Table S1 PCR and sequencing results for 176 species collected in three plots at Mt. Huangshan.

	ITS2		rbcL		matK	
	PCR	Sequencing	PCR	Sequencing	PCR	Sequencing
NO. of species (176)	172	167	171	171	156	145
Percentage of success (%)	97.72%	97.09%	97.15%	100%	88.63%	92.94%
Length(bp)	186bp～484bp		529bp～777bp		602bp～1603bp	
G+C (%)	63.72%		43.56%		34.19%	

Table S2 Sequence accession numbers and species information from GenBank

Family	Genus	Species	Accession Number
Adoxaceae	*Viburnum*	*Viburnum erosum*	JF944770.1
Aquifoliaceae	*Ilex*	*Ilex micrococca*	AJ492684.1
Aquifoliaceae	*Ilex*	*Ilex rotunda*	HQ415255.1
Aquifoliaceae	*Ilex*	*Ilex wilsonii*	HQ427294.1
Aquifoliaceae	*Ilex*	*Ilex suaveolens*	HQ427293.1
Aquifoliaceae	*Ilex*	*Ilex micrococca*	HQ427290.1
Cannabaceae	*Celtis*	*Celtis sinensis*	MH658966.1
Cannabaceae	*Celtis*	*Celtis julianae*	MN722208.1
Cornaceae	*Cornus*	*Cornus controversa*	U96893.1
Cupressaceae	*Cunninghamia*	*Cunninghamia lanceolata*	AB030125.1
Cupressaceae	*Juniperus*	*Juniperus formosana*	HQ245897.1
Ericaceae	*Rhododendron*	*Rhododendron ovatum*	HQ427297.1
Fabaceae	*Lespedeza*	*Lespedeza thunbergii subsp. formosa*	JN402952.1
Fagaceae	*Cyclobalanopsis*	*Cyclobalanopsis stewardiana*	LT984609.1
Fagaceae	*Quercus*	*Quercus serrata*	KX837462.1
Ginkgoaceae Engler	*Ginkgo Linn*	*Ginkgo biloba*	AF456370.1
Hamamelidaceae	*Loropetalum*	*Loropetalum chinense*	AB237042.1
Hamamelidaceae	*Fortunearia*	*Fortunearia sinensis*	AF013044.1
Hamamelidaceae	*Loropetalum*	*Loropetalum chinense*	AB237006.1
Lauraceae	*Machilus*	*Machilus thunbergii*	KF569894.1
Lauraceae	*Sassafras*	*Sassafras tzumu*	HQ427277.1
Lauraceae	*Machilus*	*Machilus thunbergii*	KF569900.1
Lauraceae	*Machilus*	*Machilus leptophylla*	KF740396.1
Pentaphylacaceae	*Eurya*	*Eurya nitida*	AY626874.1
Pentaphylacaceae	*Eurya*	*Eurya rubiginosa var. attenuata*	KP094855.1
Pinaceae	*Pinus*	*Pinus taiwanensis*	DQ166028.1
Rubiaceae	*Gardenia*	*Gardenia jasminoides*	HQ415291.1
Sapindaceae	*Acer*	*Acer negundo*	HM850603.1
Theaceae	*Camellia*	*Camellia fraternal*	EU579705.1

Table S3 Spatial, climatic and topographic variables, which were selected by the forward selection procedure in the RDA, affected nerest taxon index (NTI) of communities for total, trees and shrubs at three different communities. PCNMs (principal coordinates of neighbor matrices) represents spatial predictors; Bio11 (Mean Temperature of Coldest Quarter), Bio9 (Mean Temperature of Driest Quarter); topographic factors include elevation, aspect, slope, and convexity.

Factor	Group	Variables	$AdjR^2Cum$	F	P
Space	Total	PCNM6	0.07	22.69	0.0004
		PCNM4	0.08	6.54	0.0098
		PCNM2	0.10	6.42	0.0089
	Trees	PCNM6	0.07	25.04	0.0001
		PCNM4	0.09	5.90	0.0182
		PCNM2	0.10	4.46	0.0386
	Shrubs	PCNM3	0.33	153.71	0.001
		PCNM1	0.39	30.04	0.001
		PCNM30	0.41	12.05	0.003
		PCNM8	0.42	5.37	0.014
Climate	Total				NS
	Trees	Bio11	0.01	5.03	0.0241
	Shrubs	Bio9	0.38	189.45	0.0001
Topography	Total				NS
	Trees				NS
	Shrubs	Aspect	0.11	35.57	0.0001

Table S4 Description of 19 bioclimatic variables

Variables	Description
Bio-1	Annual Mean Temperature
Bio-2	Mean Diurnal Range (Mean of monthly (max temp - min temp))
Bio-3	Isothermality (Bio2/Bio7) (×100)
Bio-4	Isothermality (Bio2/Bio7) (×100)
Bio-5	Max Temperature of Warmest Month
Bio-6	Min Temperature of Coldest Month
Bio-7	Temperature Annual Range (Bio5-Bio6)
Bio-8	Mean Temperature of Wettest Quarter
Bio-9	Mean Temperature of Driest Quarter
Bio-10	Mean Temperature of Warmest Quarter
Bio-11	Mean Temperature of Coldest Quarter
Bio-12	Annual Precipitation
Bio-13	Precipitation of Wettest Month
Bio-14	Precipitation of Driest Month
Bio-15	Precipitation Seasonality (Coefficient of Variation)
Bio-16	Precipitation of Wettest Quarter
Bio-17	Precipitation of Driest Quarter
Bio-18	Precipitation of Warmest Quarter
Bio-19	Precipitation of Coldest Quarter