

Supplementary Materials for

Carbon sequestration potential of second-growth forest regeneration in the Latin American tropics

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table S1. Area, carbon stocks, and sequestration potential of different land cover types in lowland moist and dry tropical forest biomes. Areas with land uses in 2008, aboveground carbon stock in 2008 and net carbon sequestration potential 2008–2048 for two biomes in lowland Latin America; moist forest and dry forest (including caatinga). The land uses are classified as young (≤ 20 yr), mid (20–60 yr), pasture land, and cropland. Carbon gain for Old SF and Old Growth are not shown, because they cannot be estimated accurately. Areas are given in km², aboveground carbon stock (AGC) is given in Pg, and net carbon sequestration potential over four decades (2008–2048) is given in Pg. The numbers refer to the lowland (< 1000 m altitude) tropics only.

Land use	2008		Net C Gain (2008-48)
	Area (Km2)	AGC (Pg)	AGC (Pg)
Moist Forest			
Young SF	1,088,152	5.7877	5.9588
Mid SF	787,465	7.9847	1.5307
Old SF	425,824	5.2397	-
Old Growth	3,821,118	54.0255	-
Pasture	810,272	4.6614	4.1834
Crops	391,406	1.9326	2.2062
Sub total	7,324,237	79.6316	14.4874
Dry Forest			
Young SF	424,517	1.1918	0.8814
Mid SF	138,472	0.6181	0.1059
Old SF	35,695	0.2010	-
Old Growth	221,940	1.3604	-
Pasture	375,988	1.5104	0.8091
Crops	166,900	0.6031	0.4268
Sub total	1,363,510	5.4847	2.2378

table S2. Area, carbon stocks, and sequestration potential of Latin American countries. (A) Areas with land uses in 2008, (B) aboveground carbon in 2008 and (C) net carbon sequestration potential 2008–48 for all lowland Latin American countries. The land uses are classified as young (≤ 20 yr), mid (20–60 yr) and old (60–100 yr) second-growth forest (SF), old growth (OG, >100 yr) forest, pasture land and cropland. Areas are given in km^2 , aboveground carbon stock (AGC) is given in Pg, and net carbon sequestration potential over four decades (2008–2048) is given in Pg. The numbers refer to the lowland (< 1000 m altitude) tropics only.

SM. 2A.**2008 Area (km²)**

Country	Young SF	Mid SF	Old SF	OG	Pasture	Crops
Argentina	1,901	1,799	667	4,222	29	657
Belize	3,907	2,672	479	7,967	451	898
Bolivia	24,714	36,632	17,527	225,596	95,141	20,056
Brazil	1,123,747	591,454	254,558	2,249,820	653,447	274,652
British Virgin Is.	18	15	5	18	0	6
Cayman Is.	47	1	0	0	0	0
Colombia	69,059	68,646	38,537	353,549	145,851	20,486
Costa Rica	7,073	3,409	561	3,155	16,661	4,126
Cuba	17,496	4,622	1,106	3,166	18,905	35,850
Dominican Republic	3,972	3,308	392	1,324	15,475	10,527
Ecuador	11,932	11,169	7,609	52,592	15,344	6,402
El Salvador	1,087	154	28	128	2,442	3,821
French Guiana	618	3,152	7,618	66,224	59	71
Grenada	78	81	2	2	0	98
Guatemala	19,559	7,306	834	10,917	13,899	11,894
Guyana	8,175	14,956	18,657	131,233	5,490	3,414
Haiti	6,257	986	54	242	3,496	10,045
Honduras	10,982	10,291	1,624	11,231	5,115	8,112
Jamaica	1,974	2,060	274	1,140	1,946	2,175
Mexico	96,920	41,410	8,417	55,124	58,257	93,880
Nicaragua	11,298	10,944	2,075	10,658	35,329	16,918
Panama	17,603	9,403	2,859	12,194	12,678	6,363
Paraguay	231	118	24	13	7,275	2,096
Peru	15,341	34,691	43,034	511,866	5,772	9,293
Puerto Rico	1,961	1,956	267	688	1,368	819
St. Kitts & Nevis	0	1	0	5	0	2
Suriname	3,306	4,527	8,681	109,362	128	364
Trinidad & Tobago	1,137	1,529	280	378	78	331
Venezuela	52,272	58,628	45,345	220,242	71,627	14,945
Virgin Is.	2	14	2	3	0	5
Total	1,512,668	925,936	461,518	4,043,058	1,186,260	558,306

SM. 2B.**2008 AGC (Pg)**

Country	Young SF	Mid SF	Old SF	OG	Pasture	Crops
Argentina	0.0087	0.0151	0.0061	0.0408	0.0002	0.0028
Belize	0.0201	0.0239	0.0053	0.1002	0.0028	0.0041
Bolivia	0.1287	0.3141	0.1794	2.6861	0.8236	0.0950
Brazil	5.0414	5.5342	2.9930	31.0021	2.6965	1.1163
British Virgin Is.	0.0001	0.0001	0.0001	0.0002	0.0000	0.0000
Cayman Is.	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
Colombia	0.3746	0.6411	0.4520	4.9958	0.9205	0.1092
Costa Rica	0.0381	0.0301	0.0065	0.0425	0.1141	0.0225
Cuba	0.0643	0.0338	0.0107	0.0328	0.1049	0.1395
Dominican Republic	0.0173	0.0263	0.0034	0.0110	0.0927	0.0527
Ecuador	0.0784	0.1043	0.0915	0.7341	0.1553	0.0499
El Salvador	0.0044	0.0009	0.0002	0.0008	0.0105	0.0161
French Guiana	0.0035	0.0331	0.0932	0.9212	0.0007	0.0005
Grenada	0.0005	0.0007	0.0000	0.0000	0.0000	0.0007
Guatemala	0.0992	0.0617	0.0089	0.1294	0.0864	0.0738
Guyana	0.0378	0.1580	0.2300	1.7956	0.0434	0.0273
Haiti	0.0254	0.0075	0.0004	0.0009	0.0166	0.0433
Honduras	0.0548	0.0787	0.0158	0.1378	0.0303	0.0414
Jamaica	0.0117	0.0188	0.0032	0.0156	0.0156	0.0139
Mexico	0.4408	0.3183	0.0741	0.4636	0.2879	0.4213
Nicaragua	0.0635	0.0975	0.0228	0.1253	0.2364	0.1012
Panama	0.0885	0.0911	0.0340	0.1636	0.0877	0.0287
Paraguay	0.0011	0.0011	0.0003	0.0002	0.0362	0.0089
Peru	0.0944	0.3475	0.5412	7.4561	0.0498	0.0925
Puerto Rico	0.0090	0.0174	0.0031	0.0091	0.0109	0.0049
St. Kitts & Nevis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Suriname	0.0151	0.0466	0.1052	1.4882	0.0012	0.0015
Trinidad & Tobago	0.0057	0.0144	0.0033	0.0051	0.0005	0.0015
Venezuela	0.2523	0.5865	0.5569	3.0279	0.3471	0.0660
Virgin Is.	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
Total	6.9796	8.6028	5.4407	55.3859	6.1718	2.5356

SM. 2C.

Country	Young SF	Mid SF	Pasture	Crops
Argentina	0.0079	0.0013	0.0000	0.0029
Belize	0.0192	0.0054	0.0019	0.0047
Bolivia	0.1008	0.0580	0.1658	0.0615
Brazil	5.0749	0.9675	3.2080	1.5300
British Virgin Is.	0.0001	0.0000	0.0000	0.0000
Cayman Is.	0.0003	0.0000	0.0000	0.0000
Colombia	0.3577	0.1632	0.6207	0.1033
Costa Rica	0.0311	0.0085	0.0607	0.0176
Cuba	0.0689	0.0072	0.0572	0.1280
Dominican Republic	0.0185	0.0073	0.0572	0.0448
Ecuador	0.0526	0.0291	0.0375	0.0237
El Salvador	0.0031	0.0001	0.0055	0.0087
French Guiana	0.0033	0.0057	0.0001	0.0003
Grenada	0.0003	0.0002	0.0000	0.0004
Guatemala	0.0870	0.0150	0.0522	0.0418
Guyana	0.0501	0.0282	0.0207	0.0130
Haiti	0.0366	0.0023	0.0175	0.0546
Honduras	0.0398	0.0190	0.0124	0.0233
Jamaica	0.0092	0.0050	0.0065	0.0093
Mexico	0.3596	0.0614	0.1814	0.3782
Nicaragua	0.0410	0.0227	0.1007	0.0483
Panama	0.0966	0.0196	0.0545	0.0353
Paraguay	0.0012	0.0003	0.0379	0.0122
Peru	0.0744	0.0842	0.0148	0.0221
Puerto Rico	0.0098	0.0048	0.0044	0.0035
St. Kitts & Nevis	0.0000	0.0000	0.0000	0.0000
Suriname	0.0205	0.0084	0.0004	0.0024
Trinidad & Tobago	0.0064	0.0036	0.0003	0.0020
Venezuela	0.2692	0.1083	0.2742	0.0612
Virgin Is.	0.0000	0.0000	0.0000	0.0000
Total	6.8402	1.6366	4.9925	2.6330

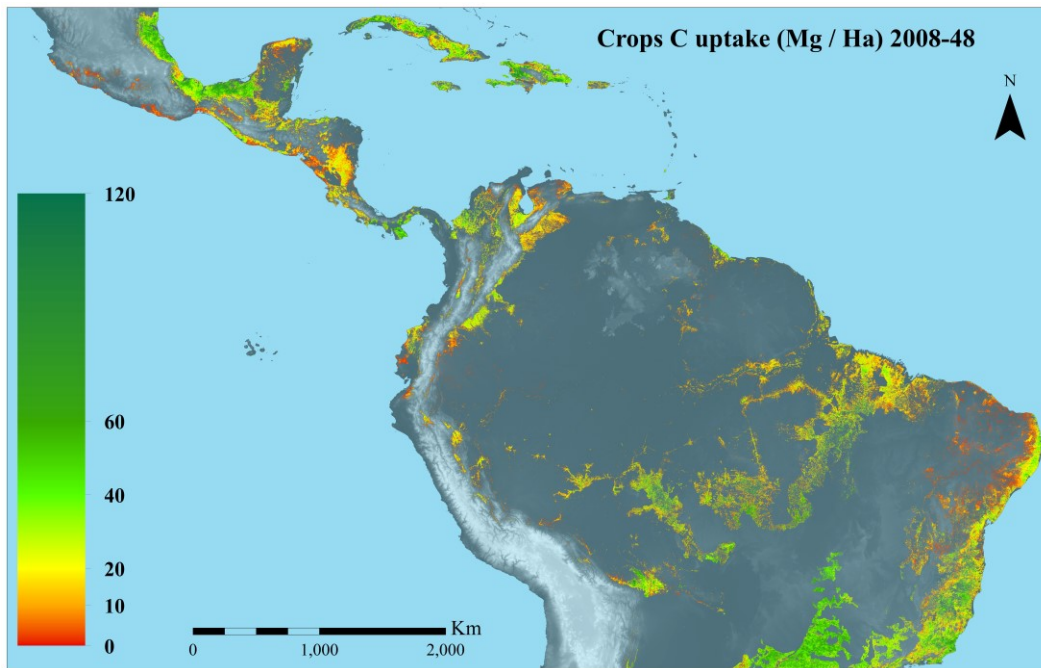


fig. S1. Carbon sequestration potential during 2008–2048 for crop areas of a lowland Neotropical forest. The biomes covered are moist and dry (including caatinga) tropical forests. Masked wetlands are mapped in dark blue. Additional masked areas include urban areas, areas > 1000 m elevation, and water bodies, including savannas, rivers, lakes and the ocean. The base map is the digital elevation model and is provided in masked areas or those with 0 crop C sequestration due to no cropland being present in 2008. Our model assumes no changes in cropland areas from 2008–2048.

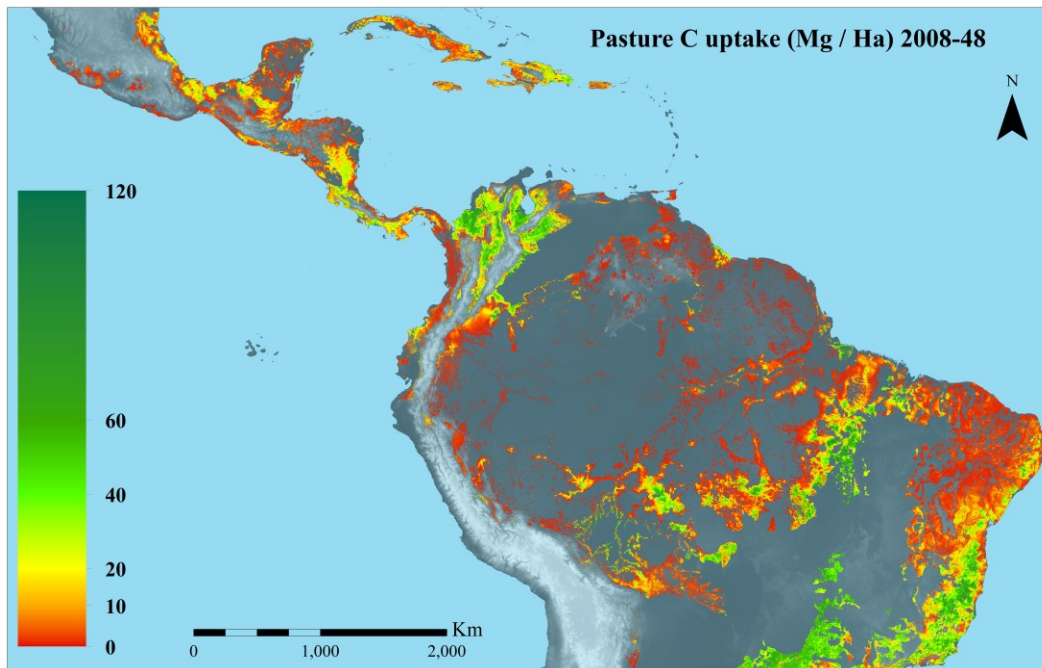


fig. S2. Carbon sequestration potential during 2008-2048 for pasture areas of a lowland Neotropical forest. The biomes covered are moist and dry (including caatinga) tropical forests. Masked wetlands are mapped in dark blue. Additional masked areas include urban areas, areas > 1000 m elevation, and water bodies, including savannas, rivers, lakes and the ocean. The base map is the digital elevation model and is provided in masked areas or those with 0 pasture C sequestration due to no pastures being present in 2008. Our model assumes no changes in pasture areas from 2008–2048.

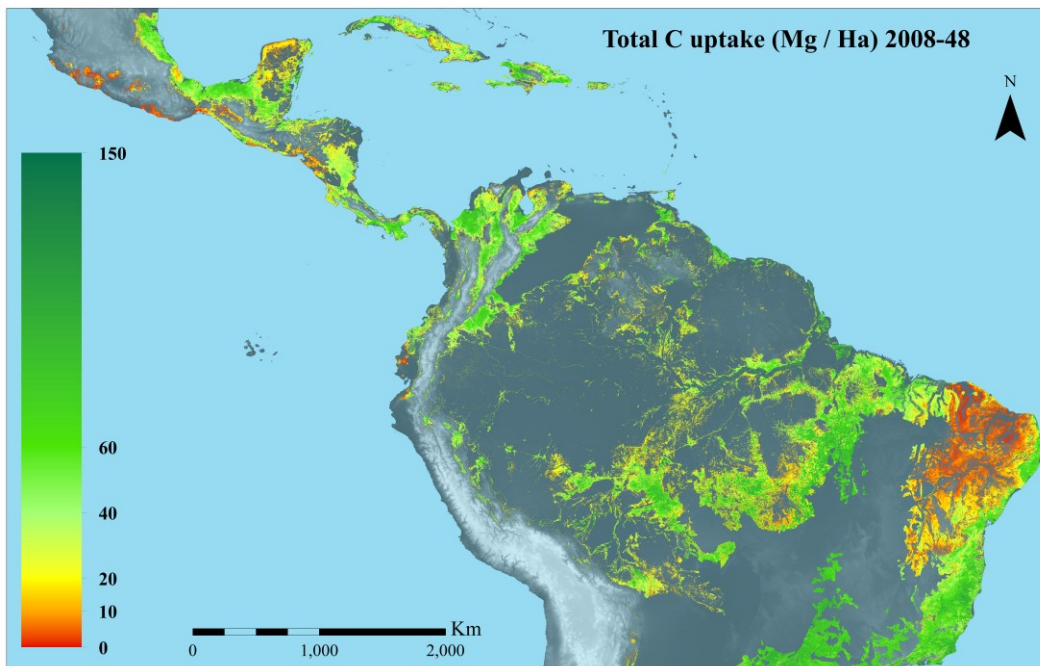


fig. S3. Carbon sequestration potential during 2008-2048 for areas of YSFs and MSFs (in 2008), crops, and pasture combined. The biomes covered are moist and dry (including caatinga) tropical forests. Masked wetlands are mapped in dark blue. Additional masked areas include urban areas, areas > 1000 m elevation, and water bodies, including savannas, rivers, lakes and the ocean. The base map is the digital elevation model and is provided in masked areas or those with 0 C sequestration due to no YSF, MSF, crops or pasture being present in 2008.