

Table S1. Detail information and sampling number of 40 woody species.

Sites	Annual Mean Temperature (°C)	Mean Temperature of Coldest Month (°C)	Mean Temperature of Warmest Month (°C)	Annual Precipitation (mm)	Precipitation of Wettest Month (mm)	Precipitation of Driest Month (mm)
S1	14.2	-3.7	27	649	117	5
S2	14.1	-5.1	27.6	577	107	6
S3	11.3	-8.9	24.5	557	115	5

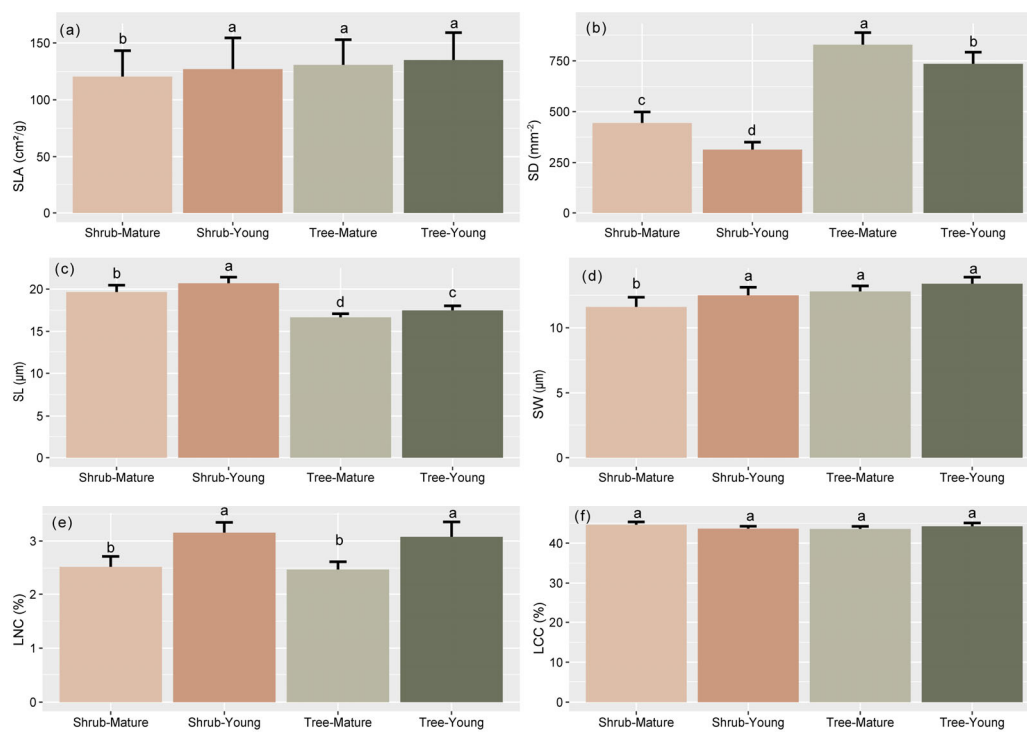
Table S2. Detail information and sampling number of 40 woody species.

Species	Family	Genus	Life Form	S1	S2	S3	Total N.
<i>Acer davidii</i>	Sapindaceae	Acer	Dec-tree	4			4
<i>Acer palmatum</i>	Sapindaceae	Acer	Dec-tree		4		4
<i>Acer pictum subsp. mono</i>	Sapindaceae	Acer	Dec-tree	4			4
<i>Acer shenkanense</i>	Sapindaceae	Acer	Dec-tree	3			3
<i>Acer tataricum subsp. ginnala</i>	Sapindaceae	Acer	Dec-tree		4	3	7
<i>Amygdalus davidiana</i>	Rosaceae	Amygdalus	Dec-shrub		3		3
<i>Amygdalus persica</i>	Rosaceae	Amygdalus	Dec-tree		4		4
<i>Armeniaca vulgaris</i>	Rosaceae	Armeniaca	Dec-tree		4		4
<i>Betula platyphylla</i>	Betulaceae	Betula	Dec-tree		3	5	8
<i>Carpinus turczaninowii</i>	Betulaceae	Betula	Dec-tree			3	3
<i>Catalpa fargesii</i>	Bignoniaceae	Catalpa	Dec-tree		4		4
<i>Celastrus orbiculatus</i>	Celastraceae	Celastrus	Dec-shrub	4			4
<i>Cerasus serrulata var. lannesiana</i>	Rosaceae	Cerasus	Dec-tree		4		4
<i>Chimonanthus praecox</i>	Calycanthaceae	Chimonanthus	Dec-shrub		4		4
<i>Cornus hemsleyi</i>	Cornaceae	Cornus	Dec-shrub	3			3
<i>Cornus macrophylla</i>	Cornaceae	Cornus	Dec-tree			3	3
<i>Cotoneaster acutifolius</i>	Rosaceae	Cotoneaster	Dec-shrub			3	3
<i>Cotoneaster multiflorus</i>	Rosaceae	Cotoneaster	Dec-shrub	3			3
<i>Crataegus pinnatifida</i>	Rosaceae	Crataegus	Dec-tree			3	3
<i>Euonymus alatus</i>	Celastraceae	Euonymus	Dec-shrub			3	3
<i>Fraxinus chinensis</i>	Oleaceae	Fraxinus	Dec-tree			3	3
<i>Hibiscus syriacus</i>	Malvaceae	Hibiscus	Dec-tree		3		3
<i>Ligustrum lucidum</i>	Oleaceae	Ligustrum	Eve-tree		4		4
<i>Ligustrum quihoui</i>	Oleaceae	Ligustrum	Eve-shrub		4		4
<i>Lonicera hispida</i>	Caprifoliaceae	Lonicera	Dec-shrub			3	3
<i>Populus tomentosa</i>	Salicaceae	Populus	Dec-tree		4		4
<i>Quercus acutissima</i>	Fagaceae	Quercus	Dec-tree			3	3
<i>Quercus aliena</i>	Fagaceae	Quercus	Dec-tree	3		4	7
<i>Quercus aliena var. acutiserrata</i>	Fagaceae	Quercus	Dec-tree	3			3
<i>Quercus mongolica</i>	Fagaceae	Quercus	Dec-tree	3		3	6
<i>Rhamnus leptophylla</i>	Rhamnaceae	Rhamnus	Dec-shrub			3	3
<i>Rhus potaninii</i>	Anacardiaceae	Rhus	Dec-tree			3	3
<i>Salix babylonica</i>	Salicaceae	Salix	Dec-tree		5		5
<i>Spiraea japonica</i>	Rosaceae	Spiraea	Dec-shrub	5			5
<i>Syringa oblata</i>	Oleaceae	Syringa	Dec-shrub	4			4
<i>Tetradium daniellii</i>	Rutaceae	Tetradium	Dec-tree			3	3

<i>Toxicodendron vernicifluum</i>	Anacardiaceae	Toxicodendron	Dec-tree	3	3
<i>Viburnum dilatatum</i>	Viburnaceae	Viburnum	Dec-shrub	3	3
<i>Viburnum schensianum</i>	Viburnaceae	Viburnum	Dec-shrub	4	4
<i>Weigela florida</i>	Caprifoliaceae	Weigela	Dec-shrub	4	4

Table S3. Contribution of different traits in PC1 and PC2.

Traits	Mature leaves		Young leaves		All leaves	
	PC1	PC2	PC1	PC2	PC1	PC2
LNC	-0.54	-0.64	1.51	-1.2	0.46	0.15
LCC	1.88	-2.46	-1.44	0.49	-1.33	-1.8
SLA	-2.33	1.82	1.83	-1.65	1.34	2.59
SL	-2.93	-1.98	2.16	1.92	3.16	-1.21
SW	-2.69	-2.35	1.76	2.41	2.91	-1.74
SD	1.84	-1.99	-1.51	1.71	-1.15	-2.41

**Figure S1.** Differences in specific leaf area (SLA) (a), stomatal density (SD) (b), stomatal length (SL) (c), stomatal width (SW) (d), leaf nitrogen content (LNC) (e) and leaf carbon content (LCC) (f) among different leaf ages and growth forms in Site 1. Different letters correspond to results of post-hoc tests after ANOVA.

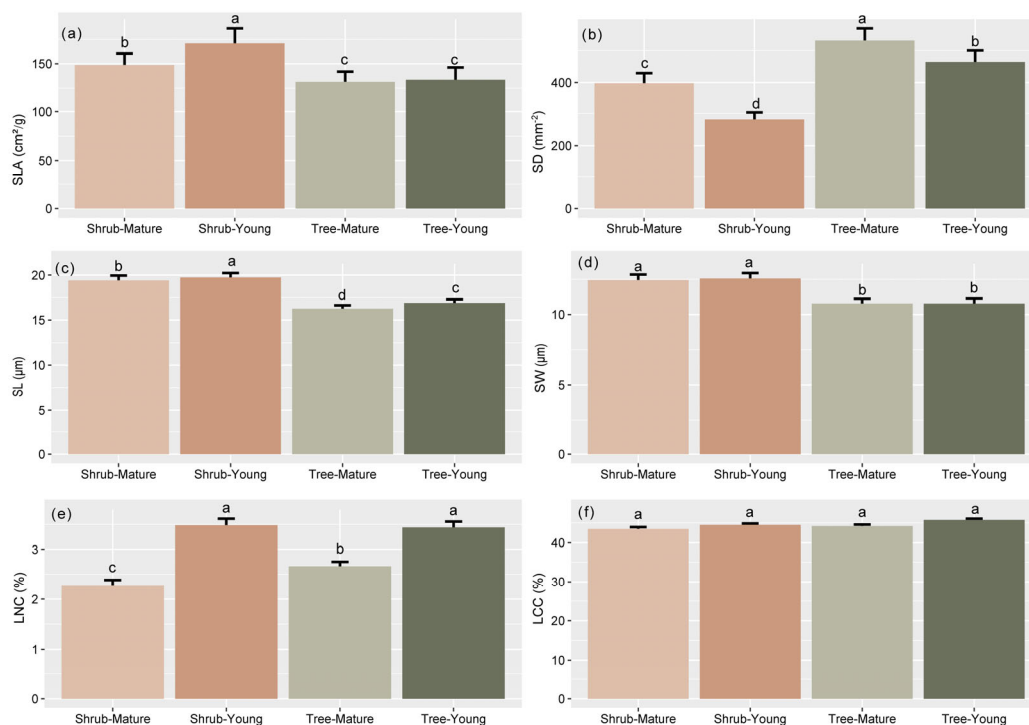


Figure S2. Differences in specific leaf area (SLA) (a), stomatal density (SD) (b), stomatal length (SL) (c), stomatal width (SW) (d), leaf nitrogen content (LNC) (e) and leaf carbon content (LCC) (f) among different leaf ages and growth forms in Site 2. Different letters correspond to results of post-hoc tests after ANOVA.

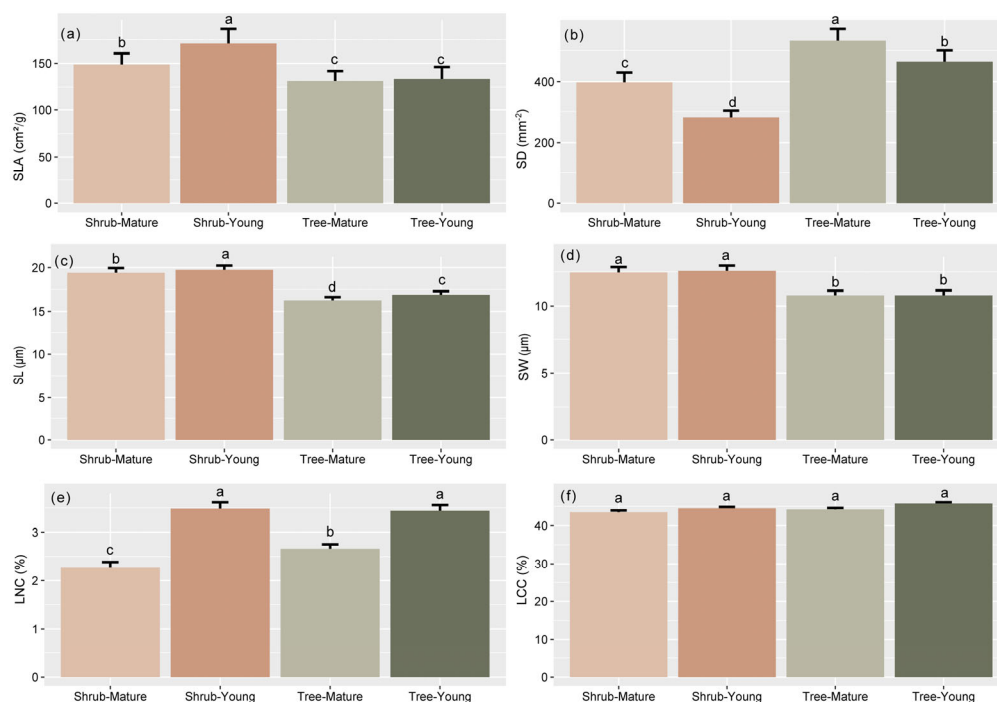


Figure S3. Differences in specific leaf area (SLA) (a), stomatal density (SD) (b), stomatal length (SL) (c), stomatal width (SW) (d), leaf nitrogen content (LNC) (e) and leaf carbon content (LCC) (f) among different leaf ages and growth forms in Site 3. Different letters correspond to results of post-hoc tests after ANOVA.