

## Supplementary Materials

Table S1. Soil texture, pH, bulk density, and rock fragments in the study sites with paired forest regenerated (F) and adjacent agricultural (A) fields in Taiwan

		Soil texture	pH		Bulk density (g cm <sup>-3</sup> )		Rock fragments (> 2mm, %)	
			0-10 cm	10-20 cm	0-10 cm	10-20 cm	0-10 cm	10-20 cm
MF	F	loam	6.4±0.1 <sup>1</sup>	6.2±0.1	0.75±0.04	0.67±0.01a <sup>2</sup>	58±2	56±6
	A	clay loam	5.3±0.1	5.2±0.1	0.79±0.04	0.90±0.06b	47±4	43±2
WL	F	sandy loam	7.1±0.0	7.2±0.1	0.85±0.03a	0.83±0.02a	43±5	41±1
	A	sandy loam	7.4±0.1	7.6±0.1	1.08±0.09b	1.13±0.05b	39±7	40±6
CJ	F	sandy loam	5.3±0.2	4.9±0.1	0.92±0.01	0.89±0.03	65±5	60±3
	A	Sandy loam	5.3±0.1	5.4±0.2	0.92±0.07	1.00±0.05	67±5	64±7
LS	F	sandy loam	5.9±0.7	5.1±0.1	0.79±0.13a	0.92±0.06a	56±3	38±4
	A	loam	6.1±0.6	5.7±0.5	1.23±0.05b	1.20±0.08b	44±1	32±1
XB	F	sandy loam	6.6±0.1	6.1±0.1	1.10±0.03a	1.19±0.02	48±2	46±2a
	A	sandy loam	6.8±0.1	6.4±0.2	1.24±0.03b	1.31±0.07	59±4	57±3b
HS	F	loam	4.2±0.1	4.4±0.1	1.05±0.10a	1.18±0.04	-	-
	A	clay loam	4.5±0.1	4.3±0.0	1.19±0.06b	1.29±0.06	-	-
MJ	F	silty clay loam	3.7±0.1	3.8±0.0	0.98±0.05a	1.11±0.04	-	-
	A	clay	5.6±0.2	5.9±0.3	1.17±0.04b	1.03±0.08	-	-
RS	F	silty loam	5.1±0.3	4.8±0.1	1.00±0.02	1.21±0.08	-	-
	A	silty loam	4.2±0.1	4.1±0.0	1.08±0.05	1.33±0.03	-	-
GX	F	loam	3.8±0.1	3.9±0.1	0.92±0.08a	1.05±0.12	-	-
	A	clay loam	3.9±0.1	3.7±0.1	1.10±0.03b	1.14±0.00	-	-
ES	F	silt loam	6.5±0.3	7.3±0.1	1.19±0.05a	1.23±0.04a	-	-
	A	silt loam	6.0±0.6	6.7±0.2	1.35±0.07b	1.34±0.03b	-	-
TN	F	loam	4.7±0.1	4.8±0.0	1.03±0.04a	1.25±0.07a	-	-
	A	silt loam	6.0±0.1	6.1±0.0	1.29±0.01b	1.33±0.03b	-	-

<sup>1</sup>Mean ± standard error

<sup>2</sup>Different letters indicate differences between F and A fields at each soil depth (P < 0.05)

Table S2 Soil organic carbon (SOC) concentration and stocks in forest regenerated (F) and adjacent agricultural (A) fields at surface 0-10 cm and subsurface 10-20 cm in Taiwan. Note that the SOC stocks in the F soils were not corrected with bulk density.

	SOC concentration ( $\text{g kg}^{-1}$ )				SOC stocks ( $\text{Mg C ha}^{-1}$ )			
	0-10 cm		10-20 cm		0-10 cm		10-20 cm	
	F	A	F	A	F	A	F	A
Meifeng	58.5±13.6 a	37.2±2.6 b	42.8±0.4	30.8±8.1	18.5±3.2	15.5±0.6	12.8±3.4	15.5±1.9
Wuling	69.2±6.0 a	28.2±3.3 b	48.3±2.0 a	24.2±5.6 b	33.5±5.7 a	18.3±3.2 b	23.5±2.6	16.6±5.8
Chinjing	40.6±7.3 a	34.2±6.1 b	40.8±1.5 a	31.1±5.9 b	20.3±0.9	17.4±2.7	17.7±4.4	21.1±2.5
Lishan	51.1±6.2	31.6±6.4	33.3±12.9	18.4±1.4	11.0±4.3	12.6±2.7	15.2±3.2	7.8±2.9
Xibao	35.3±4.7	26.3±3.3	21.6±2.4	15.0±4.5	20.1±3.8 a	13.2±1.9 b	13.6±1.3 a	8.4±2.6 b
HS	28.8±2.6 a	19.8±2.6 b	19.5±2.7 a	14.8±0.4 b	28.6±6.3	24.4±1.2	22.9±2.5	19.1±1.7
MJ	21.9±2.7 a	8.7±0.5 b	14.2±1.3 a	8.6±0.6 b	21.4±2.4 a	10.1±0.7 b	15.8±2.1 a	8.9±1.4 b
RS	22.6±1.4 a	8.0±1.0 b	16.4±2.7 a	8.2±0.8 b	22.6±2.3 a	8.7±1.7 b	19.6±0.7 a	10.9±0.7 b
GX	34.0±10.8 a	15.0±1.7 b	20.4±5.7 a	8.3±0.9 b	30.3±4.7 a	16.4±1.8 b	21.0±5.3 a	9.5±0.9 b
ES	28.4±6.3 a	13.3±1.6 b	12.6±1.0	10.0±1.8	34.9±8.4 a	18.4±2.1 b	17.1±1.9 a	13.5±2.5 b
TN	21.7±3.3 a	7.9±1.7 b	10.4±1.8 a	6.7±1.2 b	22.2±2.6 a	10.2±2.3 b	12.9±1.0 a	9.0±1.7 b
Mean	37.5±15.9	20.9±11.1	25.5±13.4	16.0±9.1	23.9±7.1	15.0±4.6	17.5±3.8	12.8±4.7
Pair t-test	P < 0.01		P < 0.01		P < 0.01		P < 0.01	

Table S3 Absolute change, relative change, and annual accumulation rate of SOC concentration and stocks after afforestation/abandonment of agricultural fields. Note that the SOC stocks in the F soils were not corrected with bulk density.

	Absolute SOC		Relative SOC		Annual SOC		Absolute SOC stocks		Relative SOC stocks		Annual SOC stock	
	concentration change		concentration change		concentration increasing rate		change		change		accumulation rate	
	(g C kg <sup>-1</sup> )		(% )		(g C kg <sup>-1</sup> year <sup>-1</sup> )		(ton C ha <sup>-1</sup> )		(% )		(ton C ha <sup>-1</sup> year <sup>-1</sup> )	
	0-10 cm	10-20 cm	0-10 cm	10-20 cm	0-10 cm	10-20 cm	0-10 cm	10-20 cm	0-10 cm	10-20 cm	0-10 cm	10-20 cm
MF	2.13	1.20	57	39	0.11	0.06	3.03	-2.68	20	-17	0.16	-0.14
WL	4.11	2.41	146	100	0.21	0.12	15.12	6.92	82	42	0.76	0.35
CJ	0.64	0.96	19	31	0.03	0.05	2.92	-3.40	17	-16	0.15	-0.18
LS	1.93	1.49	61	81	0.11	0.08	-1.57	7.70	-12	99	-0.09	0.43
XB	0.89	0.66	34	44	0.05	0.04	6.95	5.21	53	62	0.39	0.29
HS	0.90	0.47	46	32	0.05	0.03	4.19	3.78	17	20	0.25	0.22
MJ	1.33	0.56	153	64	0.05	0.02	11.29	6.88	112	77	0.42	0.25
RS	1.46	0.82	182	100	0.08	0.04	13.94	8.73	161	80	0.73	0.46
GX	1.90	1.21	127	145	0.09	0.05	13.86	11.53	84	122	0.63	0.52
ES	1.51	0.26	114	26	0.07	0.01	16.47	2.44	90	27	0.78	0.12
TN	1.38	0.37	175	54	0.04	0.01	12.02	3.88	118	43	0.36	0.12
Mean	1.65	0.95	101	65	0.081	0.048	8.93	4.64	70	36	0.41	0.23