

Table S1. The PCA first four axis of bark physicochemical properties variables

Species	PC1	PC2	PC3	PC4
<i>Betula platyphylla</i>	-1.523585773	-1.760468139	0.173463844	0.819858717
<i>Symplocos paniculata</i>	4.250874499	0.662278341	-0.280147844	2.035298117
<i>Bothrocaryum controversa</i>	0.051045883	-0.14501691	-0.646724009	0.047073039
<i>Carpinus turczaninowii</i>	-0.10328443	-1.151263675	-2.369782052	-1.214615181
<i>Malus honanensis</i>	-0.233916268	-0.524495901	-0.253770982	-0.692659656
<i>Tilia japonica</i>	0.794914653	-0.893965407	2.264714361	-0.884166938
<i>Pinus armandii</i>	-1.656064518	-1.069410646	-0.331374606	0.085262021
<i>Viburnum betulifolium</i>	-1.522082957	-0.251487747	0.232128233	0.074773517
<i>Celastrus orbiculatus</i>	-0.97711668	0.82995478	0.174961202	0.410937621
<i>Meliosma veitchiorum</i>	1.5938138	3.96712298	0.382477208	-1.743764871
<i>Toxicodendron vernicifluum</i>	0.233681087	-0.173331905	0.460988616	-0.784518359
<i>Carpinus cordata</i>	-0.076354971	-0.689940137	0.926282643	-0.229470389
<i>Litsea tsinlingensis</i>	3.42280543	-0.630191777	-0.27184309	2.108594572
<i>Quercus aliena</i> var. <i>acutiserrata</i>	-0.60837963	0.881998339	-0.655649653	0.632845469
<i>Lindera obtusiloba</i>	-0.204227108	-1.288286101	-0.216008117	0.402574469
<i>Tilia paucicostata</i>	1.336053887	1.049250592	-0.718359753	-0.882489021
<i>Quercus variabilis</i>	-1.431107259	0.523032401	0.692015283	0.399401917
<i>Sorbus alnifolia</i>	-0.798466729	-0.540610091	-1.751605225	-0.499006279
<i>Cornus kousa</i> subsp. <i>chinensis</i>	0.229747066	-0.335136108	-1.339737303	-0.817185053
<i>Prunus clarofolia</i>	1.471117898	-1.816456725	2.211997937	-1.253910094
<i>Juglans cathayensis</i>	-2.666978999	1.275483215	0.835867312	1.202120555
<i>Pinus tabuliformis</i>	-2.955774037	1.482250191	0.537725827	1.085439074
<i>Styrax obassis</i>	1.720457012	-0.296696371	0.292125072	-0.214860337
<i>Corylus heterophylla</i>	-0.347171857	0.8953868	-0.349744906	-0.08753291

Table S2. List of epiphytic bryophytes and woody plants species in the plot

Epiphytic Bryophytes Species	Abundanc e	Abbreviation	Woody Plant Species	Abundanc e	Abbreviatio n
<i>Pylaisiadelpha yokohamae</i>	353	PYY	<i>Quercus aliena</i> var. <i>acuteserrata</i>	697	QUA
<i>Eurohypnum leptothallum</i>	216	EUE	<i>Pinus armandii</i>	151	PIA
<i>Pylaisiadelpha tenuirostris</i>	171	PYT	<i>Toxicodendron vernicifluum</i>	103	TOV
<i>Gammiella panchienii</i>	116	GAP	<i>Betula platyphylla</i>	56	BEP
<i>Eurhynchium latifolium</i>	107	EUL	<i>Lindera obtusiloba</i>	49	LIO
<i>Frullania sinensis</i>	107	FRS	<i>Litsea tsinlingensis</i>	41	LIT
<i>Entodon macropodus</i>	105	ENM	<i>Cornus kousa</i> subsp. <i>chinensis</i>	28	COK
<i>Haplohymenium triste</i>	73	HAT	<i>Corylus heterophylla</i>	28	COH
<i>Heteroscyphus argutus</i>	71	HEA	<i>Symplocos paniculata</i>	28	SYN
<i>Schwetschkeopsis fabronia</i>	46	SCF	<i>Carpinus turczaninowii</i>	24	CAT
<i>Brachythecium rivulare</i>	46	BRR	<i>Tilia paucicostata</i>	24	TIP
<i>Frullania ericoides</i>	42	FRE	<i>Sorbus alnifolia</i>	14	SOA
<i>Pylaisiopsis speciosa</i>	37	PYS	<i>Malus honanensis</i>	14	MAH
<i>Gollania ruginosa</i>	32	GOR	<i>Prunus clarofolia</i>	9	PRC

<i>Mnium laevinerve</i>	27	MNL	<i>Quercus variabilis</i>	9	QUV
<i>Taxiphyllum taxirameum</i>	27	TAT	<i>Tilia japonica</i>	9	TIJ
<i>Pylaisiella polyantha</i>	19	PYP	<i>Cornus controversa</i>	4	COC
<i>Rhynchostegium pallenticaule</i>	10	RHP	<i>Viburnum betulifolium</i>	4	VIB
<i>Homalothecium sericeum</i>	10	HOS	<i>Meliosma veitchiorum</i>	4	MEV
<i>Trocholejeunea sandwicensis</i>	10	TRS	<i>Pinus tabuliformis</i>	4	PIT
<i>Trichostomum tenuirostre</i>	5	TRT	<i>Carpinus cordata</i>	4	CAC
<i>Brachythecium buchananii</i>	5	BRB	<i>Styrax obassis</i>	2	STO
<i>Plagiomnium cuspidatum</i>	5	PLC	<i>Juglans cathayensis</i>	2	JUC
<i>Entodon cladorrhizans</i>	5	ENC	<i>Celastrus orbiculatus</i>	2	CEO
<i>Bryhnia brachycladula</i>	5	BRB			

Table S3. Overview of topographic factor forest canopy light factors in the plot

Environmental Variables	Minimum	Maximum	Average Value
Aspect	1.67	359.99	140.03
Slope / (°)	4.46	41.22	21.41
Elevation / m	1567.23	1591.73	1578.66
Convexity / (°)	-13.94	14.38	0.54
Total transmittance	0.00	0.43	0.17
Scattered radiation under the canopy	0.00	1221.00	522.23
Total direct radiation under the canopy	0.00	9932.00	3903.03
Canopy coverage	0.00	0.93	0.67
Leaf area index	0.00	4.72	1.87
Average leaf angle / (°)	0.00	85.00	40.12

Table S4. The PCA first four axis of light variables

Species	PC1	PC2	PC3	PC4
<i>Betula platyphylla</i>	-1.24860946	-0.40700923	0.377190413	-0.103298653
<i>Symplocos paniculata</i>	-0.20582806	0.175660773	0.399638995	-0.079859334
<i>Bothrocaryum controversa</i>	-1.933795701	1.201751103	-0.837121652	0.13291892
<i>Carpinus turczaninowii</i>	0.397854926	-0.262350113	0.089964451	0.099541461
<i>Malus honanensis</i>	-1.148848021	0.021032998	0.275988201	-0.189722749
<i>Tilia japonica</i>	-0.121443617	-1.650551348	-0.008845774	-0.33066045
<i>Pinus armandii</i>	-0.833037734	0.227737586	-0.205287598	-0.003267104
<i>Viburnum betulifolium</i>	-0.432688792	1.472842309	0.065829678	0.119204718
<i>Celastrus orbiculatus</i>	2.497622004	-0.607257331	-0.304863432	-0.141318786
<i>Meliosma veitchiorum</i>	1.854539684	0.821518391	0.117504484	-0.177774234
<i>Toxicodendron vernicifluum</i>	-1.423461893	0.656347812	0.678167817	-0.032484508
<i>Carpinus cordata</i>	2.048987	0.903267604	0.080849927	0.034298098
<i>Litsea tsinlingensis</i>	-2.60649859	0.179073675	0.552332037	0.195878974
<i>Quercus aliena</i> var. <i>acutiserrata</i>	0.381942903	0.326792607	0.354197807	0.013995267
<i>Lindera obtusiloba</i>	0.12102745	0.469639349	0.07285924	0.112114846

<i>Tilia paucicostata</i>	-1.220329677	0.820138451	-0.39357275	0.121505844
<i>Quercus variabilis</i>	3.900701227	-0.020270696	0.142513992	0.374439899
<i>Sorbus alnifolia</i>	-1.369555715	0.538878933	-0.151936871	0.006708404
<i>Cornus kousa</i> subsp. <i>chinensis</i>	0.963439403	-1.409272555	-0.417992381	-0.204229802
<i>Prunus clarofolia</i>	2.35663776	0.987467909	-0.51459137	-0.057880394
<i>Juglans cathayensis</i>	-0.54594124	-5.239420765	-0.143841911	0.234762835
<i>Pinus tabuliformis</i>	-0.995872177	-0.544503623	0.216203186	-0.055486054
<i>Styrax obassis</i>	3.969643673	0.634264276	0.030686663	-0.033697926
<i>Corylus heterophylla</i>	-4.406485352	0.704221884	-0.475873152	-0.035689272

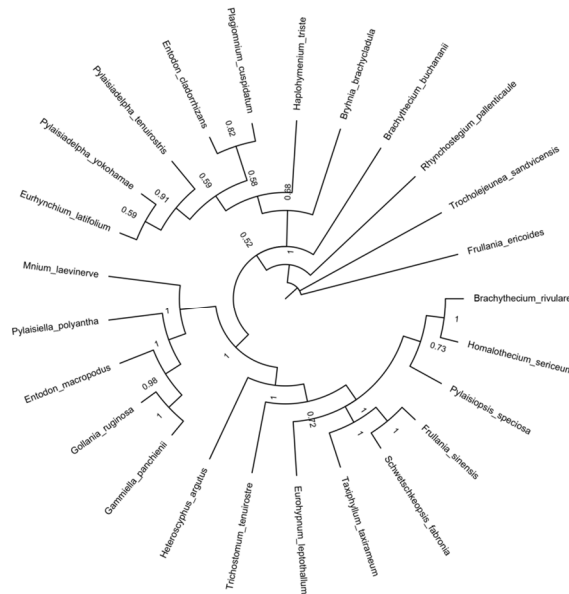


Figure S1. Tree epiphytic bryophyte phylogenetic tree

Table S5. The light variables

TT	SRUC	TDRUC	CC	LAI	ALA
0.200061505	595.2798641	4225.283231	0.657796715	1.686582555	38.77343692
0.184068887	547.0492055	3785.895261	0.687306306	1.739324967	37.61232343
0.209906544	575.5587505	4858.644534	0.700393778	1.573442318	26.08015132
0.169105187	511.8283138	3852.25633	0.679808881	1.853067079	39.46919736
0.201032358	590.4559835	4172.138021	0.673790414	1.692941724	36.52524942
0.181654065	553.8517126	4310.345668	0.644033167	1.986960671	46.34244445
0.192419347	557.4646077	4316.133021	0.683142985	1.733967448	34.38030535
0.187652127	539.25388	3807.069458	0.717688788	1.646699636	28.65761301
0.136262604	426.0438401	3483.272326	0.704954225	2.181221033	44.1189955
0.158641683	457.8389626	3141.715658	0.73020905	2.034584279	35.38221377
0.209618139	604.5337353	3882.044948	0.677556185	1.604314841	32.31260337
0.14690777	441.8750791	3120.335016	0.733712159	1.972178209	35.67496481
0.225404486	640.2373974	4412.984552	0.645306879	1.488498532	32.33304573

0.175641094	520.9648529	3576.184199	0.69354506	1.829589913	36.40843065
0.178288253	521.1479352	3793.823772	0.694096604	1.809463319	34.26886534
0.196540257	561.3192014	4451.644566	0.695148019	1.630570798	30.32014848
0.114075379	360.5539098	2628.647375	0.715822208	2.26545625	41.18017328
0.200965945	579.6358566	4404.159799	0.685479008	1.634743068	32.2275038
0.158339495	490.4571386	4191.729967	0.668136232	2.06227229	46.51921688
0.139895828	418.8134626	3365.754532	0.748564517	2.052763124	34.86567802
0.172785571	551.3075625	5177.301768	0.525873581	2.12192478	63.6148991
0.194082824	578.4976993	4269.295714	0.657897659	1.724438724	39.61212395
0.116727578	363.7084168	2588.76647	0.751066241	2.225298799	39.93011992
0.253133983	701.3742906	5497.046798	0.65433348	1.362635657	25.28532697

Table S6. The bark physicochemical properties variables

N	P	K	C	Si	S	pH	CD
5.35	0.36	0.66	535.81	6.7	3.13	8.19	0.31
9.54	1.58	2.22	401.28	27.64	10.23	8.16	0.57
8.01	0.65	1.17	416.52	14.89	0.88	8.26	0
6.21	0.35	1.96	393.21	4.47	0.6	8.05	0
8.29	0.43	1.62	448.96	13.62	0.39	8.17	0.75
11.42	0.69	1.37	522.32	25.92	0.41	8.1	1.33
4.7	0.45	1.12	500.13	6.7	0.21	8.17	1.37
5.72	0.31	0.79	488.01	18.14	0.5	8.29	0
7.1	0.5	2.17	471.54	11.74	1.23	8.31	3
7.69	0.61	4.99	412.16	40.25	1.14	8.26	3
8.26	0.64	2.39	481.32	16	0.53	8.11	2.32
9.53	0.56	1.5	494.06	15	1.07	8.18	1.5
10.64	1.22	2.09	436.47	14.5	11.15	8.11	1.18
6.46	0.64	2.52	443.97	6.65	2.02	8.26	3.84
7.38	0.59	1.67	493.42	5.55	3.07	8.17	0.64
6.86	0.62	3.41	427.68	24.32	3.14	8.18	0
5.71	0.32	1.62	502.78	16.28	2.48	8.12	5.67
4.19	0.37	1.92	435.55	8.35	1.27	8.14	0.25
7.4	0.5	1.47	389.53	14.03	0.84	8.04	2.2
12.59	0.76	1.82	538.06	21.11	0.78	8.05	0
5.21	0.32	0.48	484.29	17.83	0.35	8.35	5
3.84	0.22	0.54	482.17	19.73	0.38	8.36	4.5
10.51	1.07	2.32	447.95	16.01	1.44	8.21	0
6.01	0.41	1.59	431.23	23.6	2.23	8.19	2.21

Table S7 List of functional data

	capsule length/ mm	spore diameter/ um	spore thickness /um	middle cell length/ um	middle cell width /um	stem length /mm	leaf area/mm ²	leaf length- to-width ratio
<i>Haplohymenium</i>	1.4966666	33.9733333	1	14.356666	11.23666	46.973333	3.263333333	2.4160401
<i>triste</i> (Ces.) Kindb.	67	3		67	667	33		
<i>Trichostomum</i>	30.513333	14.3333333	0.8	8.4433333	7.376666	13.96	0.293333333	4.18446602
<i>tenuirostre</i> Lindb	33	3		33	667			
<i>Rhynchostegium</i>								
<i>pallenticaule</i> Müll.	19.67	9.44333333	1	164.33333	7.75	51.303333	0.216666667	2.29533678
Hal.		3		33		33		
<i>Pylaisiadelph</i>								
<i>yokohamae</i> (Broth.)	15.046666	13	1	37.303333	4.543333	26.34	0.096666667	3.26865672
Buck.	67			33	333			
<i>Bryhnia</i>								
<i>brachycladula</i>	49.654	14	1	52.233333	3.1	49.622	3.533	7.50346446
Cardot								
<i>Brachythecium</i>	2.7866666	15.5866666	0.8	73.22	9.333333	42.89	0.436666667	4.61157025
<i>buchananii</i> Jaeger	7	7			333			
<i>Plagiomnium</i>	25.436666	22.27	1	43.8	28.16666	24.763333	3.246666667	2.54271356
<i>cuspidatum</i> T. Kop.	67				667	33		
<i>Pylaisia polyantha</i>	7.9233333	15.4766666	0.9	31.766666	5	35.833333	0.243333333	2.82203390
(Hedw.) Schimp.	33	7		67		33		
<i>Entodon</i>								
<i>cladorrhizans</i>	14.713333	15.9833333	0.8	49.526666	3.826666	36.786666	0.646666667	2.36787564
(Hedwig) Müller	33	3		67	667	67		
Hal.								
<i>Eurhynchium</i>		19.9333333	0.8	38.293333	3.933333	37.406666	3.756666667	4.16566264
<i>latifolium</i> Cardot	13	3		33	333	67		
<i>Taxiphyllum</i>								
<i>taxirameum</i> (Mitt.)	8.54	12.6549	0.80952381	42.633	4.3	36.7	2.88	1.125
M. Fleisch.								
<i>Eurohypnum</i>								
<i>leptothallum</i> (Müll.	15.56	16.5533333	0.8	49.97	3.67	10.833333	0.1	5.46938776
Hal.) Ando		3				33		
<i>Trocholejeunea</i>								
<i>sandvicensis</i> (Gott.)	0	8.41333333	0	30	27	45.4	0.56	1
Mizut.		3						
<i>Schwetschkeopsis</i>								
<i>fabronia</i>	7.2	16.672	0.80952381	23	5.1	26.3	0.77	0.36
(Schwaegr.) Broth.								
<i>Pylaisiopsis speciosa</i>		15.4766666	0.9	31.766666	5	35.833333	0.243333333	2.82203390
(Mitt.) Broth.	6.833333	7		67		33		

<i>Gammiella</i>		18.5333333			3.623333			
<i>panchienii</i> Tan et Jia	29.74	3	0.8	57.48	333	32.11	0.3	4.09375
<i>Mnium laevinerve</i>	12.893333	13.9033333		39.366666	5.426666			3.31578947
Cardot.	33	3	0.9	67	667	14.82	0.086666667	4
<i>Heteroscyphus</i>								
<i>argutus</i> (Reinw. et al.) Schiffn.	20	17.4780952 4	0.80952381	20	11	22	0.4	8.57142857 1
<i>Homalothecium</i>								
<i>sericeum</i> (Hedw.)	13.6	14.1	1	33.686666	5.486666	29.56	0.366666667	2.58273381
Bruch, Schimp. & W.Guembel				67	667			6
<i>Pylaisiadelpha</i>								
<i>tenuirostris</i> (Bruch et Schimp. ex Sull.)	18.27	13.4866666 7	0.8	57.436666 67	3.626666 667	22.816666 67	0.22	5.43859648 9
Buck								
<i>Brachythecium</i>	17.4	14.6366666 7	0.8	52.486666 67	9.386666 667	63.9	0.253333333	1.58219178 1
<i>rivulare</i> Schimp.								
<i>Entodon</i>								
<i>macropodus</i> (Hedw.)	5.9333333 33	16.6	1	57.43	5.2	92.776666 67	0.283333333	10.1803278 9
Müll. Hal.								
<i>Frullania sinensis</i>	0	43.6	0	23.633333 33	14.33666 667	15.64	0.223333333	6.81690139 7
Steph.								
<i>Gollania ruginosa</i>	45.116666	17.7366666 7	0.9	56.436666 67	3.99	47.733333 33	0.753333333	2.69230769
(Mitt.) Broth.	67							
<i>Frullania ericoides</i>	30.513333	14.3333333	0.8	8.4433333 33	7.376666 667	13.96	0.293333333	4.18446602 4
(Nees) Nees & Mont.	33	3						