Supplementary information

Hydrogen isotope fractionation affects the identification and quantification of tree water sources in a riparian forest

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Table S1: Soil properties of the three differentiated horizons in the studied plots. Values are obtained from pooled samples from all the sites where soil was sampled for stable isotopes.

Horizon	Depth (cm)	Clay (g.kg^{-1})	Fine silt (g.kg-1)	Coarse silt (g.kg-1)	Fine sand (g.kg-1)	Coarse sand (g.kg-1)	Carbon (g.kg-1)	Nitrogen (g.kg-1)	CaCO3 (g.kg-1)	pH
A	0-10	44	16	9	106	825	17.3	0.52	75	8.05
B	10-50	37	24	6	115	818	19.4	0.792	37	7.93
C	50-120	81	93	39	455	332	52.2	0.467	388	8.24

Table S2: Output of the generalized linear model for the SW-excess$_x$ and its explanatory variables. The β coefficient is the standardized correlation coefficient for each of the independent variables. Statistically significant variables are highlighted with one ($P<0.05$) or two asterisks ($P<0.01$). The marginal R^2 was 16%.

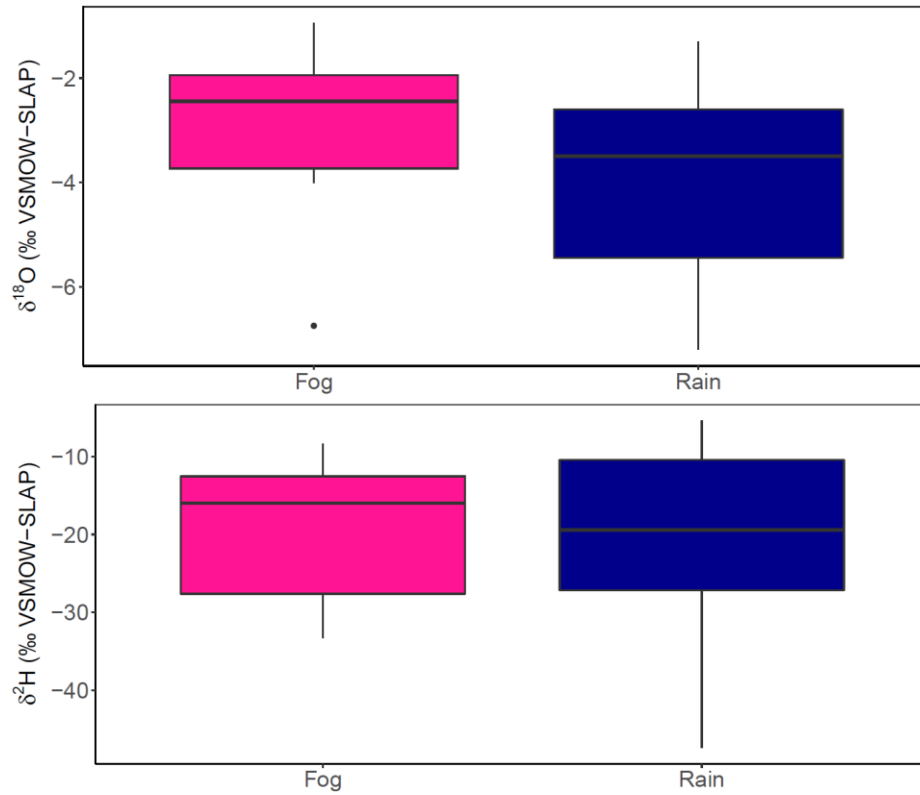| Variable	Estimate	β coefficient	Std. Error	Degrees of freedom	t-value	P-value	
(Intercept)	-7.54		4.72	76.23	-1.60	0.114	
Top soil water content (log)	3.31	0.37	0.80	9.90	4.16	0.002	**
Deep soil water content (log)	1.38	0.11	1.20	123.86	1.15	0.254	
Deep soil δ^{18}O	-2.40	-0.24	0.94	154.48	-2.54	0.012	*
Rock δ^{18}O	1.54	0.22	0.53	61.55	2.89	0.005	**
VPD	3.36	0.15	2.08	4.49	1.61	0.174	
Species (*Q. robur*)	1.47	0.12	0.83	166.99	1.76	0.080	

Figure S1: Comparison of water stable isotopes of fog and rain for the samples collected in 2017 in the Ciron. Box size represents the interquartile range, the black line is the median, the whiskers indicate variability outside the upper and lower quartiles, and individual points are outliers.
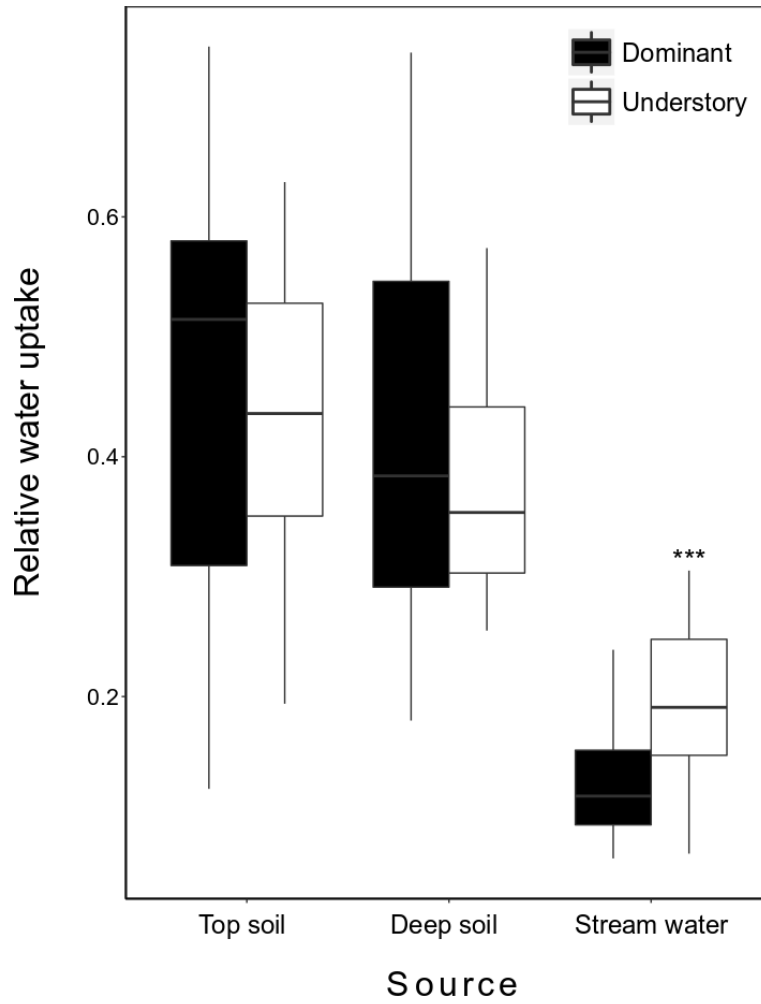
Figure S2: Comparison between the proportion of each plant-water source of dominant and understory. Box size represents the interquartile range, the black line is the median, the whiskers indicate variability outside the upper and lower quartiles, and individual points are outliers. Significant differences between canopy positions are highlighted with *** ($P<0.001$).

Table S3: Output of the generalized linear mixed models computed with the source contributions estimated with different input data and environmental independent variables. Dual implies the use of both water isotopes. Individual models are run per each plant-water source and input data type. For each model effect, the β estimate (standardized correlation coefficient) is shown. Marginal R^2 corresponds to the variance in source contribution explained by the model independent variables. Significant effects are highlighted in bold and with asterisks (*$P<0.05$, **$P<0.01$, ***$P<0.001$).

Input data	Source	Rainfall (5-day amount)	VPD (5-day average)	Top soil moisture	Deep soil moisture	Marginal R^2
Dual	Top soil	**0.428***	0.004	-0.002	-0.081	0.140
	Deep soil	-0.531	-0.048	-0.092	0.128	0.232
	Stream water	0.138	0.138	0.298	-0.111	0.095
Dual, δ^2H corrected	Top soil	**0.425****	0.033	0.035	**-0.664*****	0.336
	Deep soil	**-0.422***	0.013	-0.221	**0.641*****	0.393
	Stream water	0.014	-0.028	0.415*	-0.258	0.203
Only δ^{18}O	Top soil	-0.153	**-0.429***	0.271	**0.372***	0.272
	Deep soil	0.158	0.277	**-0.608*****	**-0.320***	0.398
	Stream water	0.128	**0.474***	-0.168	-0.203	0.227
Only δ^2H	Top soil	0.375	0.043	-0.065	0.101	0.154
	Deep soil	-0.021	0.350	-0.049	-0.158	0.160
	Stream water	**-0.682****	**-0.661*****	0.215	**0.316***	0.526