Wildlife Biology

Appendix 1

Relationship between cavity entrance area and tree diameter

Different species of woodpeckers excavate cavities with different entrance area, due to their different body size, which could, in turn, introduce a bias in our analysis, due to species-specific responses. We thus tested whether larger cavities are found in larger trees by employing a linear regression. The linear regression was applied to all cavities included in our dataset, and integrated with data from standing dead trees. Cavity entrance area was positively correlated with the tree diameter, scoring a $R^2 = 0.31$ (p < 0.01) but, when testing live and dead trees separately, such a relationship held significance only for dead trees ($R^2 = 0.50$; p < 0.01) (Fig. 1).
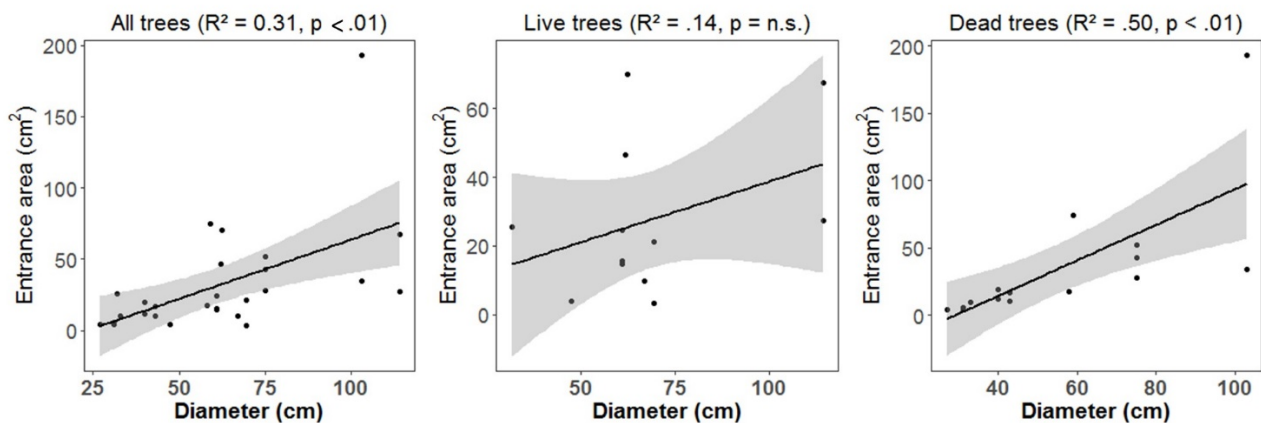

Figure A1. Relationship between cavity entrance area and tree diameter (DBH) for all, live and dead trees. Cavity entrance area is approximated by an ellipse and the two biggest chords are used for calculating the area. The diameter is measured as DBH, i.e. diameter at breast height.

Tree-related microhabitats inventoried in the present research

Table A1. distribution of tree-related microhabitats in the two datasets included in the analysis.

TreM group	Standard trees	Ancillary trees
Woodpecker cavities	0.11 (0.12)	0.11 (0.34)
Rot holes	0.12 (0.47)	0.64 (0.89)
Insect galleries	0.002 (0.048)	0
Concavities	0.49 (0.95)	0.70 (1.14)
Exposed sapwood	0.20 (0.61)	0.54 (0.80)
Exposed heartwood	0.02 (0.22)	0.20 (0.58)
Crown deadwood	0.21 (0.70)	0.52 (1.00)
Tangles	0.03 (0.27)	0.07 (0.36)
Cankers	0.02 (0.16)	0.075 (0.295)
Perennial fungi	0.0006 (0.0238)	0.23 (1.28)
Annual fungi	0.004 (0.086)	0.025 (0.157)
Epiphyte	0.45 (1.01)	0.60 (1.34)
Nests	0.02 (0.15)	0.11 (0.31)
Microsoil	0.01 (0.12)	0.06 (0.24)
Exudates	0.25 (1.14)	0.71 (4.23)

Statistical tests employed in the present research

Table A2. Summary of the statistical analysis performed in the manuscript, with related dataset to which the statistical tests were applied.

Hypothesis	Statistic	Trees inventoried for TreMs			All trees
		Standard trees	Standard trees in used plots	Ancillary trees	
Diameter of standard cavity trees is larger than ancillary trees	Mann–Whitney	X		X	
Diameter of standard cavity trees is larger than standard non-cavity trees	Mann–Whitney	X			
Diameter of ancillary cavity trees is larger than ancillary non-cavity trees	Mann–Whitney			X	
Tree diameter is the main driver of woodpecker cavity tree selection	Logistic regression with covariates; model selection	X	X	X	
Woodpecker abundance is higher in plot with higher probability of occurrence of potential cavity trees	Linear regression				X