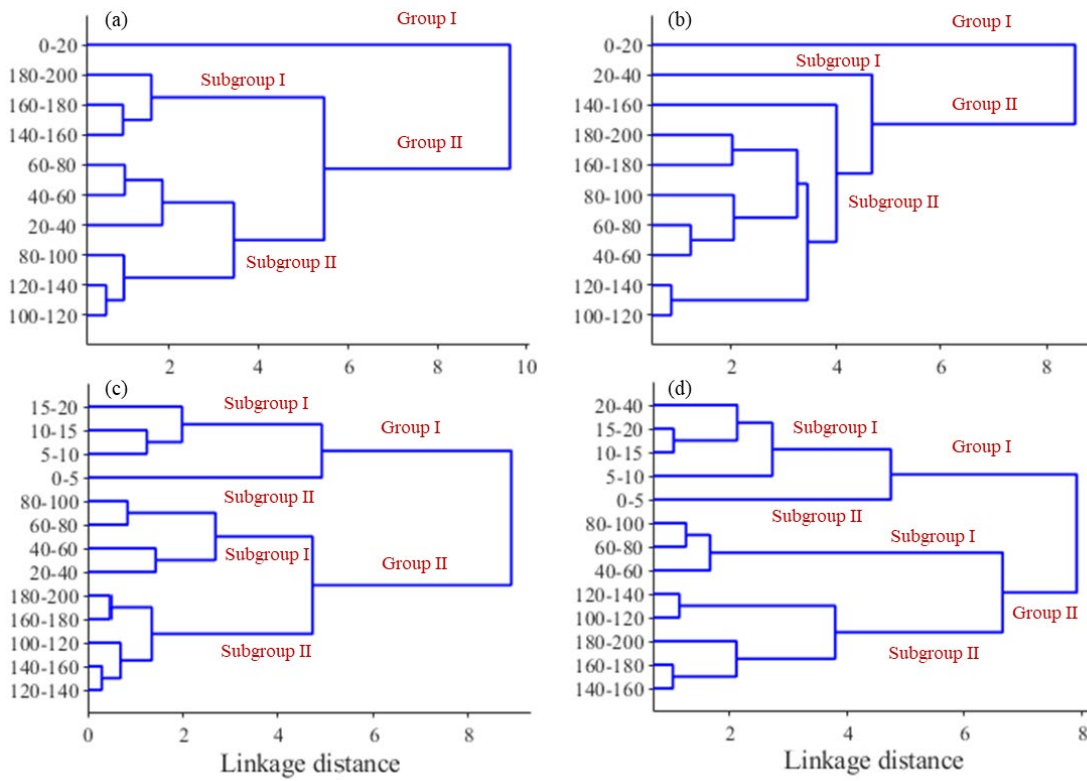


1 Supplement

2 **Figure S1**



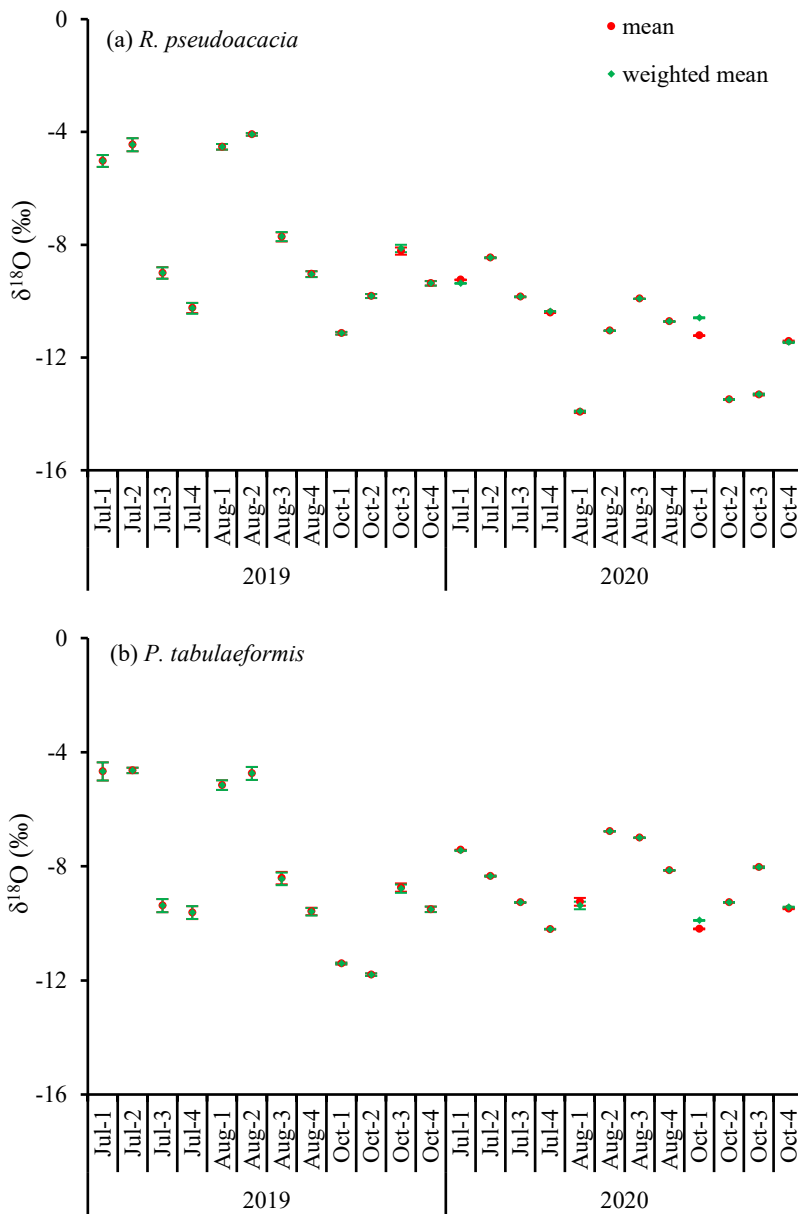
3

4 Figure S1 Dendrogram of the hierarchical cluster analysis of soil water content: (a) *R. pseudoacacia* forest in 2019;

5 (b) *P. tabulaeformis* forest in 2019; (c) *R. pseudoacacia* forest in 2020; and (d) *P. tabulaeformis* forest in 2020.

6

7 **Figure S2**



8

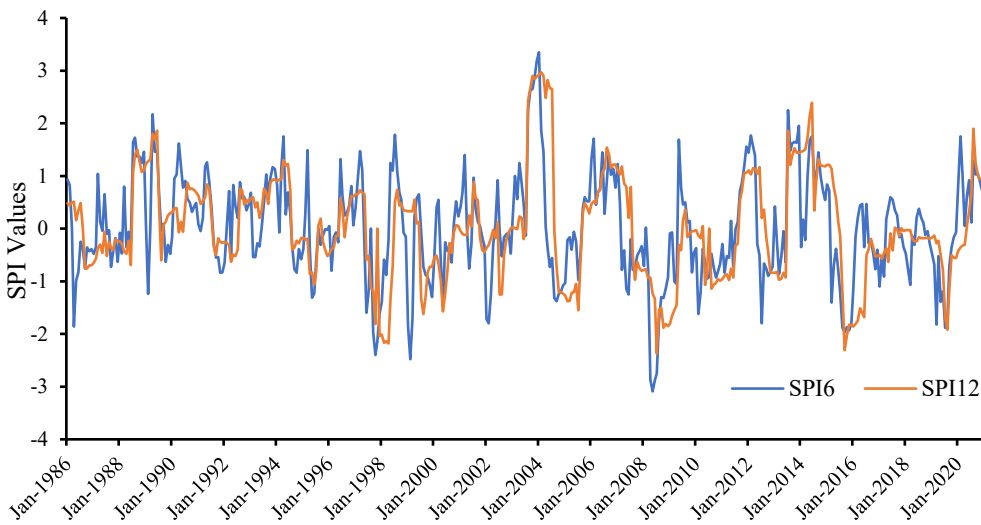
9

10 Figure S2 Comparisons between the mean raw isotope values (calculated by weighted average method) and the
 11 soil water content weighted isotope values (calculated by Equation (2)) for *R. pseudoacacia* and *P. tabulaeformis*
 12 plantations in 2019 and 2020, respectively, the values \pm SD were presented. Jul-1, Aug-1 and Oct-1 means the
 13 isotope values in 0–20 cm soil layer; Jul-2, Aug-2 and Oct-2 means the isotope values in 20–40 cm soil layer; Jul-
 14 3, Aug-3 and Oct-3 means the isotope values in 40–100 cm soil layer, and Jul-4, Aug-4 and Oct-4 means the isotope
 15 values in 100–200 cm soil layer.

16

17 **Figure S3**

18 The method of Standardized Precipitation Index (SPI) was used to classify hydrological years, as shown in the
19 Figure S3. The precipitation data from 1985 to 2020 was selected in the form of monthly, and the time scale was 6
20 and 12 months respectively. Based on the classification criteria of McKee et al. (1993), the SPI values of 2019 were
21 -0.63 of SPI6 and -0.56 of SPI12, and 0.82 of SPI6 and 0.93 of SPI12 for the year 2020, which was classified as
22 mild drought and mild humid hydrological year, respectively.



23 Figure S3 Standardized Precipitation Index values for the years from 1985 to 2020
24

25

Table S1 Isotopic compositions of water samples in 2019

Site	Type	Depth (cm)	n	$\delta^{18}\text{O}$ (‰)				$\delta^2\text{H}$ (‰)			
				Max	Min	Mean	SD	Max	Min	Mean	SD
<i>R.</i>	Precipitation		24	-6.31	-8.60	-7.20	0.78	-40.41	-61.88	-47.54	7.23
	Xylem		12	-6.25	-9.33	-7.99	1.01	-46.34	-65.93	-55.50	7.57
	Soil	0–20	12	-3.60	-11.14	-6.43	3.36	-12.42	-84.83	-46.05	29.72
		20–40	12	-3.88	-9.82	-5.70	2.79	-20.75	-75.32	-36.99	25.75
		40–60	12	-6.12	-7.95	-7.33	0.82	-43.55	-54.05	-48.91	4.83
		60–80	12	-7.74	-9.65	-8.50	0.88	-56.37	-69.61	-62.67	5.48
		80–100	12	-9.16	-10.21	-9.63	0.51	-67.09	-74.54	-71.32	3.16
		100–120	12	-9.22	-11.21	-10.06	0.93	-70.75	-77.47	-74.11	3.06
		120–140	12	-9.37	-10.57	-9.84	0.55	-68.76	-75.80	-72.50	2.99
		140–160	12	-8.99	-11.05	-9.87	0.94	-69.68	-77.14	-72.53	3.23
		160–180	12	-8.94	-10.30	-9.57	0.69	-68.95	-73.92	-70.75	2.75
		180–200	12	-8.69	-9.98	-9.16	0.60	-66.44	-71.34	-68.32	2.27
Total			-3.60	-11.21	-8.59	2.04	-12.42	-84.83	-62.20	17.29	
<i>P.</i>	Xylem		12	-5.00	-9.84	-6.76	1.71	-40.51	-75.04	-75.04	12.65
	Soil	0–20	12	-3.98	-11.41	-6.48	3.34	-11.75	-86.09	-44.05	30.90
		20–40	12	-4.26	-11.80	-6.46	3.58	-25.94	-85.89	-43.69	28.38
		40–60	12	-6.95	-9.94	-8.35	1.22	-47.11	-72.24	-60.48	10.41
		60–80	12	-7.61	-10.17	-9.15	1.10	-51.88	-71.09	-64.04	8.68
		80–100	12	-8.69	-10.04	-9.44	0.64	-65.07	-72.72	-68.29	3.52
		100–120	12	-9.26	-9.94	-9.51	0.30	-67.22	-70.86	-69.26	1.66
		120–140	12	-9.24	-10.18	-9.86	0.43	-67.23	-72.56	-69.73	2.19
		140–160	12	-9.18	-9.75	-9.48	0.23	-65.95	-70.67	-68.10	2.16
		160–180	12	-9.31	-9.56	-9.43	0.11	-65.63	-70.69	-69.00	2.32
		180–200	12	-9.31	-10.00	-9.65	0.34	-65.93	-71.50	-68.33	2.67
	Total			-3.98	-11.80	-8.78	1.91	-11.75	-86.09	-62.50	15.77

Site	Type	Depth (cm)	n	$\delta^{18}\text{O}$ (‰)				$\delta^2\text{H}$ (‰)				
				Max	Min	Mean	SD	Max	Min	Mean	SD	
R.	Precipitation		30	-5.72	-14.39	-10.05	2.39	-33.15	-104.52	-69.43	18.85	
	Xylem		15	-2.46	-7.74	-5.29	2.17	-48.14	-79.41	-67.05	9.43	
	Soil	0-5	15	-7.65	-13.27	-9.93	2.39	-60.59	-94.63	-71.32	14.74	
		5-10	15	-7.46	-14.54	-9.92	2.86	-53.07	-101.60	-71.74	19.55	
		10-15	12	-7.72	-14.43	-9.62	3.21	-55.48	-100.71	-67.70	22.04	
		15-20	15	-8.32	-13.51	-10.76	2.72	-58.19	-94.75	-77.12	19.57	
		20-40	15	-8.46	-13.49	-10.49	2.29	-59.33	-97.71	-74.22	17.29	
		40-60	15	-5.88	-13.81	-9.83	2.81	-60.52	-98.60	-73.36	14.66	
		60-80	15	-8.92	-13.34	-10.28	1.79	-63.21	-94.15	-71.52	12.93	
		80-100	15	-8.93	-12.80	-10.30	1.52	-60.80	-91.50	-70.90	12.49	
		100-120	15	-9.54	-12.44	-10.56	1.11	-64.25	-87.77	-73.25	8.73	
		120-140	15	-9.90	-11.67	-10.46	0.71	-69.07	-80.85	-73.57	4.38	
		140-160	15	-8.99	-11.14	-10.41	0.98	-68.38	-77.63	-73.65	3.89	
		160-180	15	-10.56	-11.19	-10.91	0.24	-72.70	-77.16	-75.52	2.05	
		180-200	15	-10.35	-11.09	-10.74	0.35	-71.85	-77.05	-75.12	1.98	
		Total			-5.88	-14.54	-10.32	1.81	-53.07	-101.60	-72.99	12.12
P.	Xylem		15	-1.51	-8.77	-4.82	2.86	-45.04	-86.76	-66.55	13.93	
	Soil	0-5	15	-5.90	-10.65	-7.92	1.90	-60.09	-85.97	-67.21	10.64	
		5-10	15	-7.03	-12.13	-9.03	2.28	-49.85	-92.80	-69.12	18.11	
		10-15	12	-7.04	-8.08	-7.55	0.54	-51.05	-68.69	-59.17	7.43	
		15-20	15	-6.13	-10.76	-8.05	1.70	-53.86	-83.11	-62.63	11.71	
		20-40	15	-6.77	-9.26	-8.25	0.91	-55.44	-69.58	-62.29	5.04	
		40-60	15	-6.73	-9.29	-8.15	0.96	-58.25	-67.71	-61.96	3.48	
		60-80	15	-6.04	-8.91	-7.91	1.13	-55.34	-64.07	-59.42	3.37	
		80-100	15	-7.80	-10.32	-8.96	1.02	-57.48	-72.13	-64.59	5.51	
		100-120	15	-7.88	-10.11	-8.85	0.85	-62.58	-72.48	-67.09	3.68	
		120-140	15	-8.14	-10.67	-9.43	0.97	-67.84	-75.40	-70.35	2.94	
		140-160	15	-7.88	-10.47	-9.41	1.00	-67.32	-74.13	-70.73	2.60	
		160-180	15	-8.88	-10.52	-9.79	0.64	-70.29	-73.62	-71.97	1.50	
		180-200	15	-7.94	-10.18	-9.58	0.95	-68.60	-74.46	-72.22	2.17	
		Total			-5.90	-12.13	-8.70	1.33	-49.85	-92.80	-66.16	8.16