

Appendices

Table S1. Table of key information about the plots

Plots	Area	Latitude	Longitude	Main dominant tree species	Diameter at breast height	Tree height	Restoring history	Canopy closure
1	400m ²	26.41.4484	117.47.3298	Alniphyllum fortunei	14.7	9.4	Natural recovery	0.80
2	400m ²	26.41.4434	117.47.3329	Castanopsis tibetana	13.1	10.8	Natural recovery	0.70
3	400m ²	26.41.4689	117.47.3136	Choerospondias axillaris	14.2	7.4	Natural recovery	0.65
4	400m ²	26.41.4822	117.47.3323	Castanopsis tibetana	14.7	12.3	Natural recovery	0.70
5	400m ²	26.41.4805	117.47.3452	Alniphyllum fortunei	15.0	12.0	Natural recovery	0.90
6	400m ²	26.41.0460	117.48.2448	Castanopsis tibetana	16.7	12.5	Natural recovery	0.95
7	400m ²	26.41.4992	117.47.3444	Castanopsis tibetana	12.8	10.7	Natural recovery	0.75
8	400m ²	26.41.4801	117.47.3639	Rhododendron championae	14.4	10.4	Natural recovery	0.60
9	400m ²	26.41.5085	117.47.0347	Alniphyllum fortunei	14.5	12.5	Natural recovery	0.80
10	400m ²	26.41.5048	117.47.3634	Daphniphyllum oldhamii	14.5	11.9	Natural recovery	0.80
11	400m ²	26.41.4999	117.47.3450	Castanopsis fargesii	17.2	12.2	Natural recovery	0.70
12	400m ²	26.41.4825	117.47.3318	Castanopsis lamontii	16.8	11.3	Natural recovery	0.60
13	400m ²	26.42.1415	117.48.1237	Castanopsis fargesii	12.7	9.5	Natural recovery	0.70

14	400m ²	26.41. 4434	117.47. 3229	Engelhar dtia fenzlii	10.7	9.6	Natural recovery	0.70
15	400m ²	26.42. 1442	117.48. 0149	Castanop sis lamontii	10.0	9.6	Natural recovery	0.95
16	400m ²	26.42. 1499	117.48. 1487	Engelhar dtia fenzlii	13.4	11.3	Natural recovery	0.65
17	400m ²	26.42. 1446	117.48. 1668	Engelhar dtia fenzlii	10.4	8.2	Natural recovery	0.98
18	400m ²	26.42. 1389	117.48. 1644	Castanop sis fargesii	10.2	8.4	Natural recovery	0.85
19	400m ²	26.42. 1217	117.48. 1424	Castanop sis tibetana	11.9	8.9	Natural recovery	0.80
20	400m ²	26.42. 1247	117.48. 1586	Castanop sis lamontii	10.6	8.6	Natural recovery	0.90
21	400m ²	26.42. 1163	117.48. 1578	Nyssa sinensis	10.8	8.6	Natural recovery	0.85
22	400m ²	26.42. 1263	117.48. 0531	Neolitsea aurata var. chekiangensis	17.1	12.6	Natural recovery	0.65
23	400m ²	26.42. 1174	117.48. 0081	Sloanea sinensis	17.1	10.4	Natural recovery	0.65
24	400m ²	26.42. 1176	117.47. 5924	Ilex limii	14.9	9.6	Natural recovery	0.70
25	400m ²	26.42. 1147	117.47. 5834	Castanop sis fargesii	14.6	10.0	Natural recovery	0.70
26	400m ²	26.42. 1161	117.47. 5685	Castanop sis carlesii	12.1	9.2	Natural recovery	0.65
27	400m ²	26.42. 1124	117.47. 5342	Cunningh amia lanceolata	18.4	10.0	Natural recovery	0.70
28	400m ²	26.42. 0105	117.47. 5353	Castanop sis fargesii	15.7	9.7	Natural recovery	0.70
29	400m ²	26.42. 1146	117.48. 0136	Schima superba	15.0	10.2	Natural recovery	0.70
30	400m ²	26.42. 1010	117.48. 0160	Castanop sis eyrei	14.4	11.3	Natural recovery	0.75
31	400m ²	26.42. 0978	117.48. 0380	Manglietia yuyuanensis	16.2	10.7	Natural recovery	0.65

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32	400m2	26.42. 1115	117.48. 0424	Lithocarp us glaber	15.4	9.4	Natural recovery	0.60
33	400m2	26.42. 0108	117.48. 0641	Engelhar dtia fenzlii	14.9	8.6	Natural recovery	0.80

Table S2. Alternative parameters and information entropy

Indicator	Data source	Unit	Information entropy
Normalized Burn Ratio	Landsat	/	0.99
Disturbance Index	Landsat	/	0.99
Height of tree	Airborne LIDAR	m	0.93
Canopy closure	Airborne LIDAR	/	0.92
Leaf Area Index	Airborne LIDAR	/	0.95
Naturalness	FMPI	/	0.95
Type of community structure	FMPI	/	0.95
Above-ground biomass	FMPI	t/ha	0.81
eluvial horizon thickness	FMPI	cm	0.97

Table S3. Table of definitions of naturalness and community structure type values

Indicators	Type	Value range	Notes
Naturalness	III	(0-0.33]	Secondary or natural forest that has been almost destroyed after considerable human disturbances.
	II	(0.33-0.66]	Natural vegetation with significant human disturbance or communities in secondary succession.
	I	(0.66-1]	Communities with little or a little human disturbance.
Type of community structure	Simple structure	(0-0.33]	Communities with only herbaceous layer or bare soil.
	Complex structures	(0.33-0.66]	Communities with shrub and herb layers.
	Complete structure	(0.66-1]	Forest communities with 3 vegetation layers: tree layer, shrub layer and herb layer

Table S4. Airborne LIDAR and FMPI recorded data on regions A to R

Land cover type		Mean height	Canopy closure	Naturalness	Type of community structure	Above ground biomass(t/ha)	Age of tree	RI	RV
Bare land	A	0	0.04	0.17	0.17	0	0	1.04	0
	B	0.11	0.12	0.17	0.17	0	0	0.92	0.02
	C	0.07	0.06	0.17	0.17	0	0	0.94	0
	D	0	0	0.28	0.25	0	0	0.98	0.05
	E	0.72	0.16	0.19	0.2	1.47	2	1.12	0.03
Shrubs and herb	F	2.42	0.16	0.49	0.53	20.25	4.3	1.1	0.4
	G	2.48	0.16	0.48	0.73	13.4	7.45	1.22	0.49
	H	1.65	0.41	0.5	0.83	9.03	9.65	0.98	0.52
	I	2.42	0.19	0.5	0.83	10.8	13.94	0.97	0.52
	J	3.11	0.22	0.5	0.83	12.32	11.98	1.17	0.57
Forest	K	3.515	0.46	0.75	0.83	45.3	27	0.98	0.83
	L	4.875	0.45	0.75	0.83	33.41	21.25	1.2	0.73
	M	2.92	0.32	0.80	0.80	17.47	12.69	1.11	0.70
	N	4.5	0.32	0.83	0.83	9.27	12.35	1.07	0.74
	O	2.6	0.65	0.78	0.83	58.11	7.79	1.02	0.85

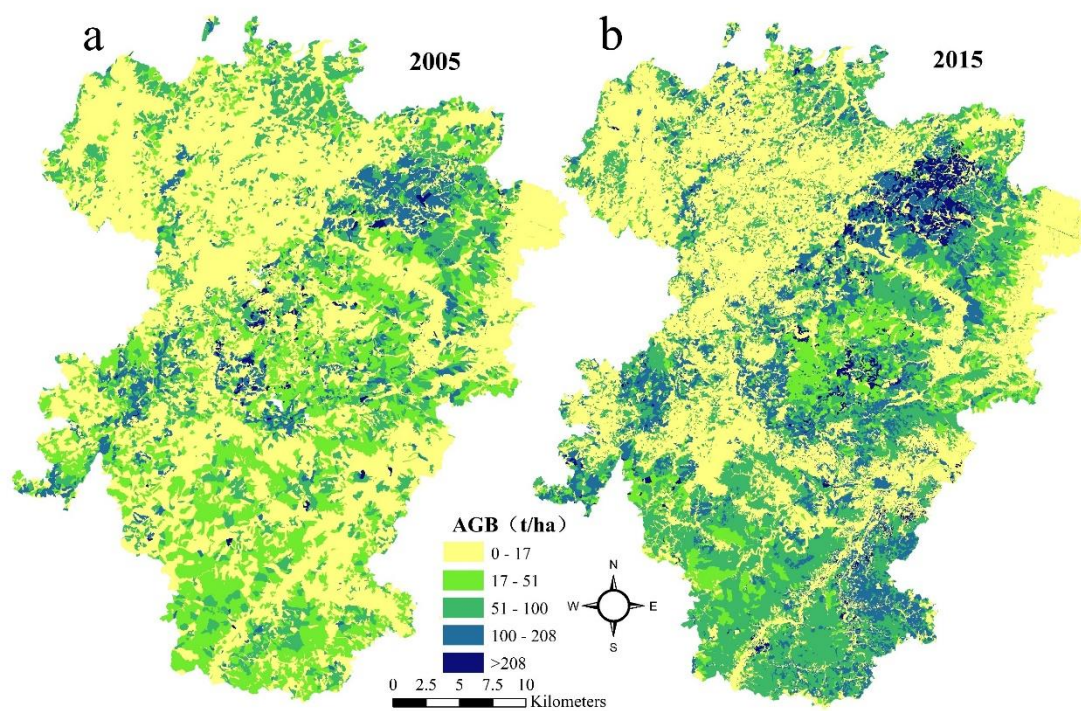


Figure S1 Aboveground biomass distribution of the study area in 2005 and 2015

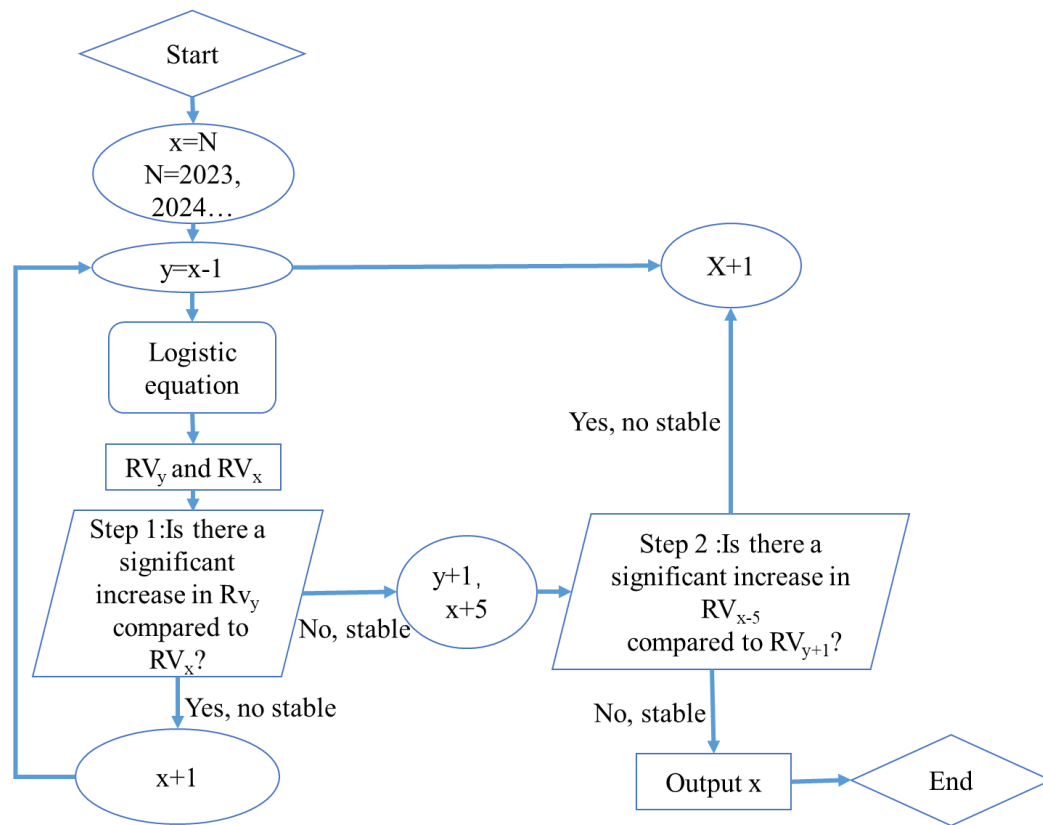


Figure S2. A flowchart of how to find the key year x . We define that the recovery of the study area will reach a stable state after x . RV_x is a cluster of raster values for the entire region. In terms of the reference [1] and the data of our study area, the after-five-years is chosen to test the stable state.1. Pickell, P.D.; Hermosilla, T.; Frazier, R.J.; Coops, N.C.; Wulder, M.A. Forest recovery trends derived from Landsat time series for North American boreal forests. *Int. J. Remote Sens.* **2016**, *37*, 138-149, doi:10.1080/2150704x.2015.1126375.