Table S1. The basic information of community structures and demographics.

Variables	Mean	Min	Max
AGB_{11} (Mg)	7.56	0.80	40.02
AGB_{16} (Mg)	7.95	0.80	40.48
N_{11}	297.87	68	651
N_{16}	283.24	5	639
S_{11}	3.015	2.301	3.517
S_{16}	3.080	2.280	3.540
SR	43.84	22	65
Rao Q	4.72	1.82	10.45
Small trees (%)	53.81	31.25	70.24
Large trees (%)	1.16	0	5.63
Mortality (%)	10.86	2.22	30.89
Recruitments (%)	5.82	0	36.89

Note: AGB_{16} and AGB_{11} are the AGB of living trees in each 20 m × 20 m subplot in 2016 and 2011, respectively; N_{11} and N_{16} are the numbers of alive trees in each subplot in 2011 and 2016 respectively, and N_{11} is also the community density index; S_{11} and S_{16} are the Shannon indexes of each subplot in 2011 and 2016 respectively; SR is the number of species in each subplot in 2011; Rao Q is Rao's quadratic entropy in each subplot in 2011; Small trees and Large trees are the proportions of small and large trees in each subplot in 2011 respectively. Mortality and recruitments are the proportions of dead and new recruit individuals between 5 years respectively.

Table S2 The results of principal component analysis for functional traits.

Functional traits	CWM_{PC1} (56.60%)	CWM_{PC2} (16.72%)	CWM_{PC3} (9.22%)
CWM_{LDMC}	-1.41	-2.18	0.46
CWM_{LT}	-2.10	0.12	1.34
CWM_{LA}	1.86	-1.73	0.56
CWM_{SLA}	2.85	-0.31	-0.30
CWM_{LCC}	-1.68	-1.74	-1.38
CWM_{LNC}	2.73	-0.58	-0.49
CWM_{LPC}	1.93	-0.66	1.39
CWM_{LCN}	-2.84	-0.42	0.13

Note: CWM_{LDMC}, community-weighted mean of leaf dry mass content; CWM_{LT}, community-weighted mean of leaf thickness; CWM_{LA}, community-weighted mean of leaf area; CWM_{SLA}, community-weighted mean of specific leaf area; CWM_{LCC}, community-weighted mean of leaf carbon content; CWM_{LNC}, community-weighted mean of leaf nitrogen content; CWM_{LPC}, community-weighted mean of leaf content phosphorus; CWM_{LCN} community-weighted mean of leaf C/N.

Table S3 The results of principal component analysis for soil nutrients.

Soil nutrients	Soil$_{PC1}$ (33.26%)	Soil$_{PC2}$ (13.69%)	Soil$_{PC3}$ (11.65%)	Soil$_{PC4}$ (9.25%)	Soil$_{PC5}$ (8.81%)	Soil$_{PC6}$ (7.31%)
SNa	2.30	-0.28	0.06	-0.67	0.13	-0.67
SNb	1.83	0.62	1.60	-0.42	0.49	0.18
SCa	2.31	-0.76	-0.69	-0.53	-0.03	-0.18
SCb	2.09	0.28	0.95	-0.42	0.55	0.85
SPa	1.50	0.21	-0.77	-0.11	-0.93	-0.26
SPb	0.62	1.23	0.35	0.58	-1.17	1.21
SC13a	-1.42	-0.07	-0.21	-1.88	-0.23	-0.31
SC13b	-1.60	-0.01	0.32	-1.47	0.46	1.05
T	-0.10	-0.88	-0.03	0.84	1.84	0.13
PH	-0.60	1.32	1.48	0.02	0.04	-1.53
CD	1.47	1.36	-1.48	-0.41	0.75	-0.08
BD	-0.83	2.19	-0.93	0.10	0.79	0.05

Note: SNa and SNb are soil total nitrogen at top and bottom soil layer, respectively; SCa and SCb are soil total carbon at top and bottom soil layer, respectively; SPa and SPb are soil total phosphorus at top and bottom soil layer, respectively; SC13a and SC13b are δ^{13}C isotope at top and bottom soil layer, respectively; T is soil temperature; PH is soil pH; CD is soil carbon density; BD is soil bulk density

Table S4 The direct and indirect effects of predictors for ΔAGB.

Predictor	Pathway to ΔAGB	Effect
Topographic variable (cos(aspect))	Direct	-0.06
	Indirect through small tree	-0.01*
	Indirect through community density	0.01
	Indirect through mortality	0.01
	Indirect through large tree	0.01
	Total effect	-0.03
Small trees	Direct	-0.13**
	Indirect through community density	0.12**
	Indirect through mortality	-0.02
	Total effect	-0.04
Large trees	Direct	0.21**
	Indirect through community density	-0.05**
	Indirect through mortality	0.04**
	Total effect	0.20**
Community density	Direct	0.38**
	Indirect through mortality	0.10**
	Total effect	0.48**
Mortality	Direct	-0.27**

Note: $p < 0.05$ (*) and < 0.01 (**)

Table S5 The direct and indirect effects of predictors for CRI.

Predictor	pathway to CRI	effect
Topographic variable	Direct	0.41**
(Convexity + Elevation)	Indirect through large tree	0.002
	Indirect through SR	-0.05*
	Indirect through CWM_{PC1}	-0.03
	Indirect through $Soil_{PC2}$	0.02
	Total effect	0.36**
Soil nutrient ($Soil_{PC2}$)	Direct	-0.08
	Indirect through large tree	-0.002
	Indirect through SR	-0.01
	Indirect through CWM_{PC1}	0.001
	Total effect	-0.09
Large trees	Direct	0.09*
Functional trait (CWM_{PC1})	Direct	0.04
	Indirect through large tree	-0.02
	Total effect	0.013
Species richness (SR)	Direct	-0.13**
	Indirect through large tree	-0.02*
	Total effect	-0.15**

Table S6 The direct and indirect effects of predictors for ΔS.

Predictor	pathway to ΔS	effect
Topographic variable (convexity)	Direct	-0.08*
	Indirect through recruitment	0
	Indirect through Rao Q	0.03**
	Indirect through CWM_{PC1}	-0.12**
	Indirect through $Soil_{PC1}$	0.01
	Total effect	-0.17**
Soil nutrient ($Soil_{PC1}$)	Direct	0.08*
	Indirect through recruitment	0.02
	Indirect through Rao Q	0.02
	Indirect through CWM_{PC1}	0.02
	Total effect	0.09*
Functional traits (CWM_{PC1})	direct	0.27**
	Indirect through Rao Q	-0.24**
	Total effect	0.03
Biodiversity (Rao Q)	Direct	-0.29**
Recruitment	Direct	0.36**
	Indirect through Rao Q	0
	Total effect	0.37**