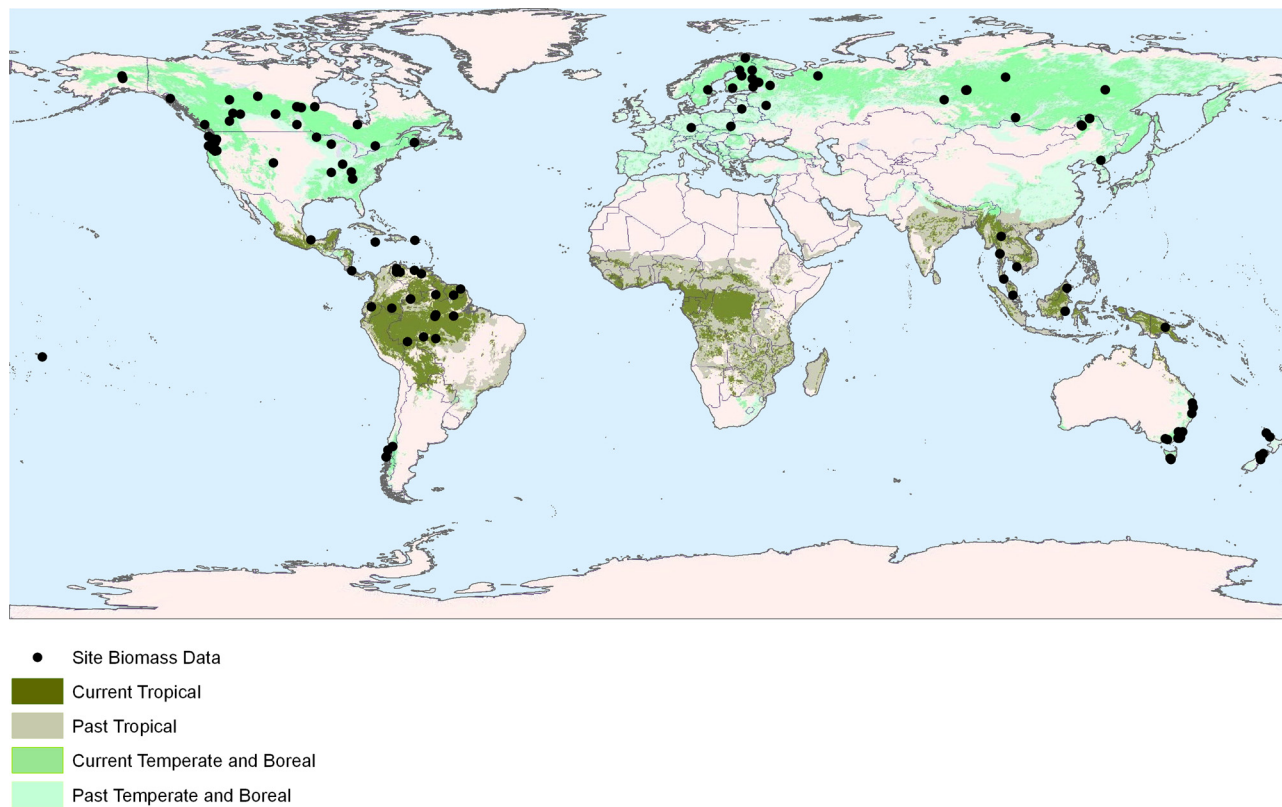


# Supporting Information

Keith et al. 10.1073/pnas.0901970106

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**Fig. S1.** Distribution of sites with data for biomass carbon from the published literature is shown in relation to global biomes of tropical, temperate, and boreal forest, with their current and original extent. The map of the global distribution of current and original forest areas was obtained from United Nations Environment Programme, World Conservation Monitoring Centre, Global Forest Cover Map.

**Table S1. Global sites with biomass data used to analyze trends across forest biomass and to compare with *E. regnans* forests in Australia**

Region	Site	Species	Latitude	Longitude	Mean annual temperature, °C	Mean annual precipitation, mm	Above-ground biomass, tC·ha <sup>-1</sup>	Total living + dead biomass, tC·ha <sup>-1</sup>	Ref.
Tropical forest									
Tropical wet									
Central America	Los Tuxtlas, Mexico	tropical, tall evergreen	18.58°N	95.08°W	27.0	4700	181	195	1
	La Selva Biological Station, Costa Rica	tropical wet rainforest	9.85°N	83.60°W	26.0	4000	87		2
South America	Tapajos NF, Brazil	tropical rainforest	3.04°N	54.95°W	25.0	2000	141	202	3,4,5
	Northern Rondonia State Rondonia	tropical moist forest	8.75° S	63.38°W	26.2	2300	143	163	6
		upland tropical evergreen forest	9.20°S	60.05°W	25.2	2354	195		7
	Manaus, Central Amazon	tropical evergreen forest	2.50°S	60.00°W	26.7	2200	162		8
	Manaus, Central Amazon	tropical upland moist forest	2.97°S	60.18°W	26.7	2285	180		9
	Rio Negro, Venezuela	tropical moist forest	1.93°N	67.05°W	24.9	3500	117	159	10
	Venezuela	tropical moist forest	9.00°N	64.00°W	25.5	2850	179	227	11
	San Carlos, Venezuela	evergreen sclerophyllous woodland	1.92°N	67.07°W	26.0	3600	182	320	12
	San Carlos, Venezuela	tropical evergreen lowland forest	1.92°N	67.07°W	26.0	3600	138	350	13
	Araracuara, Colombia	ombrophilous tropical rainforest	0.63°S	72.37°W	25.5	2998	175		14
Oceania	French Guiana	tropical wet rainforest	4.75°N	53.00°W	25.8	2757	155		15
	Tutuila Island, Samoa	lowland tropical rainforest	14.30°S	170.68°W	26.9	3207	122		16
Asia	Khao Chong, peninsular Thailand	tropical rainforest	7.50°N	99.80°E	27.2	2700	182		17
	Cheko, Cambodia	evergreen seasonal forest	10.93°N	103.40°E	27.8	3726	191		18
	Ulu Segama FR, Sabah, Malaysia	dipterocarp hill forest	5.00°N	117.50°E	26.7	2700	165		19
	Marafunga, New Guinea	lower montane rainforest	6.00°S	145.18°E	13.0	4000	387		20
Tropical moist									
Central America	Eastern Jamaica	montane rainforest	18.00°N	77.00°W	24.4	1685	204	204	21
	Luquillo, Puerto Rico	<i>Prestoea montana</i> , tropical palm forest	18.42°N	65.92°W	19.7	1885	224	298	22
South America	Manaus, Central Amazon, Brazil	tropical rainforest	3.10°N	60.03°W	27.4	1571	237	399	23
	Tapajos, Central Amazon	tropical forest	2.85°S	54.97°W	25.0	1920	153	161	24
	Tapajos, Central Amazon	tropical upland moist forest	2.85°S	54.97°W	24.5	1909	141		9
	Rio Branco, western Amazon	open forest	10.12°S	68.00°W	25.0	1940	95		9
	Venezuela	tropical transition moist to dry forest	9.50°N	70.00°W	26.0	1500	148	178	11
Asia	Sebulu, East Kalimantan, Indonesia	tropical lowland evergreen dipterocarp rainforest	1.50°S	116.97°E	27.0	1862	254		25
	Sebulu, East Kalimantan, Indonesia	tropical lowland evergreen dipterocarp rainforest	1.50°S	116.97°E	27.0	1862	436		26
	Pasoh FR, Negeri Sembilan, Malaysia	lowland tropical rainforest	2.97°N	102.30°E	28.0	1842	215		27,28
	Thong Pha Phum NF, Thailand	tropical rainforest	14.67°N	98.68°E	25.0	1650	138		29
	Thong Pha Phum NF, Thailand	dry evergreen forest	14.67°N	98.68°E	25.0	1650	70		29
	Thong Pha Phum NF, Thailand	mixed deciduous forest	14.67°N	98.68°E	25.0	1650	48		29
	Ping Kong, northwestern Thailand	monsoon forest	19.50°N	99.00°E	24.0	1364	146		17
Tropical dry									
South America	Venezuela	tropical dry forest	10.00°N	66.00°W	27.0	800	70	111	11
Tropical montane									
South America	Venezuela	tropical lower montane moist forest	9.50°N	71.00°W	15.0	1487	173	235	11
	Venezuela	tropical montane wet forest	10.50°N	71.00°W	10.5	1968	157	211	11
	Eastern Andean Mts., Ecuador	<i>Polylepis incana</i> , high altitude	0.22°S	78.05°W	7.2	1500	163		30
Temperate forest									
Warm temperate moist									
North America	Alaskan coast	<i>Tsuga heterophylla</i> , <i>Chamaecyparis nootkatensis</i> , <i>T. mertensiana</i>	58.37°N	134.72°W	10.0	3550	325	582	31
	Oregon Cascades	<i>Pseudotsuga menziesii</i>	44.00°N	122.50°W	10.1	1789	331	526	32
	Oregon coast	<i>Tsuga heterophylla</i> - <i>Picea sitchensis</i>	45.00°N	123.93°W	10.1	3115	436	626	32

Region	Site	Species	Latitude	Longitude	Mean annual temperature, °C	Mean annual precipitation, mm	Above-ground living biomass carbon, tC·ha <sup>-1</sup>	Total living + dead biomass carbon, tC·ha <sup>-1</sup>	Ref.
	Oregon	<i>Abies amabilis</i> ; <i>Pseudotsuga menziesii</i>	44.00°N	122.67°W	10.1	1789	440	514	32
	Washington	<i>Abies amabilis</i> ; <i>Pseudotsuga menziesii</i>	47.00°N	122.67°W	10.1	1789	422	496	32
	Washington	<i>Pseudotsuga menziesii</i>	46.00°N	122.00°W	12.5	1000	278	473	33
	Great Smoky Mt.	deciduous mesic	35.67°N	83.38°W	10.3	1744	199	34	34
	Southern Appalachians	Cove forests	35.68°N	83.42°W	12.7	1306	236	35	35
	Indiana	<i>Quercus shumardii</i> , <i>Liquidamber styraciflua</i>	39.83°N	86.18°W	11.0	1028	117	36	36
	Kentucky	<i>Fagus grandifolia</i> , <i>Quercus alba</i>	37.72°N	83.80°W	12.7	1230	165	37	37
	Illinois	<i>Carya ovata</i> , <i>Quercus velutina</i>	37.52°N	89.32°W	14.4	1270	131	38	38
South America	Chile	<i>Nothofagus dombeyi</i> , <i>Drimys winteri</i> , <i>N. nitida</i> , <i>Aextoxicon punctatum</i>	40.50°S	73.50°W	10.6	1600	142	39	39
Australasia	Auckland & Northland, NZ	<i>Agathis australis</i>	35.72°S	173.63°E	13.9	1640	672	982	40
	Auckland & Northland, NZ	<i>Agathis australis</i>	36.90°S	174.57°E	14.4	1341	312	400	40
	Maimai, South Island NZ	<i>Nothofagus truncata</i> , <i>Podocarpus ferrugineus</i>	42.16°S	171.75°E	10.9	2600	153	352	41
	Nelson, South Island NZ	<i>Nothofagus truncata</i>	41.52°S	172.75°E	10.5	1307	166	289	42
	NSW south coast, Aust.	<i>E. fastigata</i> , <i>E. sieberi</i> , <i>Corymbia maculata</i>	35.47°S	150.11°E	13.8	1097	447	615	43
	Gippsland, Aust	<i>E. fastigata</i> , <i>E. obliqua</i> , <i>E. cypellocarpa</i>	37.28°S	149.15°E	10.4	1165	310	489	P. Gibbons
	NSW south coast, Aust.	<i>E. fastigata</i> , <i>E. sieberi</i> , <i>Corymbia maculata</i>	35.60°S	149.88°E	10.8	1090	270	487	B. Mackey
	northern NSW, Aust.	<i>Caldcluvia paniculosa</i> , <i>Geissois benthami</i>	28.50°S	153.00°E	18.9	1192	182	252	44
	NSW south coast, Aust.	<i>E. sieberi</i> , <i>E. agglomerata</i> , <i>E. obliqua</i>	37.00°S	149.50°E	11.2	1051	218	319	45
	montane, south east Aust.	<i>E. delegatensis</i>	35.37°S	148.83°E	10.3	1185	199	333	H. Keith
	southern NSW & Vict., Aust.	<i>E. bridgesiana</i> , <i>E. cypellocarpa</i> , <i>E. muellerana</i>	37.26°S	148.71°E	11.2	1041	294	433	A. Claridge
	southern Qld., Aust.	<i>Argyrodendron</i>	27.33°S	152.75°E	17.0	1448	224	310	46
	central Victoria, Aust.	<i>E. regnans</i>	37.43°S	145.18°E	10.4	1244	678	1000	47
	northern NSW, Aust.	<i>E. pilularis</i>	30.33°S	152.64°E	15.2	1467	298	477	48
Cool temperate moist	North America								
	Oregon coast	<i>Tsuga heterophylla</i> - <i>Picea sitchensis</i>	45.00°N	123.90°W	8.6	2575	465	762	49
	Washington coast	<i>Tsuga heterophylla</i> - <i>Picea sitchensis</i>	47.70°N	123.90°W	8.5	3356	364	624	49
	Oregon Cascades	<i>Pseudotsuga menziesii</i> dominated	44.20°N	122.20°W	8.4	2002	432	707	49
	Washington Cascades	<i>Abies amabilis</i> ; <i>Tsuga heterophylla</i>	46.80°N	121.70°W	6.4	2375	380	636	49
	Oregon Cascades	<i>Pseudotsuga menziesii</i>	44.00°N	122.50°W	8.5	2300	356	568	50
	Oregon Cascades	<i>Pseudotsuga menziesii</i>	44.00°N	122.50°W	8.5	2300	587	794	51
	Washington Cascades	<i>Abies amabilis</i>	46.80°N	121.70°W	5.4	2700	224	781	52
	Colorado, Rocky Mt. NP	<i>Picea engelmannii</i> , <i>Abies lasiocarpa</i>	40.28°N	105.63°W	1.5	1000	124	289	53
South America	Cordillera de Piuchue, Chile	<i>Nothofagus dombeyi</i> , <i>Drimys winteri</i> , <i>Laureliopsis philippiana</i>	42.50°S	74.00°W	7.2	5000	179	395	54,55,56
	Cordillera de Piuchue, Chile	<i>Fitzroya cupressoides</i>	42.50°S	74.00°W	7.2	5000	268	450	54,55,56
	Cordillera de Piuchue, Chile	<i>Philgerodendron uviferum</i> , <i>Tepualia stipularis</i>	42.50°S	74.00°W	7.2	5000	146	326	54,55,56
	San Pablo de Tregua, Andes, Chile	<i>Nothofagus dombeyi</i> , <i>Laureliopsis philippiana</i> , <i>Saxegothea conspicua</i>	39.63°S	72.08°W	9.7	2400	439	571	57
	San Pablo de Tregua, Andes, Chile	<i>Laureliopsis philippiana</i> , <i>Saxegothea conspicua</i> , <i>Dassylphyllum diacanthoides</i>	39.63°S	72.08°W	9.7	2400	332	428	57
Australasia	Central South Island NZ	<i>Nothofagus solandri</i>	43.25°S	172.00°E	8.0	1447	123	150	58
	Central Highlands, Vict., Aust.	<i>Eucalyptus regnans</i>	37.62°S	145.79°E	9.4	1668	501	1141	D. Lindenmayer
	southern Tasmania, Aust.	<i>E. obliqua</i>	43.21°S	146.70°E	9.8	1722	444	673	H. Keith

Region	Site	Species	Latitude	Longitude	Mean annual temperature, °C	Mean annual precipitation, mm	Above-ground biomass carbon, tC·ha <sup>-1</sup>	Total living + dead biomass carbon, tC·ha <sup>-1</sup>	Ref.	
Cool temperate dry	southern Tasmania, Aust.	<i>E. regnans</i>	42.83°S	146.57°E	8.6	1503	752	1302	59	
	southern Tasmania, Aust.	<i>E. obliqua</i>	43.09°S	146.70°E	9.9	1490	668	956	59	
	North America									
Cool temperate montane	Eastern Oregon	<i>Pinus ponderosa</i> - <i>Pinus contorta</i>	43.70°N	121.60°W	6.2	497	85	157	49	
	Wisconsin	<i>Tsuga canadensis</i> : <i>Pinus strobus</i>	45.50°N	89.33°W	5.3	800	286	476	60	
	Oregon, Waldo Lake	<i>Tsuga mertensiana</i> , <i>Pinus contorta</i> , <i>Pinus monticola</i>	43.50°N	122.00°W	4.6	404	158	202	61	
Asia	Changbai, China	<i>Acer mono</i> , <i>Betula costata</i> , <i>Pinus koraiensis</i> , <i>Tilia amurensis</i>	41.00°N	127.00°E	3.9	782	147	153	62	
Boreal forest										
Boreal moist										
North America	Minnesota, USA	<i>Picea marina</i>	47.50°N	93.50°W	4.1	690	34		63	
	Alberta, Canada	<i>Pinus contorta</i> , <i>Populus tremulous</i> , <i>Picea glauca</i>	54.25°N	117.00°W	2.6	500	50	79	64	
	Thompson, Manitoba, Canada	<i>Picea marina</i> - dry	55.80°N	97.87°W	0.1	536	72	116	65	
	Thompson, Manitoba, Canada	<i>Picea marina</i> - wet	55.80°N	97.87°W	0.1	536	31	53	65	
	Manitoba, Canada, BOREAS NSA	<i>Picea marina</i>	55.99°N	98.99°W	-4.6	536	57	74	66,67	
	Manitoba, Canada, BOREAS NSA	<i>Pinus banksiana</i>	55.99°N	98.99°W	-4.6	536	29	50	66,67	
	Manitoba, Canada, BOREAS NSA	<i>Populus tremuloides</i>	55.99°N	98.99°W	-4.6	536	57	92	66,67	
	Canada - Atlantic Maritime		46 °N	66 °W	5.0	1200	87		68	
	Canada - Mixedwood Plains		45 °N	77 °W	6.5	860	113		68	
	Canada - Pacific Maritime		51 °N	125 °W	6.7	2250	80		68	
	Canada - Montane Cordillera		52 °N	118 °W	4.0	1000	107		68	
	Canada - Hudson Plains		56 °N	94 °W	-3.0	600	34		68	
	Canada - Eastern Boreal Shield		51 °N	82 °W	5.5	1000	67		68	
	Siberia	Zotino	<i>Pinus sylvestris</i>	60.73°N	89.15°E	-3.3	663	75	92	69
	Karelia, Russia	<i>Picea abies</i>	62.00°N	34.00°E	2.2	650	38		70	
	Tomsk, Russia	<i>Pinus sylvestris</i>	58.00°N	83.00°E	-0.8	501	81		71	
	Europe	Fyedorovskoye, European Russia	<i>Picea abies</i>	56.45°N	32.92°E	3.6	714	95		69
		Waldstein, Germany	<i>Picea abies</i>	50.15°N	11.87°E	5.8	1100	105		69
		Tampere, southern Finland	<i>Pinus sylvestris</i> , <i>Picea abies</i> , <i>Betula pendula</i> , <i>B. pubescens</i>	61.28°N	23.44°E	4.0	548	102	153	72
	Rovaniemi, northern Finland	<i>Pinus sylvestris</i> , <i>Picea abies</i> , <i>Betula pendula</i> , <i>B. pubescens</i>	66.34°N	25.50°E	0.5	591	77	116	72	
	Kangasvaara, eastern Finland	<i>Picea abies</i> , <i>Pinus sylvestris</i> , <i>Betula pubescens</i> , <i>Populus tremula</i>	63.85°N	28.97°E	1.2	709	82	123	73	
	Central Finland	<i>Pinus sylvestris</i>	64.72°N	26.02°E	2.0	500	34	67	74	
	Southern Finland	<i>Pinus sylvestris</i>	61.65°N	29.28°E	4.0	550	28	64	74	
	Lithuania	<i>Pinus sylvestris</i>	55.42°N	26.02°E	6.0	760	75	133	74	
	southern Poland	<i>Pinus sylvestris</i>	50.47°N	22.98°E	8.0	600	68	143	74	
	Llomantsi, Finland	<i>Picea abies</i> , <i>Pinus sylvestris</i> , <i>Betula pubescens</i>	62.85°N	30.88°E	1.7	640	25		75	
	Jädraås, Sweden	<i>Pinus sylvestris</i>	60.82°N	16.50°E	3.0	731	29		76,77	
	Oulu, Finland	<i>Picea excels</i>	66.37°N	29.00°E	0.0	500	51		78	
Boreal dry										
North America	Alaska, USA	<i>Picea glauca</i> , <i>P. marina</i> , <i>Populus/Alnus</i> , <i>Betula papyrifera</i>	64.75°N	148.25°W	-3.5	269	61		79	
	Alaska, USA	<i>Picea marina</i>	64.00°N	148.00°W	-3.4	275	43		80	
	Saskatchewan, Canada, BOREAS-SSA	<i>Picea marina</i>	53.99°N	104.99°W	-1.1	405	49	66	66,67	
	Saskatchewan, Canada, BOREAS SSA	<i>Pinus banksiana</i>	53.99°N	104.99°W	-1.1	405	35	63	66,67	

Region	Site	Species	Latitude	Longitude	Mean annual temperature, °C	Mean annual precipitation, mm	Above-ground biomass carbon, tC·ha <sup>-1</sup>	Total living + dead biomass carbon, tC·ha <sup>-1</sup>	Ref.	
Canada	Saskatchewan, Canada, BOREAS SSA	<i>Populus tremuloides</i>	53.99°N	104.99°W	-1.1	405	93	136	66,67	
	Canada - Taiga Plains		58 °N	118 °W	-5.5	350	99		68	
	Canada - Western Taiga Shield		59 °N	110 °W	-4.0	350	47		68	
	Canada - Western Boreal Shield		51 °N	99 °W	-4.0	400	33		68	
	Canada - Boreal Plains		54 °N	115 °W	0.0	462	113		68	
	Siberia	Yakutsk	<i>Larix gmelinii</i>	60.85°N	128.27°E	-10.0	213	55		69
	Central Siberia	<i>Pinus sylvestris</i> , lichen	60.75°N	89.41°E	-3.7	493	62		81	
	Central Siberia	<i>Pinus sylvestris</i> , <i>Vaccinium</i> mosses	60.73°N	89.32°E	-3.7	493	149		81	
	Central Siberia, Yenisei River	<i>Pinus sylvestris</i> , lichen	60.72°N	89.13°E	-3.7	493	65	88	82	
	Central Siberia, Yenisei River	<i>Pinus sylvestris</i> , <i>Vaccinium</i> mosses	60.72°N	89.13°E	-3.7	493	121	152	82	
Europe	Koinas, Russia	<i>Picea abies</i>	64.67°N	47.50°E	-1.2	499	66		80	
	Irkutsk	<i>Pinus sylvestris</i>	53.00°N	103.00°E	-1.2	470	71		83	
	Yakutsk	<i>Larix gmelinii</i>	60.85°N	128.27°E	-9.6	213	18		83	
	Tura	<i>Larix gmelinii</i>	64.32°N	100.22°E	-9.5	322	11		84	
	northern Finland	<i>Pinus sylvestris</i>	69.73°N	27.02°E	-1.0	450	14	54	74	
Asia	China, Daxing'anling	<i>Larix gmelinii</i>	50.83°N	121.50°E	-5.4	500	26		85	
	China, Daxing'anling	<i>Larix gmelinii</i>	50.68°N	121.84°E	-4.0	425	31		86	
	China, Daxing'anling	<i>Larix gmelinii</i> - <i>Ledum</i>	52.73°N	123.83°E	-3.0	425	28	54	87	
	China, Daxing'anling	<i>Larix gmelinii</i> -grass	52.73°N	123.83°E	-3.0	425	30	40	87	
	China, Daxing'anling	<i>Larix gmelinii</i> - <i>Rhododendron</i>	52.73°N	123.83°E	-3.0	425	93	101	87	

Canadian sites from ref. 59 are average values from plots within a region, where the individual plot data were not provided in the reference.

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