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Thermophilisation of Afromontane forest stands demonstrated in an elevation gradient experiment

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Table S1. Information about the germplasm material and propagation in the nursery prior to plantation at the sites.

Species:		Germplasm material:							Propagation in Nursery:				
Scientific name	Code	Prove-nance[1]	Location of collection[1]	Date of collection	No of mother trees	Type of material[2]	1000-seed weight[3] (g)	Moisture content (%)	Start of propagation date	Date of transplanta-tion	Days in seed-beds[4]	Final no of survivals[5]	Survival rate[6] (%)
Afrocarpus falcatus	*Afa*	NYU	RUH	2016-06-20	10-15	Seed	5 700	25	2016-08-03	2016-11-08	97	420	100
Albizia gummifera	*Agu*	NYU	RUB	2017-08-25	1	Seed	80	6	2017-08-31	2017-09-15	15	308	49
Bridelia bridelifolia	*Bbr*	NYU	NYU	2016-07-20	1-5	Seed	67	23	2016-08-03	2016-09-07	35	692	84
Bridelia micrantha	*Bmi*	RUB	RUB	2016-09-14	1-5	Seed	50	25	2016-10-03	2016-11-09	37	374	100
Carapa grandiflora	*Cgr*	NYU	NYU	2016-06-30	10-15	Seed	28 600	32	2016-08-03	2016-11-10	99	528	100
Chrysophyllum gorungosanum	*Cgo*	NYU	RUH	2016-11-21	5-10	Wildlings	600		2016-11-21	2016-11-21		378	100
Croton megalocarpus	*Cme*	NYU	RUB	2016-01-10	10-15	Seed	800	8	2016-09-22	2016-10-10	18	562	99
Dombeya torrida	*Dto*	NYU	RUH	2016-11-24	20-30	Cuttings	4		2016-11-24	2016-11-24		630	100
Entandrophragma excelisum	*Eex*	NYU	RUH	2016-07-11	5-10	Wildlings	634		2016-11-07	2016-11-07		410	100
Faurea saligna	*Fsa*	NYU	NYU	2016-04-02	1-5	Seed	4	4	2016-08-03	2016-10-19	77	304	87
Ficus thonningii	*Fth*	NYU	NYU	2016-09-20	1	Cuttings	11		2016-09-20	2016-09-20		1047	97
Harungana madagascariensis	*Hma*	RUB	RUH	2016-04-02	10-20	Seed	11	10	2016-08-16	2016-09-07	22	1050	71
Harungana montana	*Hmo*	NYU	NYU	2016-10-05	1-5	Seed	13	10	2016-08-16	2016-11-10	86	352	90
Macaranga kilimandscharica	*Mki*	NDI	NDI	2017-05-30	5-10	Seed	60	15	2017-07-01	2017-08-04	34	698	93
Maesa lanceolata	*Mla*	NYU	NYU	2016-06-20	1-5	Seed	9	6	2016-08-03	2016-10-27	85	454	98
Markhamia lutea	*Mlu*	NYU	RUB	2016-01-06	1-5	Seed	40	10	2016-08-03	2016-09-14	42	1679	97
Newtonia buchananii	*Nbu*	NYU	NYU	2016-10-07	1-5	Seed	352	33	2016-09-13	2016-10-30	47	632	65
Polyscias fulva	*Pfu*	NYU	NYU	2016-07-20	1-5	Seed	11	17	2016-08-03	2016-12-02	121	326	100
Prunus africana	*Paf*	NYU	NYU	2017-04-28	1	Seed	200	19	2017-04-29	2017-05-17	18	1102	92
Syzygium guineense	*Sgu*	NYU	NYU	2016-10-18	1-5	Wildlings	367		2016-10-20	2016-10-20		546	85

[1]NDI, Ndiz mountain; NYU, Nyungwe tropical montane forest; RUB, Rubona research station; RUH, Ruhande arboretum; All sites is in Rwanda.

[2]Wildlings are naturally regenerated seedlings

[3]Litterature values

4Only Afa seeds require pretreatment (scarification & soaking in Cold water for 24 h)

[5]Out of theses 270 individual were radomly selected for plantation at the sites

[6]Surviaval of plants from prick out to selection for plantation

Table S2. Stem base diameter (5 cm above soil) at planting in Dec 2017/Jan 2018. Mean and standard deviations as well as P-values from one-way ANOVA tests are calculated on plot means (n=18) based on five individuals, i.e. 90 trees per species and site. All individuals within species were randomly selected from the nursery. Full name of species is given in Table S1. Different letters for sites indicate significant differences (P<0.05).

	HE		ME		LE			ME (% of HE)	LE (% of HE)
Species	Mean ± SD		Mean ± SD		Mean ± SD		P-value		
Afa	4.6 ± 0.5		4.9 ± 0.4		4.8 ± 0.7		0.31	6	5
Agu	1.0 ± 0.0		1.0 ± 0.1		1.0 ± 0.0		0.77	1	0
Bbr	4.4 ± 0.3	a	5.0 ± 0.4	b	4.3 ± 0.4	a	**<0.001**	14	-2
Bmi	4.5 ± 0.4	a	4.5 ± 0.4	a	4.2 ± 0.4	b	**0.010**	0	-8
Cgo	3.0 ± 0.5		2.9 ± 0.6		3.0 ± 0.5		0.92	-2	0
Cgr	7.7 ± 0.9		7.8 ± 0.8		7.5 ± 0.8		0.49	1	-3
Cme	4.0 ± 0.2		3.9 ± 0.3		4.0 ± 0.3		0.71	-2	0
Dto	9.6 ± 1.4		9.0 ± 1.3		8.9 ± 1.7		0.38	-6	-7
Eex	8.5 ± 1.4		8.8 ± 1.6		8.7 ± 1.6		0.78	4	2
Fsa	2.9 ± 0.5		3.1 ± 0.6		3.4 ± 0.6		0.06	7	16
Fth[1]	14.2 ± 3.3		14.8 ± 2.3		13.9 ± 2.3		0.61	4	-2
Hma	4.7 ± 0.5		4.8 ± 0.5		4.5 ± 0.5		0.15	1	-6
Hmo	5.2 ± 0.6		5.1 ± 1.0		5.4 ± 0.4		0.37	-3	4
Mki	1.3 ± 0.2		1.3 ± 0.3		1.3 ± 0.2		0.99	0	-1
Mla	5.4 ± 0.3		5.5 ± 0.5		5.5 ± 0.3		0.76	2	1
Mlu	4.3 ± 0.4		4.3 ± 0.4		4.3 ± 0.3		0.96	-1	-1
Nbu	3.1 ± 0.5		3.1 ± 0.5		3.2 ± 0.5		0.83	1	3
Paf	3.4 ± 0.4		3.3 ± 0.3		3.4 ± 0.4		0.56	-4	-1
Pfu	4.6 ± 0.6		4.6 ± 0.7		4.2 ± 0.4		0.052	0	-9
Sgu	4.3 ± 0.3	a	4.7 ± 0.4	b	4.3 ± 0.6	a	**0.018**	10	2

[1]The diameter measured was of the cutting (see Table S1) and not of the secondary shoot.

Table S3. Stem height at planting in Dec 2017/Jan 2018. Mean and standard deviations as well as P-values from one-way ANOVA are calculated on plot means (n=18) based on 5 individuals, i.e. 90 trees per species and site. All individuals within species were randomly selected from the nursery. Full name of species is given in Table S1. Different letters for sites indicate significant differences (P<0.05).

	HE		ME		LE			ME	LE
Species	Mean	SD	Mean	SD	Mean	SD	P-value	(% of HE)	(% of HE)
Afa	40.5	± 5.6	43.8	± 5.6	41.8	± 5.0	0.19	8	3
Agu	5.2	± 0.5	5.0	± 0.5	5.0	± 0.4	0.63	-2	-3
Bbr	54.0	± 3.9	52.8	± 2.1	55.1	± 2.4	0.06	-2	2
Bmi	54.2	± 4.0	54.0	± 4.2	54.1	± 4.1	0.99	0	0
Cgo	16.2	± 2.1	16.2	± 2.1	15.4	± 1.8	0.36	0	-5
Cgr	46.3	± 4.3 ab	47.8	± 3.7 a	43.8	± 5.8 b	**0.037**	3	-5
Cme	45.4	± 2.2	45.6	± 2.8	45.4	± 3.1	0.96	1	0
Dto	43.3	± 10.5	43.9	± 10.3	41.0	± 10.7	0.67	1	-5
Eex	33.2	± 3.7	35.0	± 3.8	35.0	± 3.7	0.27	5	5
Fsa	26.3	± 4.5	27.1	± 5.9	29.3	± 6.4	0.28	3	11
Fth	51.9	± 12.2 a	62.0	± 10.7 b	62.0	± 10.7 b	**0.012**	19	19
Hma	53.3	± 2.9	53.4	± 2.9	52.1	± 2.7	0.32	0	-2
Hmo	55.7	± 4.0	55.4	± 3.7	56.4	± 2.9	0.70	-1	1
Mki	7.5	± 0.8	7.4	± 1.2	7.7	± 0.8	0.60	-1	3
Mla	75.9	± 5.3	76.5	± 4.4	74.7	± 4.4	0.50	1	-2
Mlu	22.6	± 2.9	22.8	± 2.1	22.7	± 2.3	0.99	1	0
Nbu	18.6	± 3.3	18.9	± 4.5	18.5	± 3.6	0.95	2	0
Paf	41.4	± 4.5	38.1	± 3.6	39.7	± 3.9	0.057	-8	-4
Pfu	29.6	± 3.3	30.8	± 3.0	29.9	± 2.3	0.41	4	1
Sgu	43.5	± 3.7	42.3	± 3.5	43.5	± 4.3	0.57	-3	0

Table S4. Classification of species into the successional groups (SG) early (ES) and late successional (LS) and the references supporting the classification. For most species, the classification was based on both how it was determined in the literature and observations of the abundance in forests with different degree of disturbances. The country where each study was conducted is given in brackets.

Code	Scientific name	SG	References for successional group
Afa	*Afrocarpus falcatus*	LS	Hundera et al., 2013a (Ethiopia); Tesfaye et al., 2010 (Ethiopia)
Agu	*Albizia gummifera*	LS	Chapman & Chapman (Uganda); Eilu and Obua, 2005 (Uganda); Hundera et al., 2013a, b (Ethiopia); Mutiso et al., 2013 (Kenya)
Bbr	*Bridelia brideliifolia*	ES	Fisher & Killman, 2008 (Rwanda); African Plant Database, https://africanplantdatabase.ch/
Bmi	*Bridelia micrantha*	ES	Eilu & Obua, 2005 (Uganda); Fashing et al., 2004 (Kenya); Mutiso et al., 2013 (Kenya)
Cgo	*Chrysophyllum gorungosanum*	LS	Chapman & Chapman (Uganda); Fisher & Killman, 2008 (Rwanda); Eilu & Obua, 2005 (Uganda)
Cgr	*Carapa grandiflora*	LS	Fisher & Killman, 2008 (Rwanda); Momo et al., 2016 (Cameroon); Nyirambangutse et al., 2017 (Rwanda)
Cme	*Croton megalocarpus*	ES	Mutiso et al., 2013 (Kenya); Fashing et al., 2004 (Kenya)
Dto	*Dombeya torrida*	ES	Eilu & Obua, 2005 (Uganda); Fisher & Killman, 2008 (Rwanda); Tesfaye et al., 2002 (Ethiopia)
Eex	*Entandrophragma excelsum*	LS	Fisher & Killman, 2008 (Rwanda); Hemp et al., 2017 (Tanzania)
Fsa	*Faurea saligna*	LS	Eilu & Obua 2005 (Uganda); Fisher & Killman, 2008 (Rwanda); Nyirambangutse et al., 2017 (Rwanda)
Fth	*Ficus thonningii*	LS[1]	Hundera et al., 2013b (Ethiopia); Kirika et al., 2008 (Kenya)
Hma	*Harungana madagascariensis*	ES	Mutiso et al., 2013 (Kenya); Fashing et al., 2004 (Kenya)
Hmo	*Harungana montana*	ES	Fisher & Killman, 2008 (Rwanda); Nyirambangutse et al., 2017 (Rwanda)
Mki	*Macaranga kilimandscharica*	ES	Eilu & Obua, 2005 (Uganda); Hundera et al., 2013b (Ethiopia); Nyirambangutse et al., 2017 (Rwanda); Ssali et al., 2019, Rutten et al., 2015 (Tanzania)
Mla	*Maesa lanceolata*	ES	Eilu & Obua 2005 (Uganda); Fashing et al., 2004 (Kenya); Hundera et al., 2013b (Ethiopia); Momo et al., 2016 (Cameroon); Mutiso et al., 2013 (Kenya); Rutten et al., 2015 (Tanzania)
Mlu	*Markhamia lutea*	ES[2]	Chapman & Chapman (Uganda); Mutiso et al 2013; Fashing et al., 2004 (Kenya)
Nbu	*Newtonia buchananii*	LS	Chapman & Chapman (Uganda); Eilu & Obua, 2005 (Uganda); Fisher & Killman, 2008 (Rwanda)
Paf	*Prunus africana*	LS	Hundera et al., 2013a, b (Ethiopia); Tesfaye et al., 2010 (Ethiopia)
Pfu	*Polyscias fulva*	ES	Eilu & Obua, 2005 (Uganda); Fashing et al. 2004 (Kenya); Hundera et al., 2013b (Ethiopia); Mutiso et al., 2013 (Kenya); Nyirambangutse et al., 2017 (Rwanda); Tesfaye et al., 2010 (Ethiopia)
Sgu	*Syzygium guineense*	LS	Hundera et al., 2013a, b (Ethiopia); Nyirambangutse et al., 2017 (Rwanda); Rutten et al., 2015 (Tanzania); Tesfaye et al., 2010 (Ethiopia); Ssali et al., 2019 (Uganda)

[1]Also defined as ES (Hundera et al., 2013b), but here considered as LS species as it mainly occurs in non-disturbed areas, but as a potential epiphyte and strangler the successional strategy is special.

[2]Mentioned as a possible LS species in Mutiso et al. (2013) and both in disturbed and non-disturbed forests (Chapman & Chapman, 1995) but it has mostly been defined as an ES species.

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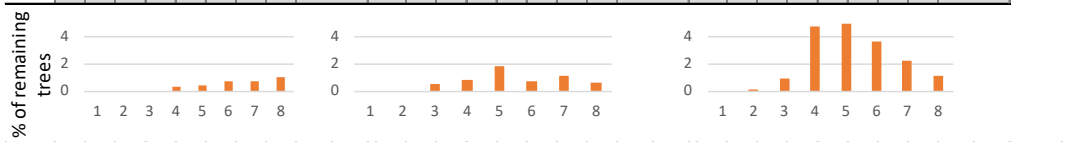
Table S5. P-values and total degrees of freedom (df Tot) of one-way ANOVA for species-specific site effects on tree diameter at base (D_{base}), tree height (H), standardised relative growth rates (RGR) of D_{base} at a D_{base} of 10-25 mm (D-RGR$_{D10-25}$) and 50-75 mm (D-RGR$_{D10-25}$), of height at a height of 75-100 cm (H-RGR$_{H75-100}$) and 250-300 cm (H-RGR$_{H250-300}$), number of stems per individual (stems#), and tree mortality. Df for site was always 2. The analysis was based on plot averages of each species (maximum 18 plots, 20 species and 3 sites). Species that did not meet the criterion for sufficient number of plot replicates (i.e. at least one individual on ≥12 plots per site) were not included in the analysis, indicated by NA (not applicable) in the table. ND, no dead individuals and thus no variance analysis could be conducted.

	D_{base}		Height		D-RGR$_{D10-25}$		D-RGR$_{D50-75}$		H-RGR$_{H75-100}$		H-RGR$_{H250-300}$		Stems#		Mortality	
Species	P-value	df Tot	P-value	df Tot	P-value	df Tot	P-value	df Tot	P-value	df Tot	P-value	df Tot	P-value	df Tot	P-value	df Tot
Bbr	**<0.001**	54	**<0.001**	54	**<0.001**	54	**0.001**	54	**<0.001**	53	**<0.001**	54	0.26	54	ND	54
Hmo	**<0.001**	54	**<0.001**	54	**<0.001**	54	**<0.001**	54	**<0.001**	54	0.68	54	0.50	54	0.36	54
Mki	**<0.001**	54	**0.008**	54	0.090	54	0.064	51	0.17	47	0.35	53	0.32	54	**<0.001**	54
Mla	**<0.001**	54	0.22	54	**<0.001**	54	**<0.001**	52	0.94	54	0.70	54	**0.004**	54	0.057	54
Pfu	**0.001**	54	**<0.001**	54	**0.011**	54	**0.018**	54	**<0.001**	54	**0.003**	53	0.32	54	0.13	54
Agu	**<0.001**	54	**<0.001**	54	0.20	50	NA	12	NA	40	NA	24	0.93	54	**<0.001**	54
Bmi	**<0.001**	54	**<0.001**	54	**<0.001**	54	**0.095**	53	**<0.001**	53	**0.033**	54	**0.009**	54	0.172	54
Cme	**<0.001**	54	**<0.001**	54	**<0.001**	54	**<0.001**	54	**<0.001**	54	**<0.001**	54	0.25	54	**0.012**	54
Dto	**<0.001**	54	**<0.001**	54	**<0.001**	54	**0.024**	53	**<0.001**	53	**0.002**	54	**<0.001**	54	ND	54
Hma	**<0.001**	54	**<0.001**	54	**<0.001**	54	**0.005**	54	**<0.001**	54	0.54	54	0.89	54	0.35	54
Mlu	**<0.001**	54	**<0.001**	54	**<0.001**	54	NA	43	**<0.001**	44	**0.003**	47	**0.004**	54	ND	54
Afa	**<0.001**	54	**<0.001**	54	0.14	54	0.49	46	0.23	54	**0.008**	54	0.45	54	0.157	54
Cgr	**<0.001**	51	**<0.001**	51	**<0.001**	50	NA	9	NA	45	NA	12	0.33	54	**<0.001**	51
Fsa	**<0.001**	54	**<0.001**	54	**<0.001**	54	**0.029**	43	**<0.001**	54	NA	43	**0.010**	54	**<0.001**	54
Paf	**<0.001**	54	**<0.001**	54	**<0.001**	54	NA	32	**<0.001**	53	NA	39	**0.002**	54	**0.013**	54
Sgu	**0.012**	54	0.084	54	0.32	54	**0.014**	50	0.16	54	0.19	54	**0.035**	54	0.58	54
Cgo	**0.001**	54	**0.003**	54	**<0.001**	49	NA	0	NA	38	NA	2	0.71	54	**<0.001**	54
Eex	**0.001**	54	0.11	54	**0.006**	54	NA	24	0.13	41	NA	0	0.19	54	**<0.001**	54
Fth	**<0.001**	54	**<0.001**	54	**0.002**	54	**<0.001**	52	0.50	52	**<0.001**	53	**0.001**	54	0.81	54
Nbu	**0.002**	54	0.15	54	NA	41	NA	1	0.088	44	NA	15	1.00	54	**<0.001**	54

Table S6. Number of individuals recorded dead at each tri-monthly census of each species and site. The graded colour scale from light red to bright red indicate an increasing number of dead individuals. Newly dead trees recorded at each census in percent of remaining trees are presented graphically below the table. Grey marked dates in the table head indicate first census after the annual dry period. However, all trees were irrigated during the entire dry period in 2018, but not in 2019. During the first census after planting (Mar-18) only six trees were recorded dead, but five of them were replaced by new individuals from the nursery and was not included in the mortality data. #, number of dead trees. Full species names are given in Table 2.

Species	High elevation (Sigira)										Mid elevation (Rubona)										Low elevation (Makera)										Species
	Dec-17	Mar-18	Jul-18	Oct-18	Feb-19	Jun-19	Sep-19	Dec-19			Dec-17	Mar-18	Jul-18	Oct-18	Feb-19	Jun-19	Sep-19	Dec-19			Dec-17	Mar-18	Jul-18	Oct-18	Feb-19	Jun-19	Sep-19	Dec-19			
	1	2	3	4	5	6	7	8	#	%	1	2	3	4	5	6	7	8	#	%	1	2	3	4	5	6	7	8	#	%	
Afa									0	0				1	1		1		3	3.3				1					1	1	Afa
Agu				1		1	4	5	11	12					2	2	2	4	10	11				11	13	2	1	1	28	31	Agu
Bbr									0	0									0	0									0	0	Bbr
Bmi									0	0				1	2				3	3.3									0	0	Bmi
Cgo					2		1	1	4	4.4				2	1	2	5	5	20	22				13	20	11	4	3	51	57	Cgo
Cgr				1					1	1.1				1	1	6	2	3	14	16				14	16	19	11	3	63	70	Cgr
Cme									0	0									0	0				1	1	2			4	4	Cme
Dto									0	0									0	0									0	0	Dto
Eex									0	0				1	1	2	1	1	6	6.7					9	4	2	1	23	26	Eex
Fsa							1		1	1.1				1					1	1.1		1	9	4	2	2	1	2	21	23	Fsa
Fth						1		1	2	2.2							2		2	2.2						1			1	1	Fth
Hma							1	1	2	2.2									0	0						1		1	2	2	Hma
Hmo							1	1	2	2.2									0	0							1		1	1	Hmo
Mki					1	4			7	7.8				2			1	1	4	4.4				11	4	8	7	4	34	38	Mki
Mla					1				1	1.1									0	0							4	1	5	6	Mla
Mpl									0	0									0	0									0	0	Mpl
Nbu				4	3	5	4	6	21	23				2	6	10	2	3	25	28			1	21	18	9	3		57	63	Nbu
Paf						1			1	1.1				1		7		1	9	10									0	0	Paf
Pfu									0	0									0	0				1			1		2	2	Pfu
Sgu					1				1	1.1					1		1		2	2.2			1		1			1	3	3	Sgu
#	0	0	0	6	7	12	12	17	54	**3**	0	0	9	15	33	12	19	11	99	**6**	0	1	16	84	84	59	35	17	296	**18**	#
%	0	0	0	11	13	22	22	31			0	0	9	15	33	12	19	11			0	0	5	28	28	20	12	6			% of all dead trees
%	0.0	0.0	0.0	0.3	0.4	0.7	0.7	1.0			0.0	0.0	0.5	0.8	1.9	0.7	1.1	0.6			0.0	0.0	0.9	4.7	4.9	3.7	2.2	1.1			% of remaining trees



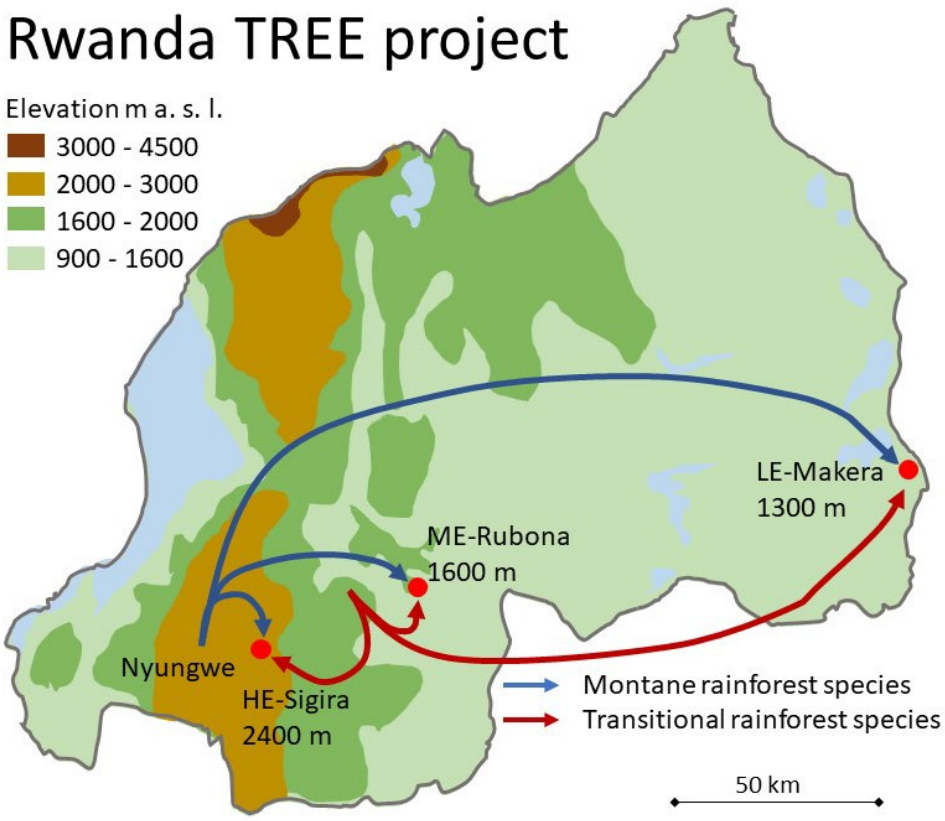


Figure S1. Schematic topographic map of Rwanda with the three sites of the TRopical Elevation Experiment in Rwanda (Rwanda TREE; www.rwandatree.com) using native tropical species from montane rainforest and Lake Victoria transitional rainforests. Nyungwe (1600-2950 m a.s.l) is a national park in south-west Rwanda dominated by montane rainforest species, but also include transitional rainforest species at lower elevations. HE, high elevation site; ME, mid elevation site; LE, low elevation site.

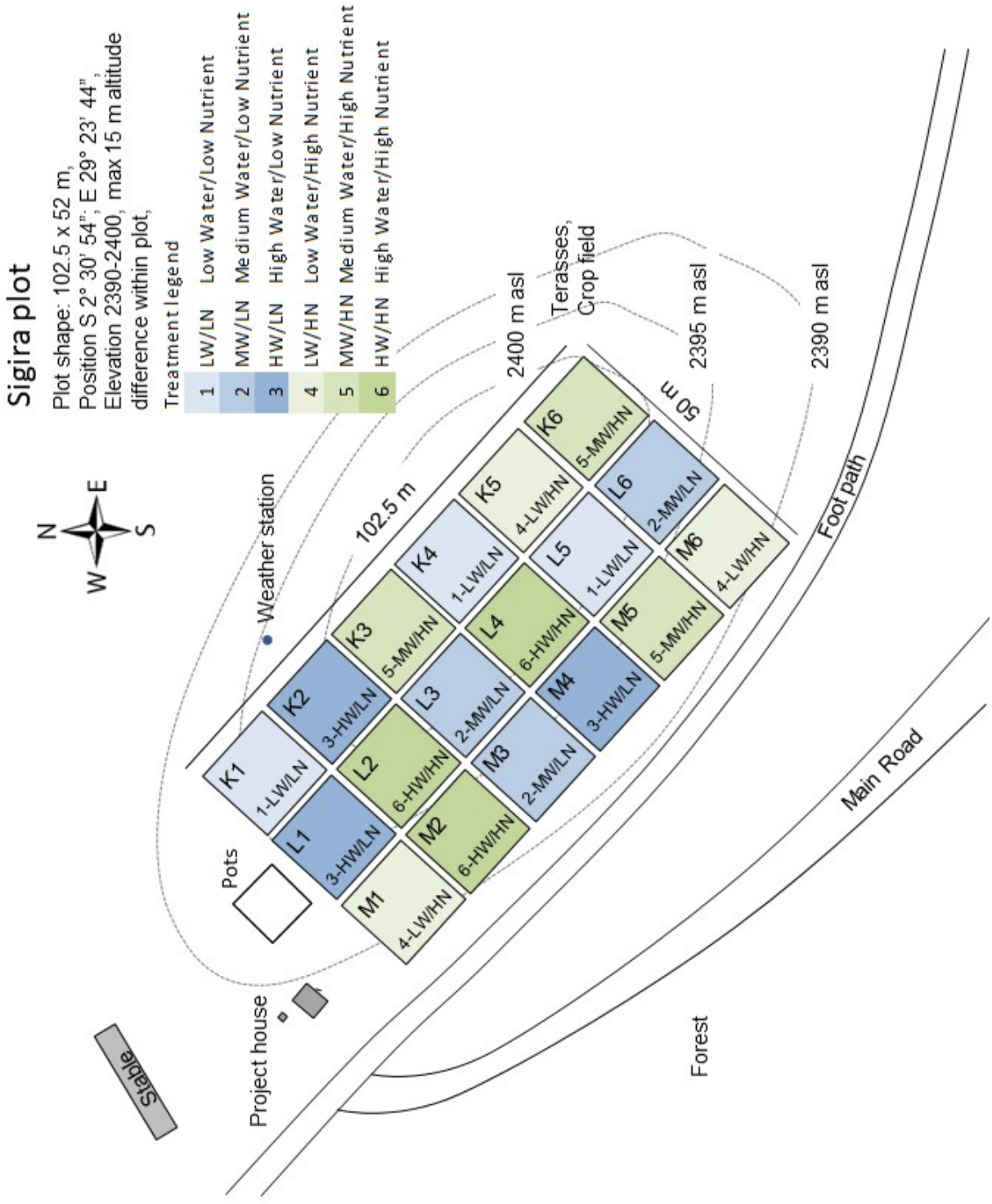


Figure S2. Site map and experimental design at the high elevation site (Sigira). Water and nutrient treatments started late in 2019 and had no effect on the results in this study.

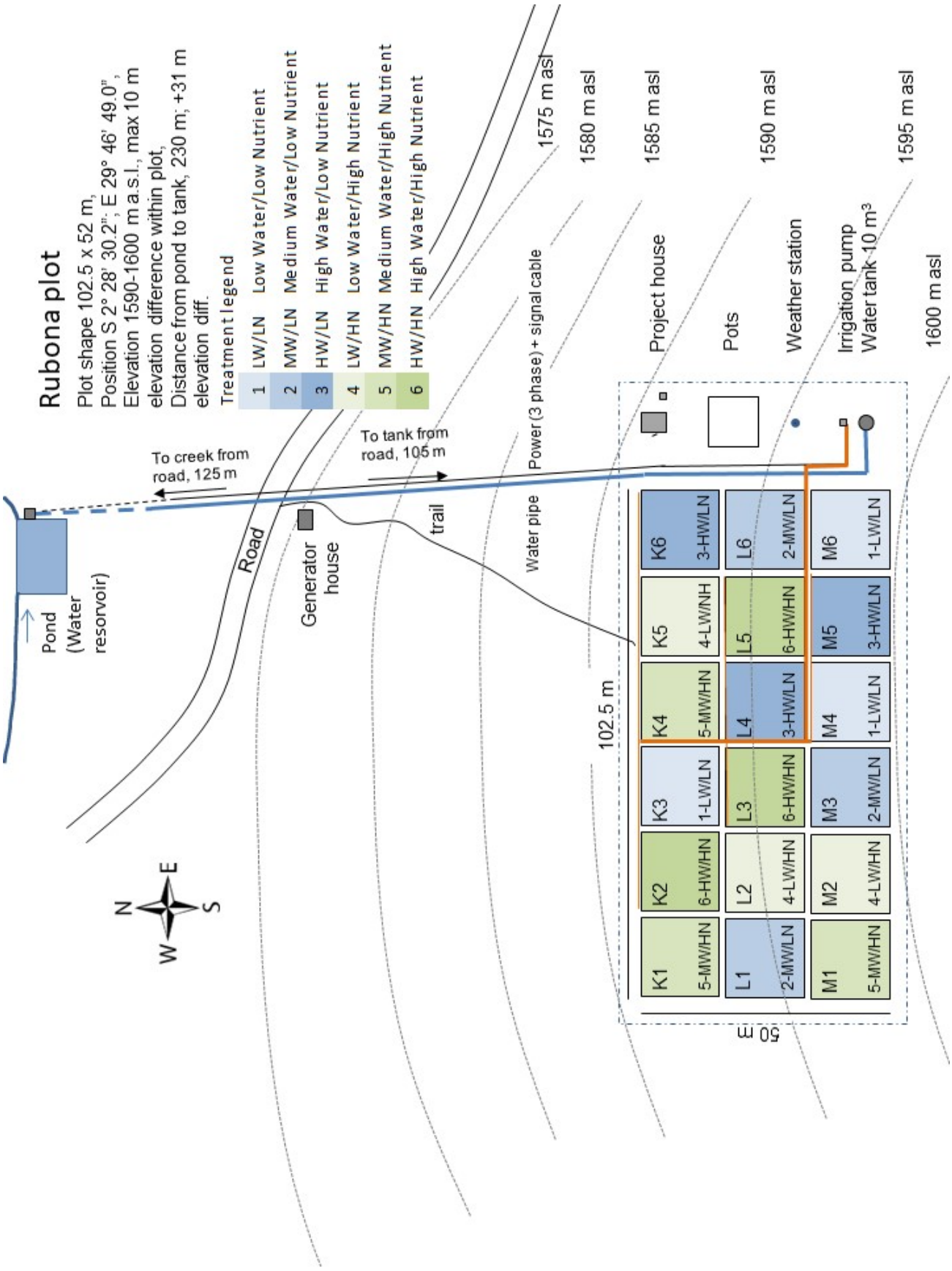


Figure S3. Site map and experimental design at the mid elevation site (Rubona). Water and nutrient treatments started late in 2019 and had no effect on the results in this study.

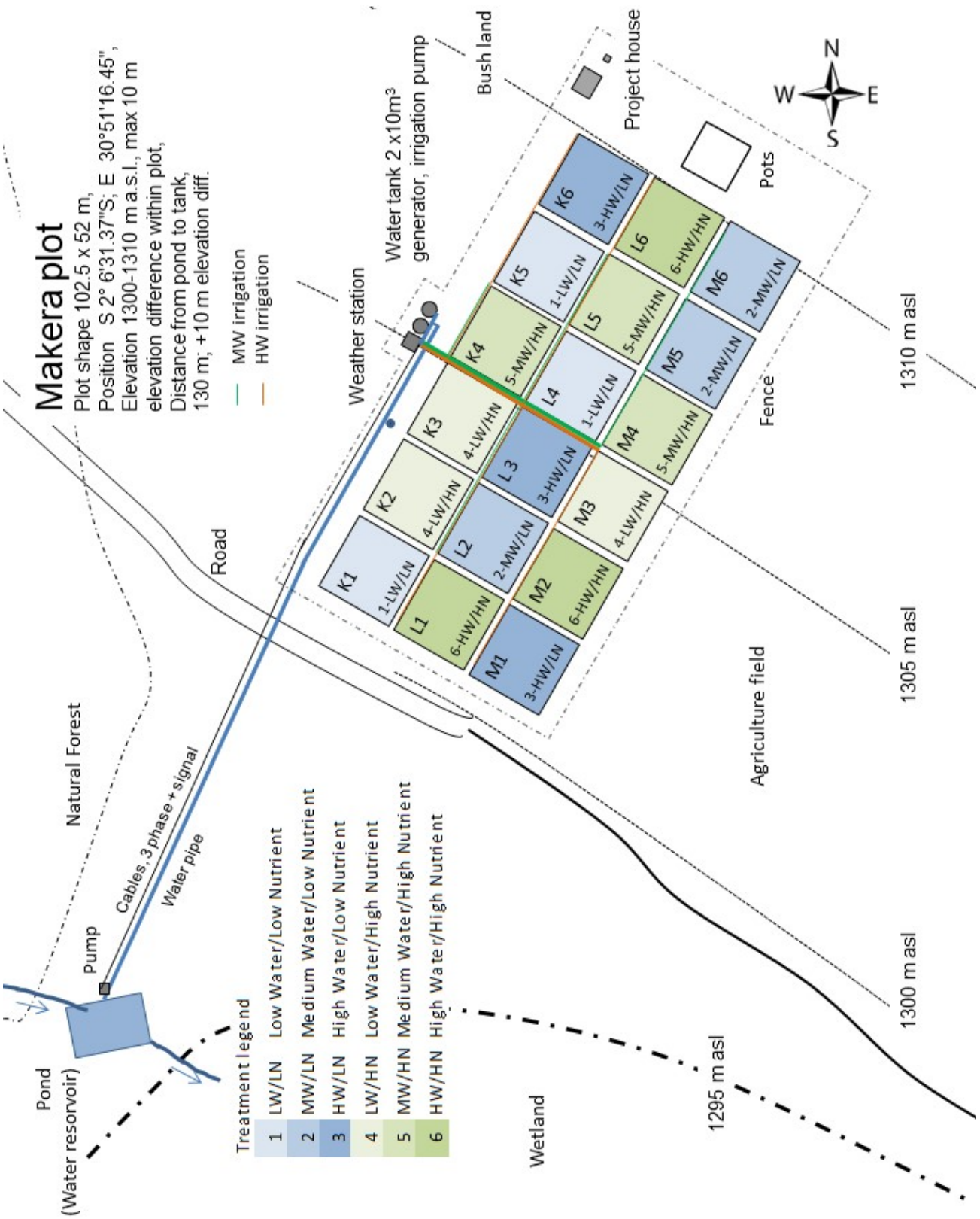
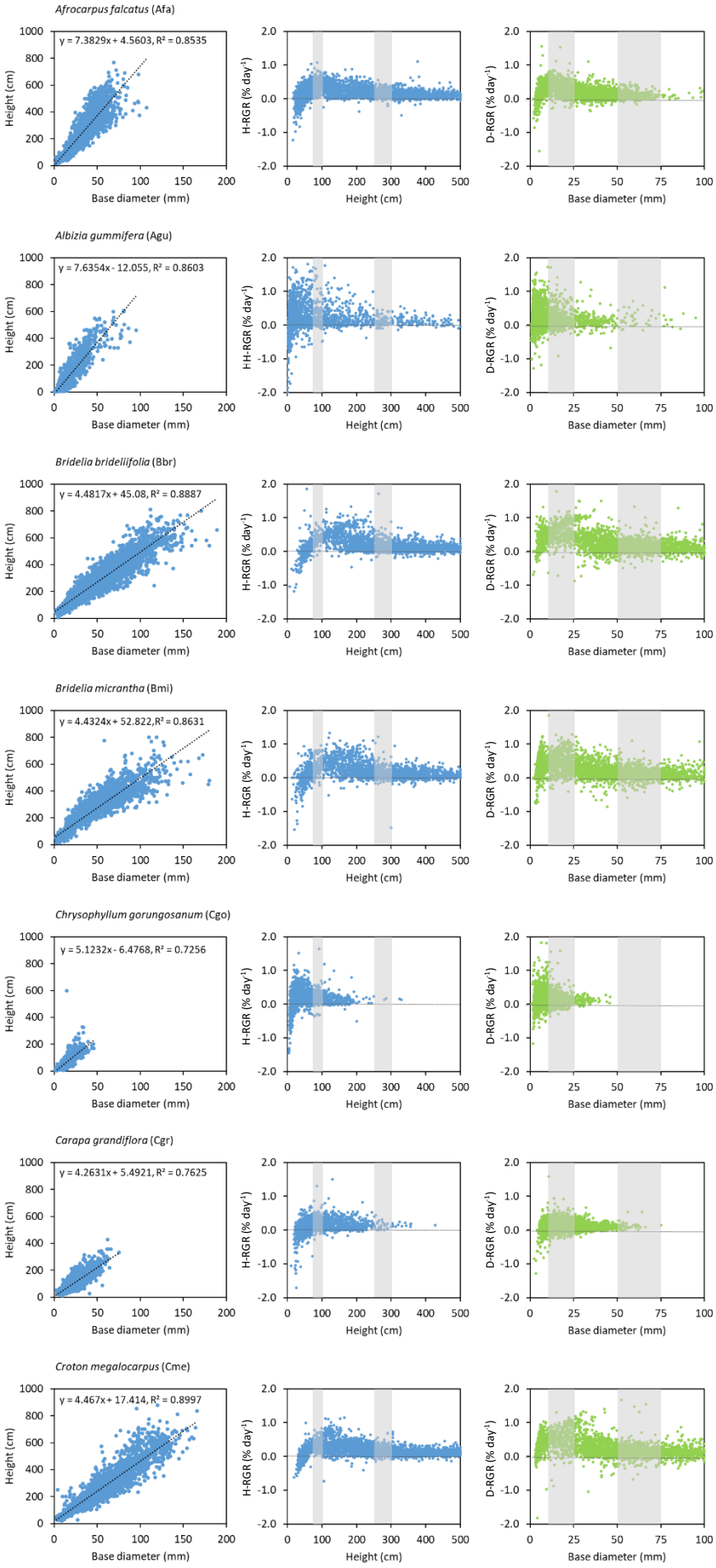
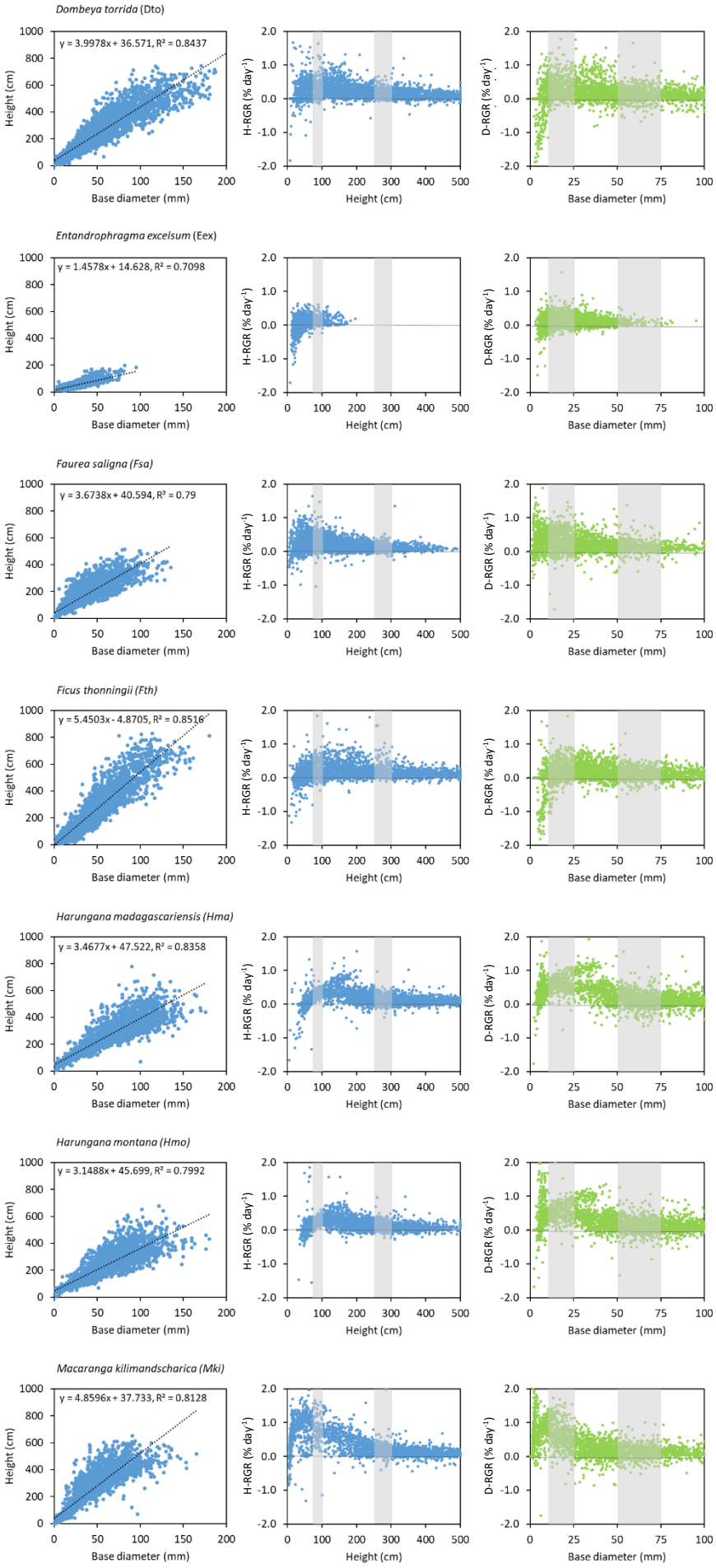


Figure S4. Site map and experimental design at the low elevation site (Makera). Water and nutrient treatments started late in 2019 and had no effect on the results in this study.


Afrocarpus falcatus (Afa)
y = 7.3829x + 4.5603, R² = 0.8535
Albizia gummifera (Agu)
y = 7.6354x - 12.055, R² = 0.8603
Bridelia brideliifolia (Bbr)
y = 4.4817x + 45.08, R² = 0.8887
Bridelia micrantha (Bmi)
y = 4.4324x + 52.822, R² = 0.8631
Chrysophylium gorungosanum (Cgo)
y = 5.1232x - 6.4768, R² = 0.7256
Carapa grandiflora (Cgr)
y = 4.2631x + 5.4921, R² = 0.7625
Croton megalocarpus (Cme)
y = 4.467x + 17.414, R² = 0.8997
Height (cm)
Base diameter (mm)
H-RGR (% day⁻¹)
D-RGR (% day⁻¹)


Dombeya torrida (Dto)
y = 3.9978x + 36.571, R² = 0.8437
Entandrophragma excelsum (Eex)
y = 1.4578x + 14.628, R² = 0.7098
Faurea saligna (Fsa)
y = 3.6738x + 40.594, R² = 0.79
Ficus thonningii (Fth)
y = 5.4503x - 4.8705, R² = 0.8516
Harungana madagascariensis (Hma)
y = 3.4677x + 47.522, R² = 0.8358
Harungana montana (Hmo)
y = 3.1488x + 45.699, R² = 0.7992
Macaranga kilimandscharica (Mki)
y = 4.8596x + 37.733, R² = 0.8128
Height (cm)
Base diameter (mm)
H-RGR (% day⁻¹)
D-RGR (% day⁻¹)

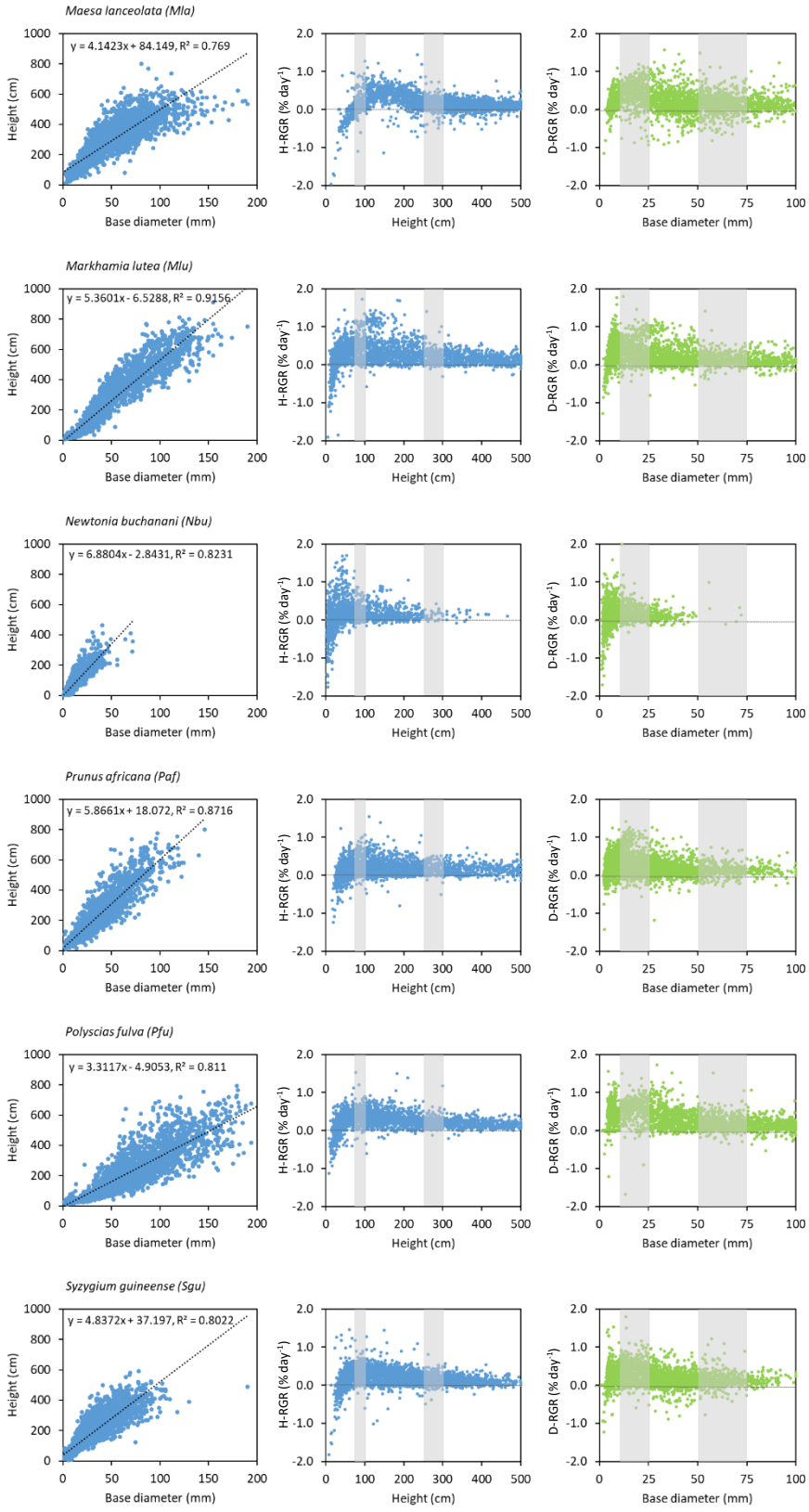


Figure S5. The relation between height and base diameter and the relative growth rate (RGR) for height (H-RGR) and base diameter (D-RGR) in relation to height and base diameter, respectively, for all 20 species measured tri-monthly over two years at all three sites. The grey marked height and base diameter intervals are used to calculate the standardised H-RGR and D-RGR, respectively. Negative height RGR of small trees are mainly due to soil erosion effects between the census while negative height and diameter RGR on larger trees mainly are due to broken stems causing shorter trees and/or for multistem trees changes of stem used for the measurements.

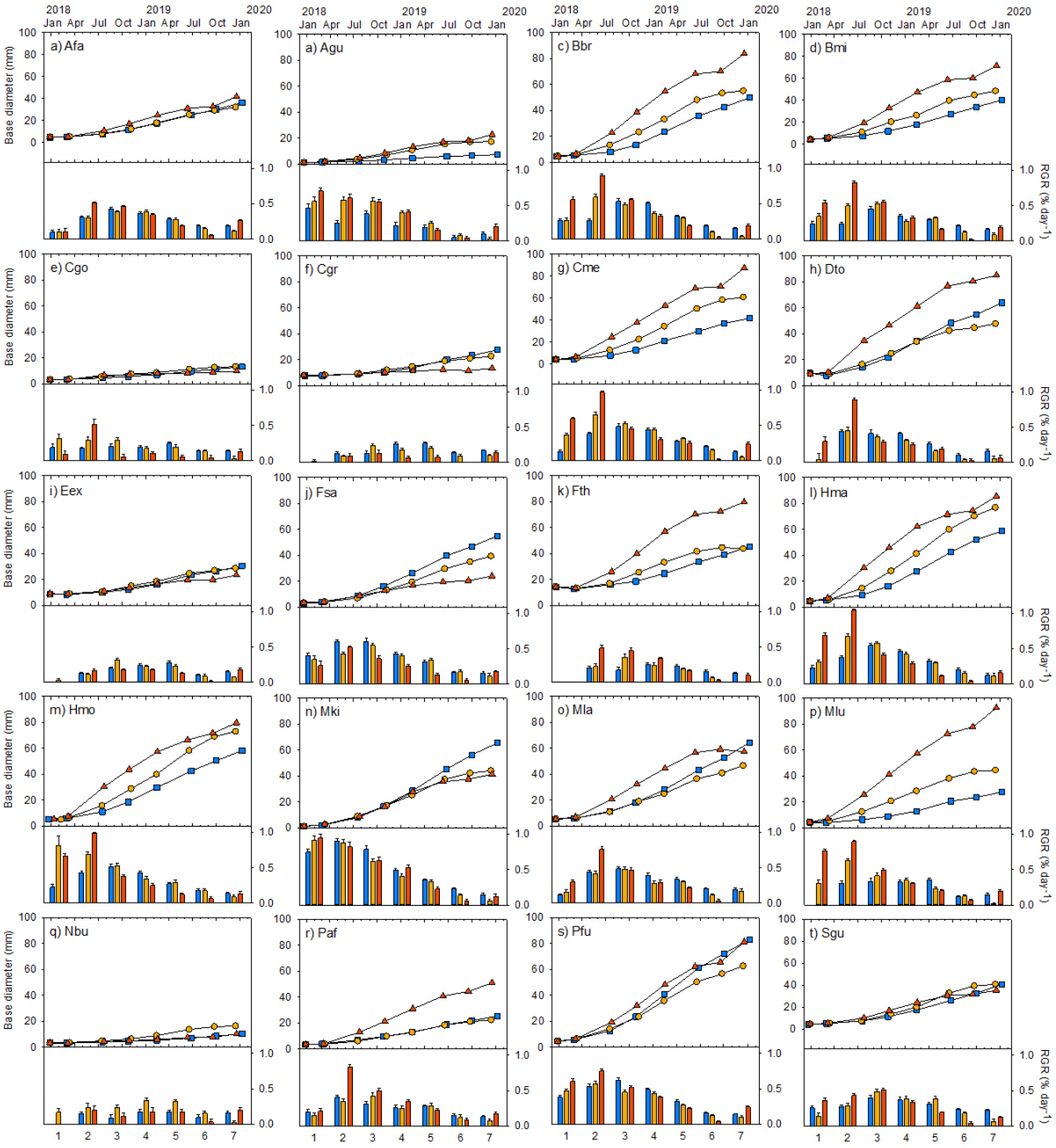


Figure S6 a-t. The development of the stem base diameter measured every third month over two years and the relative growth rate (RGR) between measurement intervals for 20 species grown at three sites along an elevation gradient (High, blue square/bar; Mid, orange circle/bar; Low, red triangle/bar). Each marker and bar show site level mean, including standard errors for bars. Full species names are given in Table 2.

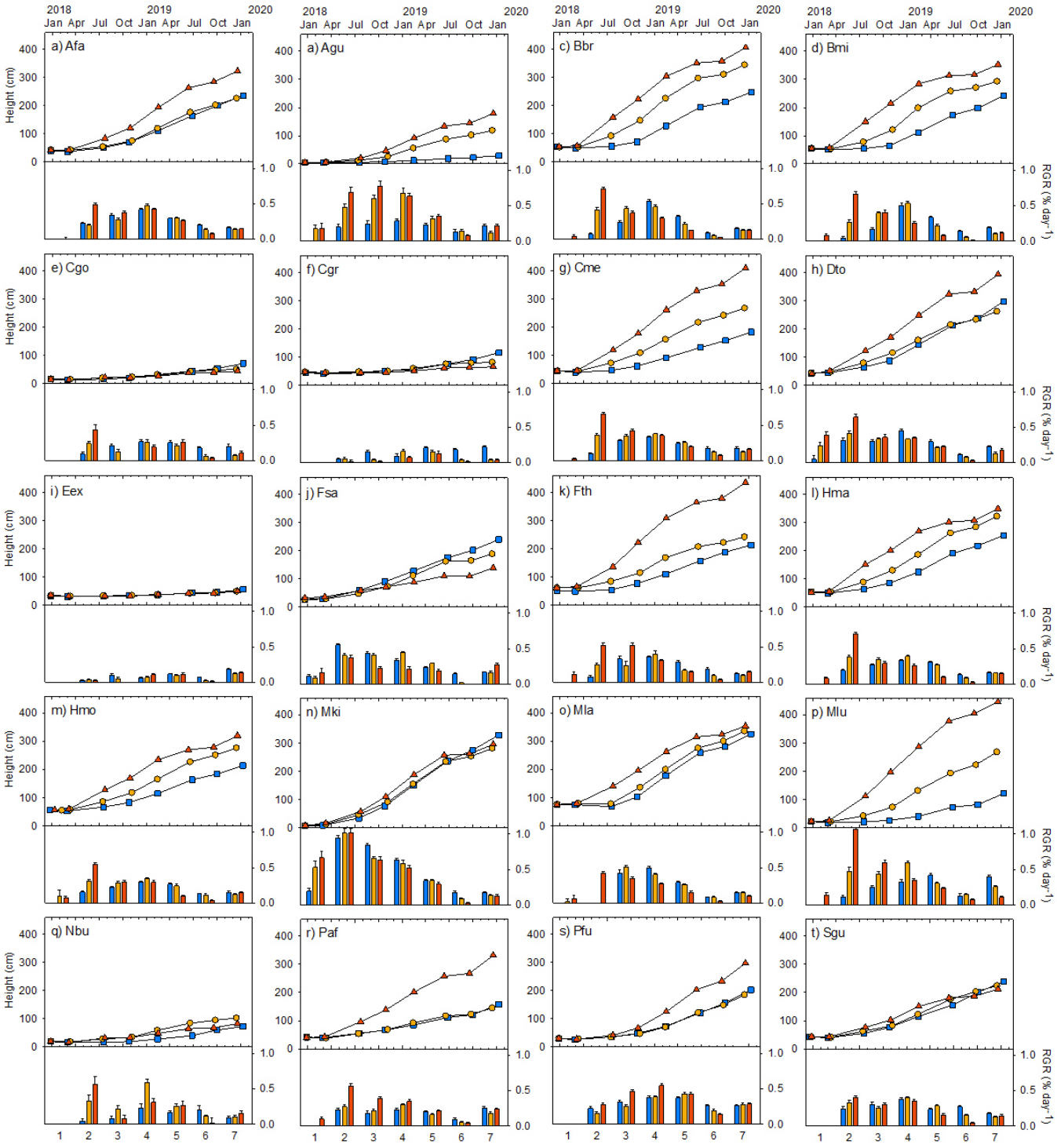


Figure S7 a-t. The development of the stem height measured every third month over two years and the relative growth rate (RGR) between measurement intervals for 20 species grown at 3 sites along an elevation gradient (High, blue square/bar; Mid, orange circle/bar; Low, red triangle/bar). Each marker and bar show site level mean, including standard errors for bars. Full species names are given in Table 2.