Table S1 Physiological and ecological parameters of the nine basic types of trees in the model

Parameters	Rainforest		Evergreen Broadleaf		Deciduous Broadleaf		Evergreen Needleleaf		Deciduous Needleleaf
	Shade tolerance	Shade intolerance	Shade tolerance	Shade intolerance	Shade tolerance	Shade intolerance	Shade tolerance	Shade intolerance	
L_o	5.5	11.0	5.5	11.0	5.5	11.0	5.5	11.0	11.0
Am	5.5×10^{-4}	5.5×10^{-4}	5.5×10^{-4}	5.5×10^{-4}	5.0×10^{-4}	5.0×10^{-4}	5.0×10^{-4}	5.0×10^{-4}	5.0×10^{-4}
Sl	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}
Kl	4.5×10^{-1}	4.5×10^{-1}	4.5×10^{-1}	4.5×10^{-1}	4.0×10^{-1}	4.0×10^{-1}	4.0×10^{-1}	4.0×10^{-1}	3.5×10^{-1}
r_L	2.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}	6.0×10^{-3}	3.0×10^{-3}	3.5×10^{-3}	3.5×10^{-3}	1.2×10^{-2}
r_W	1.0×10^{-3}	1.0×10^{-3}	1.0×10^{-3}	1.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}
r_R	1.5×10^{-3}	1.5×10^{-3}	1.5×10^{-3}	1.5×10^{-3}	2.5×10^{-3}	2.5×10^{-3}	2.5×10^{-3}	2.5×10^{-3}	2.5×10^{-3}
lm_2	0.50	0.50	0.40	0.40	0.40	0.40	0.50	0.50	0.50
CN_L	40.0	40.0	45.0	45.0	40.0	40.0	60.0	60.0	50.0
CN_W	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
CN_R	40.0	40.0	45.0	45.0	40.0	40.0	60.0	60.0	50.0
$Hmax$	40.0	60.0	50.0	40.0	40.0	40.0	60.0	60.0	50.0
$Dmax$	2.0	3.0	2.0	1.5	2.0	1.5	2.0	2.0	2.0
$Amax$	200.0	100.0	400.0	200.0	400.0	200.0	1000.0	300.0	500.0

e_L	600.0	600.0	600.0	600.0	200.0	700.0	700.0	700.0	300.0
e_R	20.0	20.0	20.0	20.0	30.0	30.0	15.0	15.0	28.0
$cLAI_L$	15.0	15.0	15.0	15.0	45.0	20.0	18.0	18.0	40.0
Astem	350.0	350.0	350.0	350.0	350.0	350.0	350.0	350.0	350.0
Tmin	5.0	5.0	3.0	1.0	-1.0	-5.5	-5.5	-2.5	-5.5
Topt	27.0	29.0	27.0	25.0	23.0	20.0	18.0	23.0	16.0
Tmax	50.0	50.0	50.0	50.0	45.0	45.0	40.0	40.0	35.0
DRY	1.0	0.8	0.9	0.8	0.8	0.6	0.9	0.7	0.5
l_L	2.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}	2.0×10^{-3}	1.1×10^{-4}	1.1×10^{-4}	2.0×10^{-3}	2.0×10^{-3}	1.1×10^{-4}
Lr/Nr	40.0	40.0	40.0	40.0	30.0	50.0	80.0	80.0	50.0
l_R	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	4.0×10^{-5}	4.0×10^{-5}	8.0×10^{-5}	8.0×10^{-5}	8.0×10^{-5}

where L_o is the light compensation point (W/m^2); Am is the maximum photosynthesis [kg C/(m^2·h)]; Sl is the initial slope of the light intensity-photosynthesis curve [kg C/(m^2·h)/(W/m^2)]; Kl is the canopy leaf extinction coefficient; r_L is the leaf relative respiration rate (1/d); r_W is the wood relative respiration rate (1/d); r_R is the root relative respiration rate (1/d); lm_2 is the fruit drop threshold; CN_L is the leaf carbon to nitrogen ratio; CN_w is the wood carbon to nitrogen ratio; CN_R is the root carbon to nitrogen ratio; $Hmax$ is the maximum tree height (m); $Dmax$ is the maximum tree diameter at breast height (m); $Amax$ is the maximum tree age (a); e_L is the leaf volume coefficient (kg C/m^2); e_R is the root volume coefficient (kg C/m^2); $cLAI_L$ is the leaf area coefficient (m^2/ kg C); $Astem$ is wood weight (kg C/m^3); $Tmin$ is minimum photosynthetic temperature (°C); $Topt$ is optimum photosynthetic temperature (°C); $Tmax$ is maximum photosynthetic temperature (°C); DRY is drought tolerance; l_L is relative rate of leaf drop (1/d); Lr/Nr is the ratio of lignin to nitrogen content; l_R is relative rate of root drop (1/d).