

Supplementary Material

Table S1 Sensitivity of annual average percentage loss of whole-plant hydraulic conductance to soil, meteorological, and eco-physiological parameters of Biome-BGC model and Sperry model for *Robinia pseudoacacia* L.

Parameters	Sensitivity index
Soil hydraulic parameters	
Saturated soil moisture content	1.16
Residual soil moisture content	4.14
n_{vg}	-6.55
α	-0.65
Saturated hydraulic conductivity	0.13
Meteorological parameters	
Daily air maximum temperature	-0.24
Daily air minimum temperature	-0.24
Precipitation	-4.12
Vapor pressure deficit	4.54
Short wave radiation	0.74
Biome-BGC model parameters	
Transfer growth period as fraction of growing season	-0.45
Litterfall as fraction of growing season	-0.04
Annual leaf and fine root turnover fraction	0.00
Annual live wood turnover fraction	0.00
New fine root C:new leaf C	-0.33
New stem C:new leaf C	-0.39
New live wood C:new total wood C	-0.02
New root C:new stem C	0.13
Current growth proportion	1.44
C:N of leaves	0.00
C:N of leaf litter, after retranslocation	0.00
C:N of fine roots	0.00
C:N of live wood	0.22
C:N of dead wood	0.09
Canopy water interception coefficient	0.29
Canopy light extinction coefficient	-0.21
Canopy average specific leaf area (projected area basis)	4.36
Ratio of shaded SLA : sunlit SLA	0.04
Fraction of leaf N in Rubisco	0.16
Sperry model parameters	
Weibull function b	-0.22
Weibull function c	-0.26
Maximum whole-plant hydraulic conductance per leaf area	0.52
Maximum diffusive conductance	4.51
Average % resistance in rhizosphere	0.15

Note: The range of change is 0.983 to 0.992 for root depth coefficient, and other parameters was changed by 10% of the initial value; Absolute values of sensitivity index higher than 0.2 are defined as high sensitivity and shown in bold; n_{vg} and α are van Genuchten model shape parameters; SLA, specific leaf area.

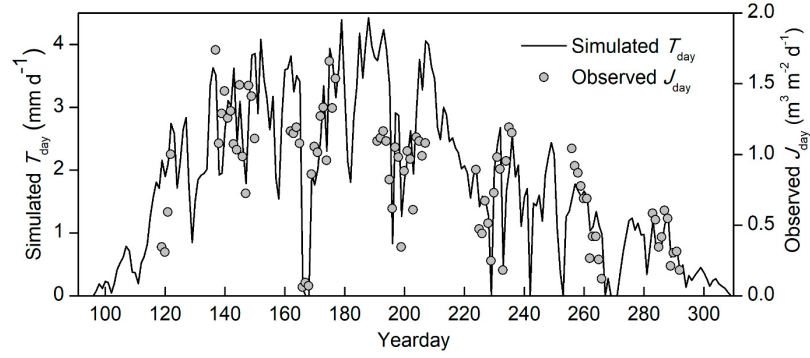


Figure S1 Comparison between observed daily sap flux density (J_{day}) and simulated daily transpiration (T_{day}) in *Robinia pseudoacacia* L. stand at the Yan'an site.