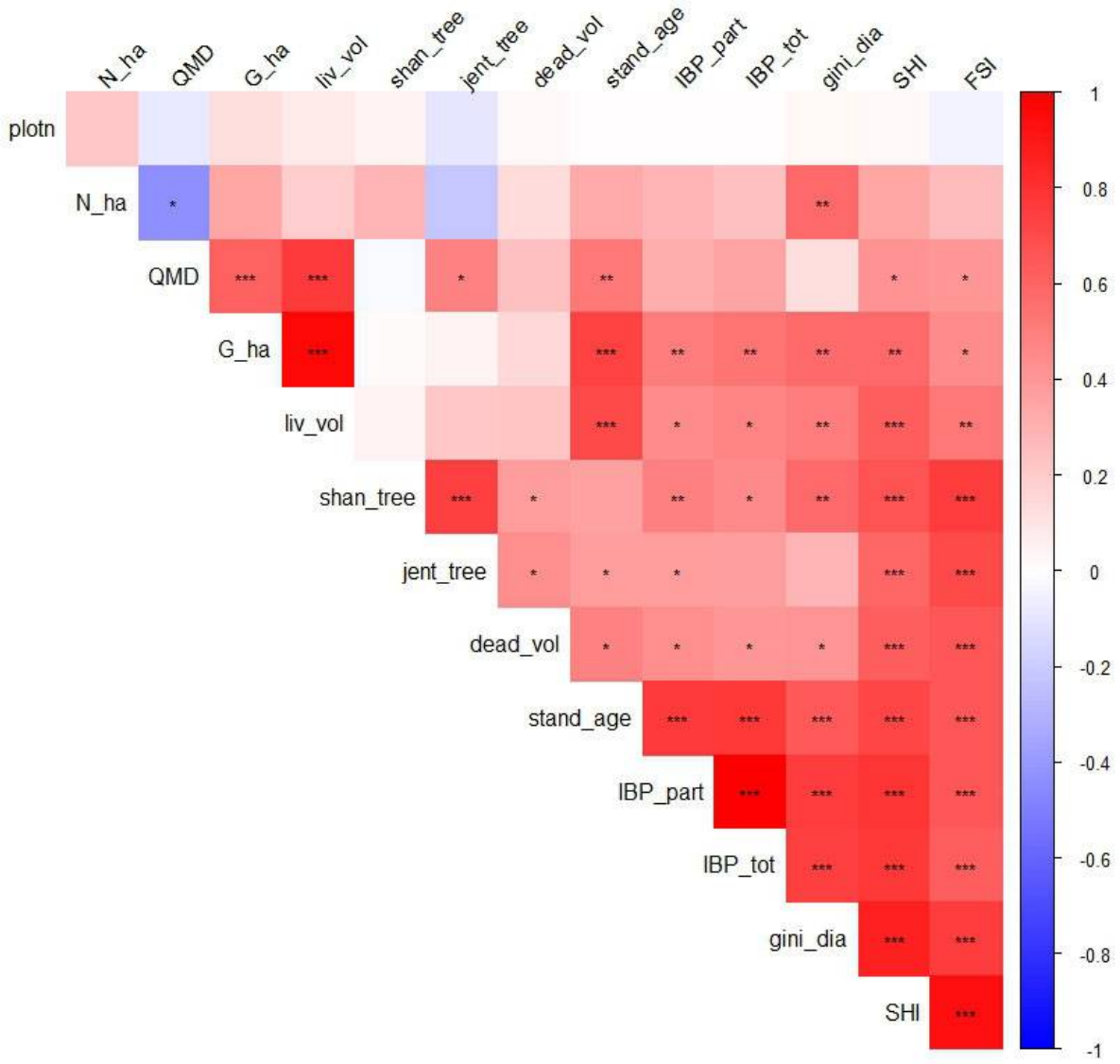
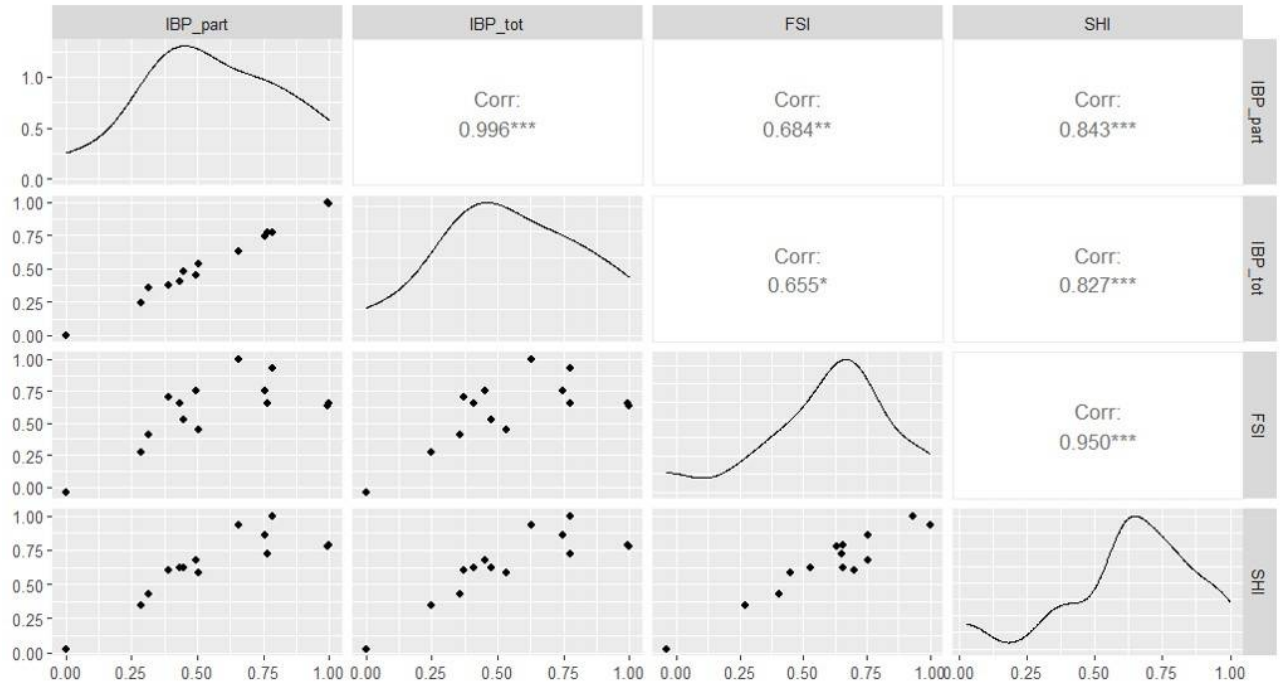


Fig. S5 - correlation coefficients, correlation tests (via the asterisks next to the coefficients, "***" $p < 0.001$, "**" $p < 0.01$, "*" $p < 0.05$) and scatterplots for partial and total IBP, FSI, and SHI.



Tab. S1 - Factors considered by SHI and FSI indices.

Index	Factor	Details
Structural Heterogeneity Index	Growing stock volume	-
	Number of large living trees	DBH > 40 cm
	DBH diversity	Gini-Simpson index on 5-cm classes
	Tree height variation	Standard deviation of tree heights
	Coarse Woody Debris Index	Volumes across decay stages
	Tree species richness	Logarithm of tree species number
	Tree height variation	Standard deviation of tree heights
	Coarse Woody Debris Index	Volumes across decay stages
	Tree species richness	Logarithm of tree species number
	Standing deadwood	Logarithm of basal area
	Total deadwood volume	Volume root mean square
Forest Structure Index	Quadratic mean diameter	DBH ≥ 7 cm
	Tree diameter variation	Standard deviation DBH ≥ 7 cm
	Tree height variation	Standard deviation of mean height of trees
	Standing deadwood mean diameter	Mean DBH of standing deadwood
	Downed deadwood mean diameter	Mean DBH of downed deadwood
	Tree compositional heterogeneity	Richness of tree species with DBH ≥ 5 cm
	Regeneration compositional heterogeneity	Richness of tree species regeneration with DBH < 5 cm
	Downed deadwood decay	Number of decay classes of downed deadwood
	Bark diversity	Diversity of bark types
	Flower diversity	Diversity of fruiting and flowering trees
	Volume of large trees	Tree volume of trees with DBH ≥ 40 cm

Tab. S2 - Mean (standard deviation) of deadwood component (mc ha^{-1}) for each stand type.

Stand Type	Dead tree	Snag	Lying deadwood
Cultivated	0	12.56 (11.53)	6.02 (3.13)
Semi-natural	54.69 (53.15)	21.22 (6.85)	32.95 (23.84)
Natural	31.30 (55.26)	18.27 (10.10)	51.70 (70.09)

Tab. S3 - SHI and FSI score mean (standard deviation), maximum (max) and minimum (min) values for stand type.

Stand Type	SHI			FSI		
	mean	min	max	mean	min	max
cultivated	31.86 (6.56)	24.17	40.70	0.09 (0.02)	0.06	0.13
seminatural	68.71 (15.90)	41.91	96.30	0.22 (0.05)	0.16	0.33
natural	67.71 (13.47)	51.63	89.75	0.20 (0.07)	0.11	0.32

Tab. S4 - Partial and Total IBP mean (standard deviation), maximum (max) and minimum (min) values for stand type.

	Partial			**Total**		
	mean	**max**	**min**	**mean**	**max**	**min**
cultivated	6.3 (2.1)	8	4	6.3 (2.1)	8	4
seminatural	22.7 (6.4)	30	19	23.3 (7.5)	32	19
natural	22.3 (3.2)	26	20	25 (3.0)	28	22