

## Supplemental Materials

**Table S1** The result of zero-inflated generalized linear mixed model of number of recruits per 50 x 50 m quadrat and fire intensity from 89 species in 50-ha Huai Kha Khaeng Forest Dynamics Plot, Thailand.

Species code	Species	Family	Intercept	Slope	Response
AGLASP	<i>Aglaia spectabilis</i>	Meliaceae	1.5162	-4.4267	negative
CINNTA	<i>Cinnamomum tavoyanum</i>	Lauraceae	-0.1032	-3.6439	negative
BACCRA	<i>Baccaurea ramiflora</i>	Phyllanthaceae	1.5769	-3.4043	negative
DIPTAL	<i>Dipterocarpus alatus</i>	Dipterocarpaceae	1.8188	-3.3911	negative
VATIHA	<i>Vatica harmandiana</i>	Dipterocarpaceae	3.3178	-3.1943	negative
ACEROB	<i>Acer oblongum</i>	Sapindaceae	1.9070	-3.1691	negative
SYZYSY	<i>Syzygium syzygioides</i>	Myrtaceae	-0.3877	-3.0483	negative
MISCPE	<i>Mischocarpus pentapetalus</i>	Sapindaceae	1.5048	-3.0295	negative
XANTFL	<i>Xanthophyllum flavescens</i>	Polygalaceae	0.3160	-2.9635	negative
BEILGA	<i>Beilschmiedia gammieana</i>	Lauraceae	0.1809	-2.8680	negative
SACCLI	<i>Saccopetalum lineatum</i>	Annonaceae	1.4618	-2.5607	negative
DYSOGR	<i>Dysoxylum grande</i>	Meliaceae	0.7693	-2.5117	negative
CYATMA	<i>Cyathocalyx martabanicus</i>	Annonaceae	-1.7923	-2.3783	negative
PRUNAR	<i>Prunus arborea</i>	Rosaceae	-1.6808	-2.2705	no response
MEMEOV	<i>Memecylon ovatum</i>	Melastomataceae	1.0551	-2.2115	negative
ANTIMO	<i>Antidesma montanum</i>	Phyllanthaceae	-1.9787	-2.2104	no response
HARPCU	<i>Harpullia cupanioides</i>	Sapindaceae	-1.9867	-2.1506	no response
PHOEPA	<i>Phoebe paniculata</i>	Lauraceae	1.5045	-2.0669	negative
DALBOL	<i>Dalbergia oliveri</i>	Fabaceae-papilionoideae	-0.6922	-2.0073	no response
MITRTH	<i>Mitrephora thorelii</i>	Annonaceae	0.7562	-2.0014	negative
NEOLOB	<i>Neolitsea obtusifolia</i>	Lauraceae	2.3714	-1.9781	negative
DIOSWI	<i>Diospyros winitii</i>	Ebenaceae	1.4908	-1.9437	negative
MEMEPL	<i>Memecylon plebejum</i>	Melastomataceae	1.2532	-1.9243	negative
OROPPO	<i>Orophea polycarpa</i>	Annonaceae	3.5951	-1.8992	negative
PRISTE	<i>Prismatomeris tetrandra</i>	Rubiaceae	3.0687	-1.8532	negative
GARCSP	<i>Garcinia speciosa</i>	Clusiaceae	-2.0495	-1.8331	no response
ARYTLI	<i>Arytera littoralis</i>	Sapindaceae	1.8372	-1.7989	negative
ANISCO	<i>Anisoptera costata</i>	Dipterocarpaceae	-1.2861	-1.7927	no response
MALLPH	<i>Mallotus philippensis</i>	Euphorbiaceae	2.1994	-1.7750	negative
DIOSFE	<i>Diospyros ferrea</i>	Ebenaceae	0.5329	-1.7492	negative
DIMOLO	<i>Dimocarpus longan</i>	Sapindaceae	2.9542	-1.7336	negative
GLUTOB	<i>Gluta obovata</i>	Anacardiaceae	1.0571	-1.7282	negative
FAGEFA	<i>Fagerlindia faciculata</i>	Rubiaceae	3.1115	-1.7133	negative
ARTOGO	<i>Artocarpus gomezianus</i>	Moraceae	-1.4908	-1.6528	negative
AGLAOD	<i>Aglaia odorata</i>	Meliaceae	2.8547	-1.4675	negative
LAGEVI	<i>Lagerstroemia villosa</i>	Lythraceae	-1.6349	-1.4501	no response
ARDIPO	<i>Ardisia polycephala</i>	Myrsinaceae	2.6257	-1.4362	negative
SYZYCU	<i>Syzygium cumini</i>	Myrtaceae	0.4149	-1.4266	negative

Table S1 (cont.)

Species code	Species	Family	Intercept	Slope	Response
PERSXX	<i>Persea sp.</i>	Lauraceae	0.6114	-1.4194	negative
CHAMMA	<i>Champereia manillana</i>	Opiliaceae	-2.1506	-1.4162	negative
MANGQU	<i>Mangifera quadrifida</i>	Anacardiaceae	0.2426	-1.3817	negative
LEPIRU	<i>Lepisanthes rubiginosa</i>	Sapindaceae	1.0454	-1.3809	negative
HOPEOD	<i>Hopea odorata</i>	Dipterocarpaceae	0.1015	-1.3199	negative
ALPHVE	<i>Alphonsea ventricosa</i>	Annonaceae	2.2660	-1.3160	negative
SCLEWA	<i>Scleropyrum wallichianum</i>	Santalaceae	-3.2016	-1.2502	no response
CHUKTA	<i>Chukrasia tabularis</i>	Meliaceae	-0.8826	-1.2486	negative
XYLOLO	<i>Xylosma longifolium</i>	Salicaceae	-0.8416	-1.1713	no response
SEMEAL	<i>Semecarpus albescens</i>	Anacardiaceae	0.9653	-1.1274	negative
NEPHHY	<i>Nephelium hypoleucum</i>	Sapindaceae	-3.2395	-1.1147	no response
DIOSVA	<i>Diospyros variegata</i>	Ebenaceae	-0.6783	-1.0548	no response
PTERGR	<i>Pterospermum grandiflorum</i>	Malvaceae	2.6237	-0.9812	no response
COLOJA	<i>Colona javanica</i>	Malvaceae	0.6083	-0.8115	negative
ALCHRU	<i>Alchornea rugosa</i>	Euphorbiaceae	-1.8065	-0.8015	negative
MURRPA	<i>Murraya paniculata</i>	Rutaceae	-1.4269	-0.7283	no response
CROTHU	<i>Croton hutchinsonianus</i>	Euphorbiaceae	-1.1858	-0.6287	no response
HARPAR	<i>Harpullia arborea</i>	Sapindaceae	-2.3793	-0.6266	no response
DRYPHO	<i>Drypetes hoaensis</i>	Putranjivaceae	-2.1065	-0.5879	no response
RADEIG	<i>Radermachera ignea</i>	Bignoniaceae	0.4832	-0.5639	no response
ILEXUM	<i>Ilex umbellulata</i>	Aquifoliaceae	-1.6515	-0.4797	no response
POLYVI	<i>Polyalthia viridis</i>	Annonaceae	1.5469	-0.4770	negative
POLYSU	<i>Polyalthia suberosa</i>	Annonaceae	1.4673	-0.3993	no response
SYZYRI	<i>Syzygium ripicola</i>	Myrtaceae	-0.3268	-0.3251	no response
APHAPO	<i>Aphanamixis polystachya</i>	Meliaceae	-0.1794	-0.2050	no response
MICRPA	<i>Microcos paniculata</i>	Malvaceae	-0.1218	-0.1765	no response
SAPIIN	<i>Sapium insigne</i>	Euphorbiaceae	0.7339	-0.0507	negative
POLYCE	<i>Polyalthia cerasoides</i>	Annonaceae	-0.6389	-0.0260	no response
VITEPE	<i>Vitex peduncularis</i>	Lamiaceae	-0.3107	0.0652	no response
DALBCA	<i>Dalbergia cana</i>	Fabaceae-papilionoideae	-0.8080	0.1247	no response
CRATMA	<i>Crateva magna</i>	Capparaceae	-2.0599	0.2099	no response
STERCO	<i>Stereospermum colais</i>	Bignoniaceae	-3.3528	0.2310	no response
FERNAD	<i>Fernandoa adenophylla</i>	Bignoniaceae	0.3991	0.4406	no response
LAGECA	<i>Lagerstroemia calyculata</i>	Lythraceae	-1.8689	0.4749	no response
MARKST	<i>Markhamia stipulata</i>	Bignoniaceae	-1.2972	0.6132	no response
TREWNU	<i>Trewia nudiflora</i>	Euphorbiaceae	-0.5942	0.6412	no response
DALBCO	<i>Dalbergia cochinchinensis</i>	Fabaceae-papilionoideae	-2.4678	0.6441	no response
CASSFI	<i>Cassia fistula</i>	Fabaceae-caesalpinioideae	-0.6936	0.6878	no response

**Table S1** (cont.)

Species code	Species	Family	Intercept	Slope	Response
ACROPE	<i>Acronychia pedunculata</i>	Rutaceae	-1.2030	0.6886	no response
LAGEBA	<i>Lagerstroemia balansae</i>	Lythraceae	-2.6766	0.8284	no response
LAGETO	<i>Lagerstroemia tomentosa</i>	Lythraceae	1.4434	0.8418	no response
STERHY	<i>Sterculia hypochra</i>	Malvaceae	-1.9671	1.1754	no response
GARUPI	<i>Garuga pinnata</i>	Burseraceae	-1.8101	1.1783	no response
CROTRO	<i>Croton roxburghii</i>	Euphorbiaceae	3.8152	1.2681	positive
ALBILU	<i>Albizia lucidior</i>	Fabaceae-mimosoideae	-2.1937	1.2728	no response
ALANCH	<i>Alangium chinense</i>	Cornaceae	0.3800	1.3942	no response
SAPIRA	<i>Sapindus rarak</i>	Sapindaceae	-1.2005	1.4689	positive
SENNTI	<i>Senna timoriensis</i>	Fabaceae-caesalpinioideae	1.7456	1.6391	positive
TETRNU	<i>Tetrameles nudiflora</i>	Tetramelaceae	0.7478	1.8218	no response
CORDDI	<i>Cordia dichotoma</i>	Boraginaceae	-2.5000	1.9272	no response
MACASI	<i>Macaranga siamensis</i>	Euphorbiaceae	-0.6109	2.7576	no response

**Table S2** The result of Kruskal-Wallis test of number of recruits per quadrat across areas that experienced fire conditions from 89 species in 50-ha Huai Kha Khaeng Forest Dynamics Plot, Thailand. Asterisks indicate statistically significant difference: n.s. for  $P > 0.05$ ; \* for  $P \leq 0.05$ ; \*\* for  $P \leq 0.01$ ; \*\*\* for  $P \leq 0.001$ ; \*\*\*\* for  $P \leq 0.0001$ .

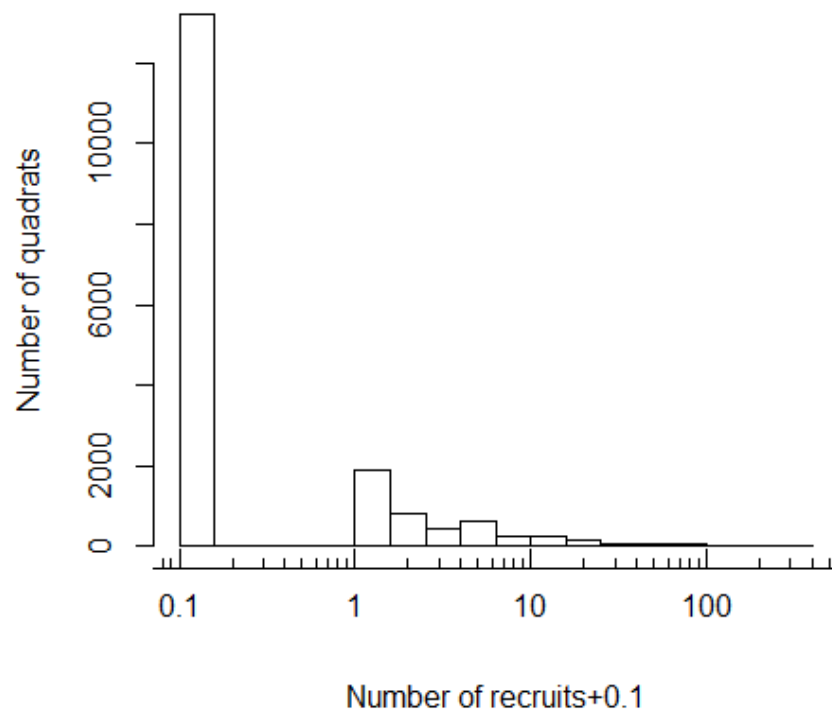
Species code	Species	P value	Significance level
AGLASP	<i>Aglaia spectabilis</i>	$1.3e^{-05}$	****
CINNTA	<i>Cinnamomum tavoyanum</i>	$6.9e^{-07}$	****
BACCRA	<i>Baccaurea ramiflora</i>	$< 2e^{-16}$	****
DIPTAL	<i>Dipterocarpus alatus</i>	$7.4e^{-12}$	****
VATIHA	<i>Vatica harmandiana</i>	$< 2e^{-16}$	****
ACEROB	<i>Acer oblongum</i>	$1.3e^{-05}$	****
SYZYSY	<i>Syzygium syzygioides</i>	$6.0e^{-08}$	****
MISCPE	<i>Mischocarpus pentapetalus</i>	$1.1e^{-12}$	****
XANTFL	<i>Xanthophyllum flavescens</i>	$1.1e^{-07}$	****
BEILGA	<i>Beilschmiedia gammieana</i>	$2.9e^{-07}$	****
SACCLI	<i>Saccopetalum lineatum</i>	$1.2e^{-09}$	****
DYSOGR	<i>Dysoxylum grande</i>	$7.2e^{-08}$	****
CYATMA	<i>Cyathocalyx martabanicus</i>	0.04209	*
PRUNAR	<i>Prunus arborea</i>	0.06454	ns
MEMEOV	<i>Memecylon ovatum</i>	$8.1e^{-08}$	****
ANTIMO	<i>Antidesma montanum</i>	0.11233	ns
HARPCU	<i>Harpullia cupanioides</i>	0.11242	ns
PHOEPA	<i>Phoebe paniculata</i>	$1.9e^{-14}$	****
DALBOL	<i>Dalbergia oliveri</i>	0.13062	ns
MITRTH	<i>Mitrephora thorelii</i>	$9.8e^{-05}$	****
NEOLOB	<i>Neolitsea obtusifolia</i>	$< 2e^{-16}$	****
DIOSWI	<i>Diospyros winitii</i>	$1.3e^{-10}$	****
MEMEPL	<i>Memecylon plebejum</i>	$2.9e^{-08}$	****
OROPPO	<i>Orophea polycarpa</i>	$4.7e^{-12}$	****
PRISTE	<i>Prismatomeris tetrandra</i>	$< 2e^{-16}$	****
GARCSP	<i>Garcinia speciosa</i>	0.25105	ns
ARYTLI	<i>Arytera littoralis</i>	$6.4e^{-08}$	****
ANISCO	<i>Anisoptera costata</i>	0.09269	ns
MALLPH	<i>Mallotus philippensis</i>	$6.4e^{-13}$	****
DIOSFE	<i>Diospyros ferrea</i>	0.00090	***
DIMOLO	<i>Dimocarpus longan</i>	$3.1e^{-15}$	****
GLUTOB	<i>Gluta obovata</i>	$4.0e^{-10}$	****
FAGEFA	<i>Fagerlindia faciculata</i>	0.01948	*
ARTOGO	<i>Artocarpus gomezianus</i>	0.01042	*
AGLAOD	<i>Aglaia odorata</i>	$4.9e^{-06}$	****
LAGEVI	<i>Lagerstroemia villosa</i>	0.09405	ns

Table S2 (cont.)

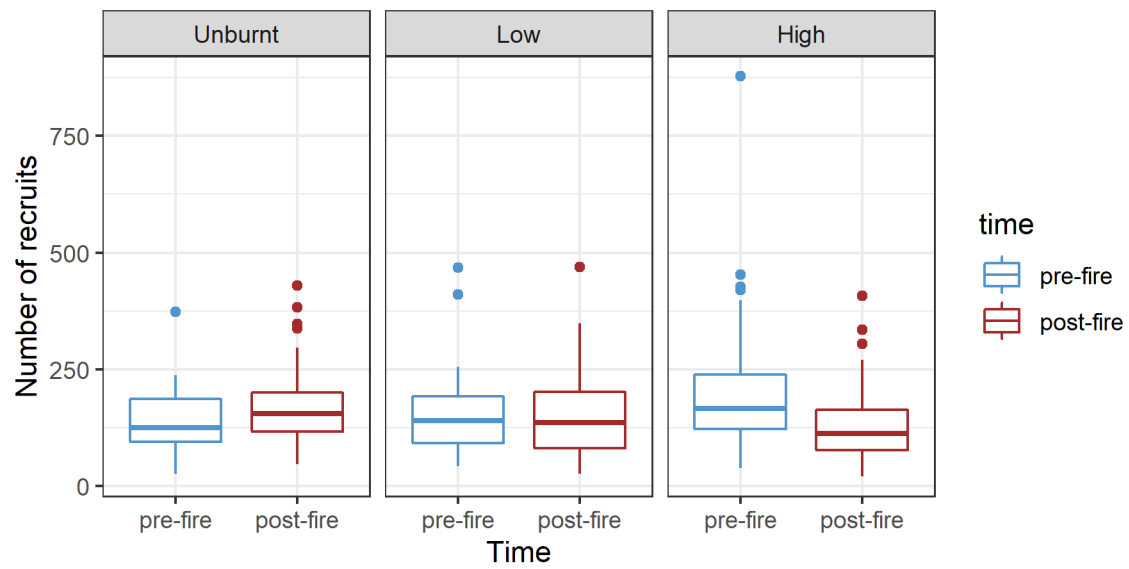
Species code	Species	P value	Significance level
ARDIPO	<i>Ardisia polycephala</i>	$< 2e^{-16}$	****
SYZYCU	<i>Syzygium cumini</i>	0.00076	***
PERSXX	<i>Persea sp.</i>	$2.4e^{-05}$	****
CHAMMA	<i>Champereia manillana</i>	0.03483	*
MANGQU	<i>Mangifera quadrifida</i>	$4.5e^{-05}$	****
LEPIRU	<i>Lepisanthes rubiginosa</i>	$1.2e^{-05}$	****
HOPEOD	<i>Hopea odorata</i>	0.02806	*
ALPHVE	<i>Alphonsea ventricosa</i>	$1.6e^{-11}$	****
SCLEWA	<i>Scleropyrum wallichianum</i>	0.32860	ns
CHUKTA	<i>Chukrasia tabularis</i>	0.03607	*
XYLOLO	<i>Xylosma longifolium</i>	0.07151	ns
SEMEAL	<i>Semecarpus albescens</i>	$1.2e^{-05}$	****
NEPHHY	<i>Nephelium hypoleucum</i>	0.18751	ns
DIOSVA	<i>Diospyros variegata</i>	0.13623	ns
PTERGR	<i>Pterospermum grandiflorum</i>	0.35558	ns
COLOJA	<i>Colona javanica</i>	0.03260	*
ALCHRU	<i>Alchornea rugosa</i>	0.03489	*
MURRPA	<i>Murraya paniculata</i>	0.34757	ns
CROTHU	<i>Croton hutchinsonianus</i>	0.20382	ns
HARPAR	<i>Harpullia arborea</i>	0.64396	ns
DRYPHO	<i>Drypetes hoaensis</i>	0.63720	ns
RADEIG	<i>Radermachera ignea</i>	0.08759	ns
ILEXUM	<i>Ilex umbellulata</i>	0.55597	ns
POLYVI	<i>Polyalthia viridis</i>	$4.5e^{-07}$	****
POLYSU	<i>Polyalthia suberosa</i>	0.94235	ns
SYZYRI	<i>Syzygium ripicola</i>	0.46138	ns
APHAPO	<i>Aphanamixis polystachya</i>	0.43250	ns
MICRPA	<i>Microcos paniculata</i>	0.08580	ns
SAPIIN	<i>Sapium insigne</i>	0.00194	**
POLYCE	<i>Polyalthia cerasoides</i>	0.31625	ns
VITEPE	<i>Vitex peduncularis</i>	0.53368	ns
DALBCA	<i>Dalbergia cana</i>	0.72091	ns
CRATMA	<i>Crateva magna</i>	0.96755	ns
STERCO	<i>Stereospermum colais</i>	0.53067	ns
FERNAD	<i>Fernandoa adenophylla</i>	0.59967	ns
LAGECA	<i>Lagerstroemia calyculata</i>	0.33355	ns
MARKST	<i>Markhamia stipulata</i>	0.86085	ns
TREWNU	<i>Trewia nudiflora</i>	0.64593	ns

**Table S2** (cont.)

Species code	Species	P value	Significance level
DALBCO	<i>Dalbergia cochinchinensis</i>	0.62154	ns
CASSFI	<i>Cassia fistula</i>	0.75128	ns
ACROPE	<i>Acronychia pedunculata</i>	0.67397	ns
LAGEBA	<i>Lagerstroemia balansae</i>	0.62417	ns
LAGETO	<i>Lagerstroemia tomentosa</i>	0.33146	ns
STERHY	<i>Sterculia hypochra</i>	0.08902	ns
GARUPI	<i>Garuga pinnata</i>	0.35210	ns
CROTRO	<i>Croton roxburghii</i>	9.1e <sup>-09</sup>	****
ALBILU	<i>Albizia lucidior</i>	0.11531	ns
ALANCH	<i>Alangium chinense</i>	0.06778	ns
SAPIRA	<i>Sapindus rarak</i>	0.01248	*
SENNTI	<i>Senna timoriensis</i>	7.2e <sup>-10</sup>	****
TETRNU	<i>Tetrameles nudiflora</i>	0.15241	ns
CORDDI	<i>Cordia dichotoma</i>	0.06433	ns
MACASI	<i>Macaranga siamensis</i>	0.05409	ns

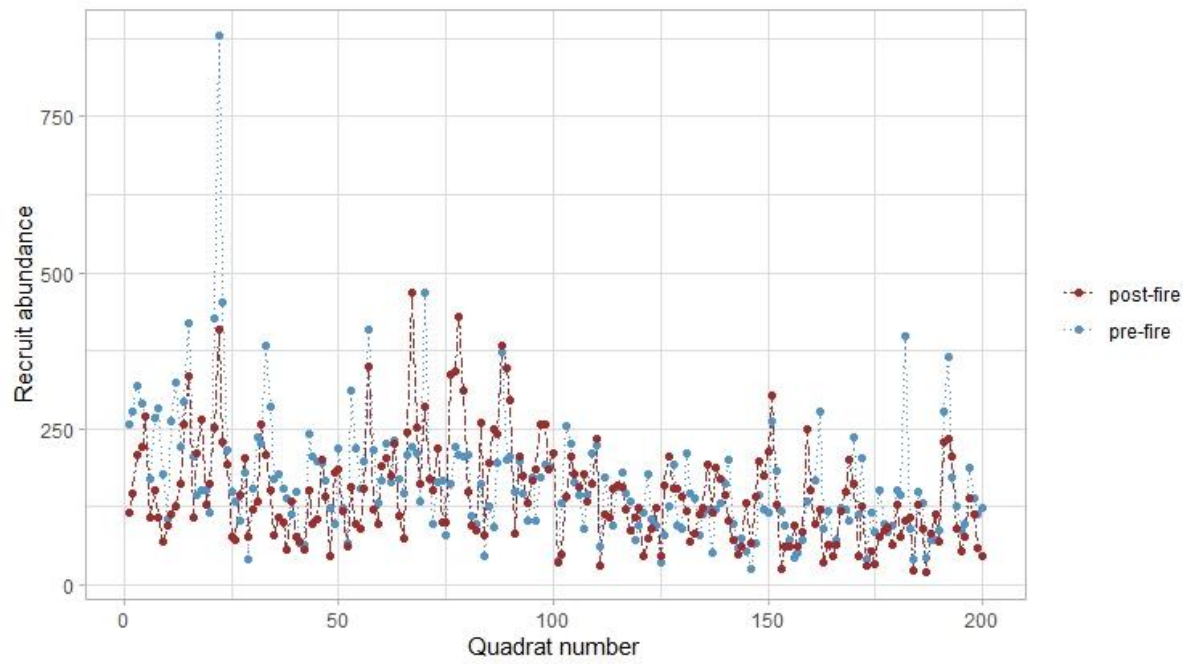


**Figure S1.** Histogram of number of recruits in each species per 50 x 50 m quadrat for 89 tree species in 50-ha Huai Kha Khaeng Forest Dynamics Plot, Thailand. Histogram represents in log10 scale.

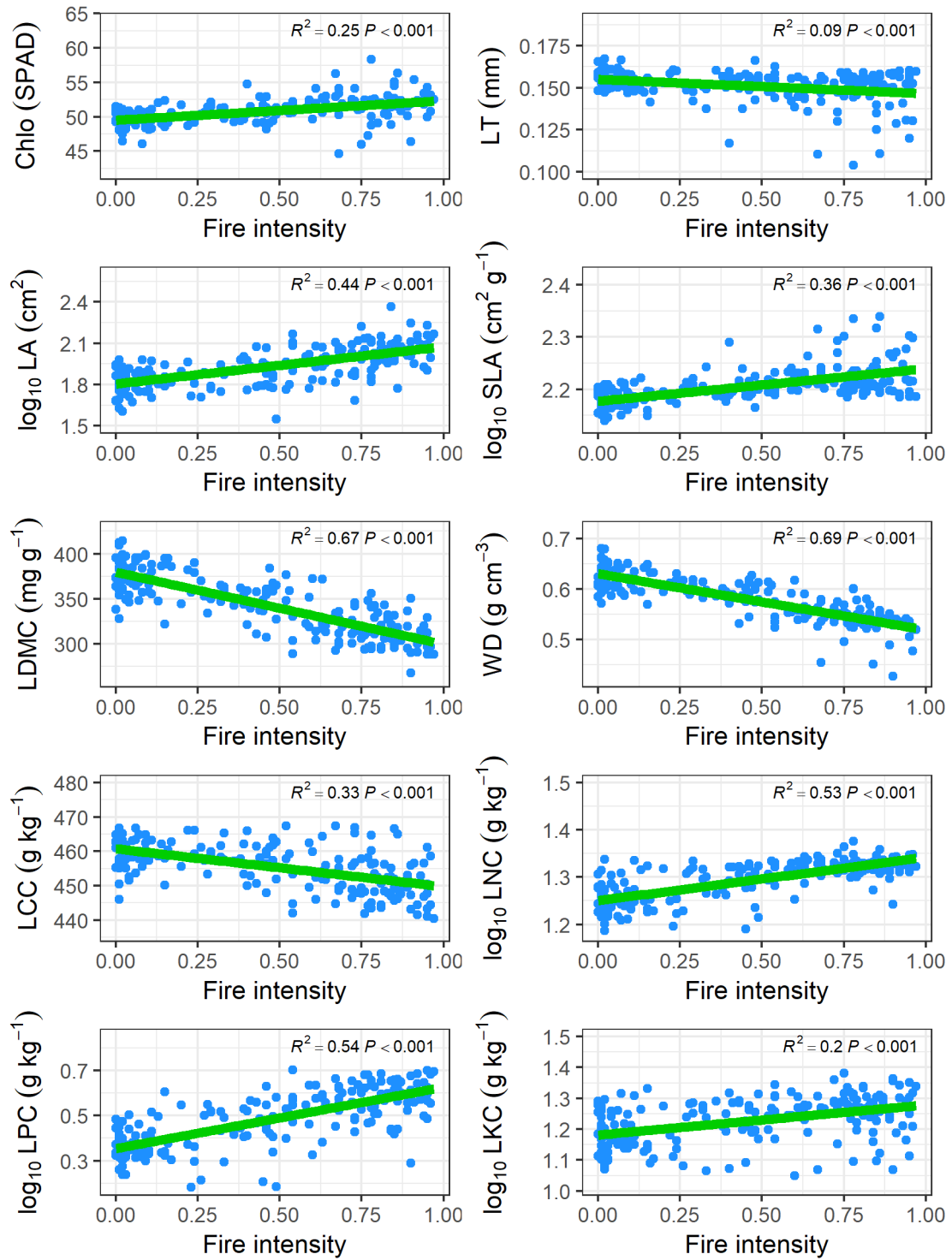


**Figure S2.** Boxplot of number of recruits per quadrat which according to areas in relation to fire-intensity, between pre-fire condition and post-fire condition in Huai Kha Khaeng Forest Dynamics Plot, Thailand. Blue and red display pre-fire condition which refer to 2004 census and post-fire condition which refer to 2009 census, respectively. Dots represent the numbers of recruits in each quadrat. Unburnt, Low, and High are unburnt area, low-intensity burn area, and high-intensity burn area, respectively.

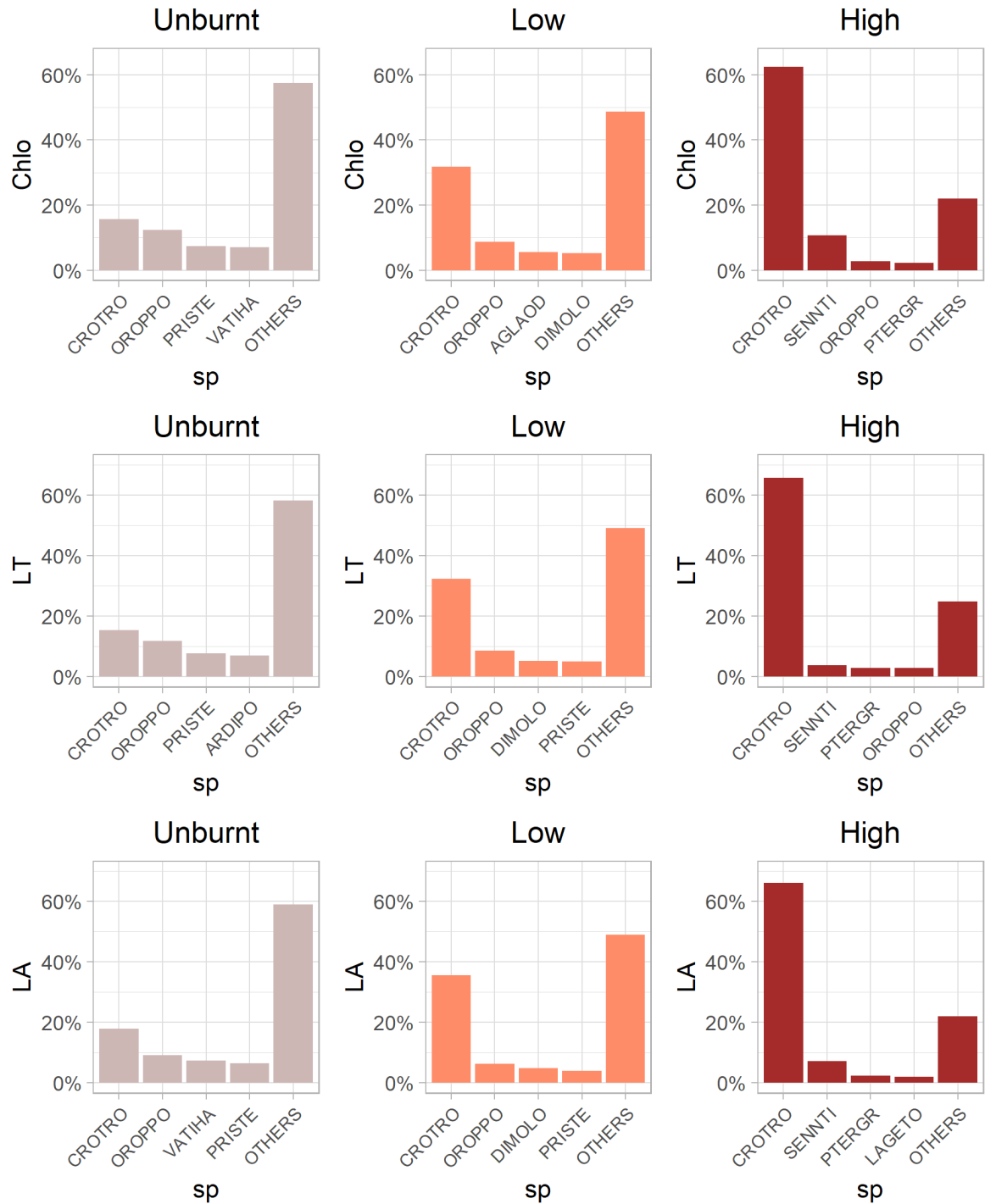




**Figure S3.** Variations in recruit abundances across 200 50 m x 50 m quadrats between pre-fire and post-fire in Huai Kha Khaeng Forest Dynamics Plot, Thailand. Two dash-dotted lines represent variations in recruit abundances. Blue and red dash-dotted lines display pre-fire condition which refer to 2004 census and post-fire condition which refer to 2009 census, respectively. Dots represent the numbers of recruits in each quadrat.



**Figure S4.** Simple linear regression analyses between community-weighted mean (CWM) of functional traits and fire intensity in Huai Kha Khaeng Forest Dynamics Plot, Thailand. Chlo, Chlorophyll content; LT, leaf thickness; LA, leaf area; SLA, specific leaf area; LDMC, leaf dry matter content; WD, wood density; LCC, leaf total carbon concentration; LNC, leaf total nitrogen concentration; and LPC, leaf total phosphorus concentration.



**Figure S5.** Percent of species-specific contribution of recruits to community-weighted mean (CWM) of functional traits in Huai Kha Khaeng Forest Dynamics Plot, Thailand. Chlo, Chlorophyll content; LT, leaf thickness; LA, leaf area; SLA, specific leaf area; LDMC, leaf dry matter content; WD, wood density; LCC, leaf total carbon concentration; LNC, leaf total nitrogen concentration; LPC, leaf total phosphorus concentration; LKC, leaf total potassium concentration. Unburnt, Low, and High are unburnt area, low-intensity burn area, and high-intensity burn area, respectively. Bar charts represent the top four species that contributed most to the community and all

others. Alphabets on the x-axis are the species code (sp) (see Table S1) and OTHERS are other species excluding the top fore species.

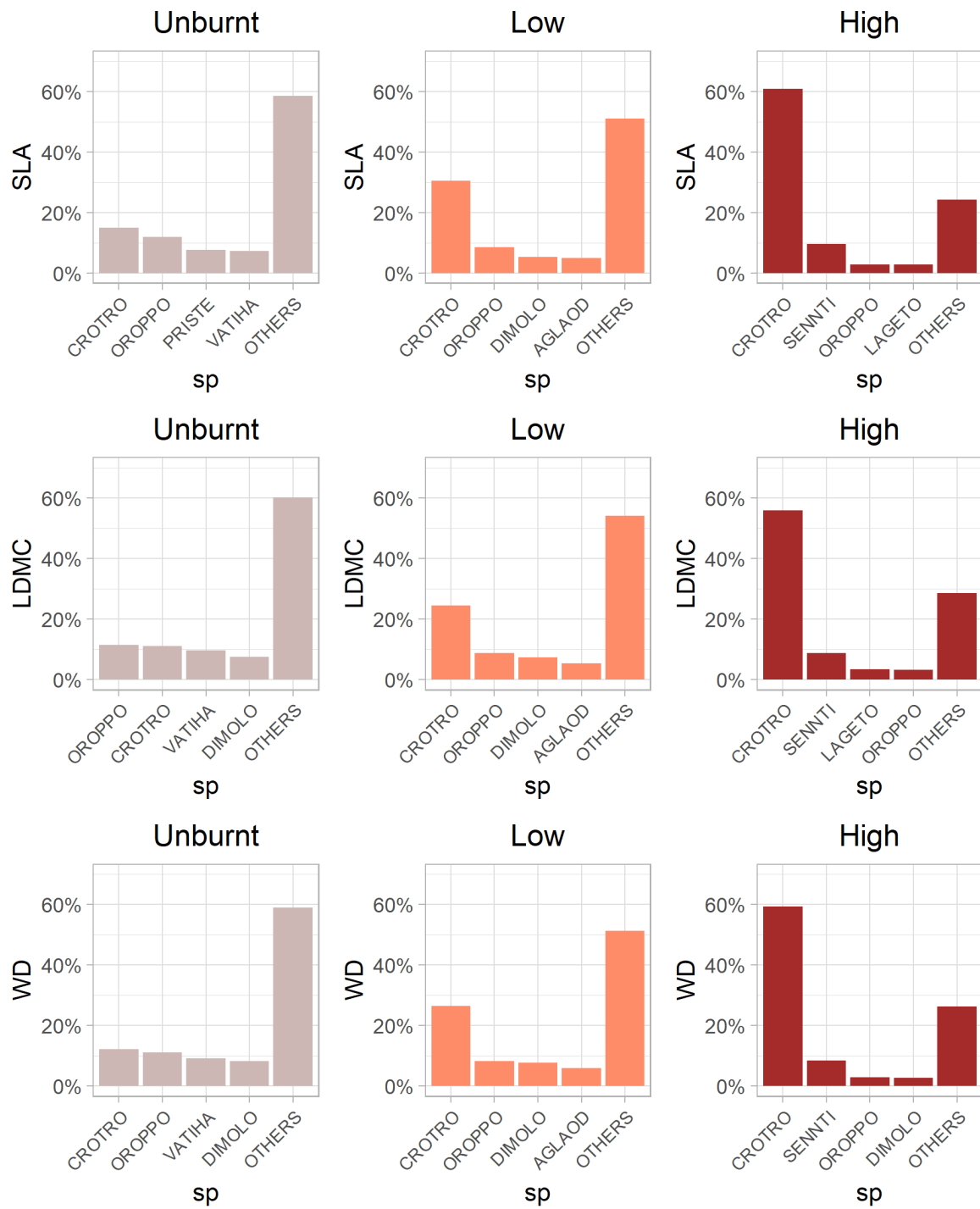
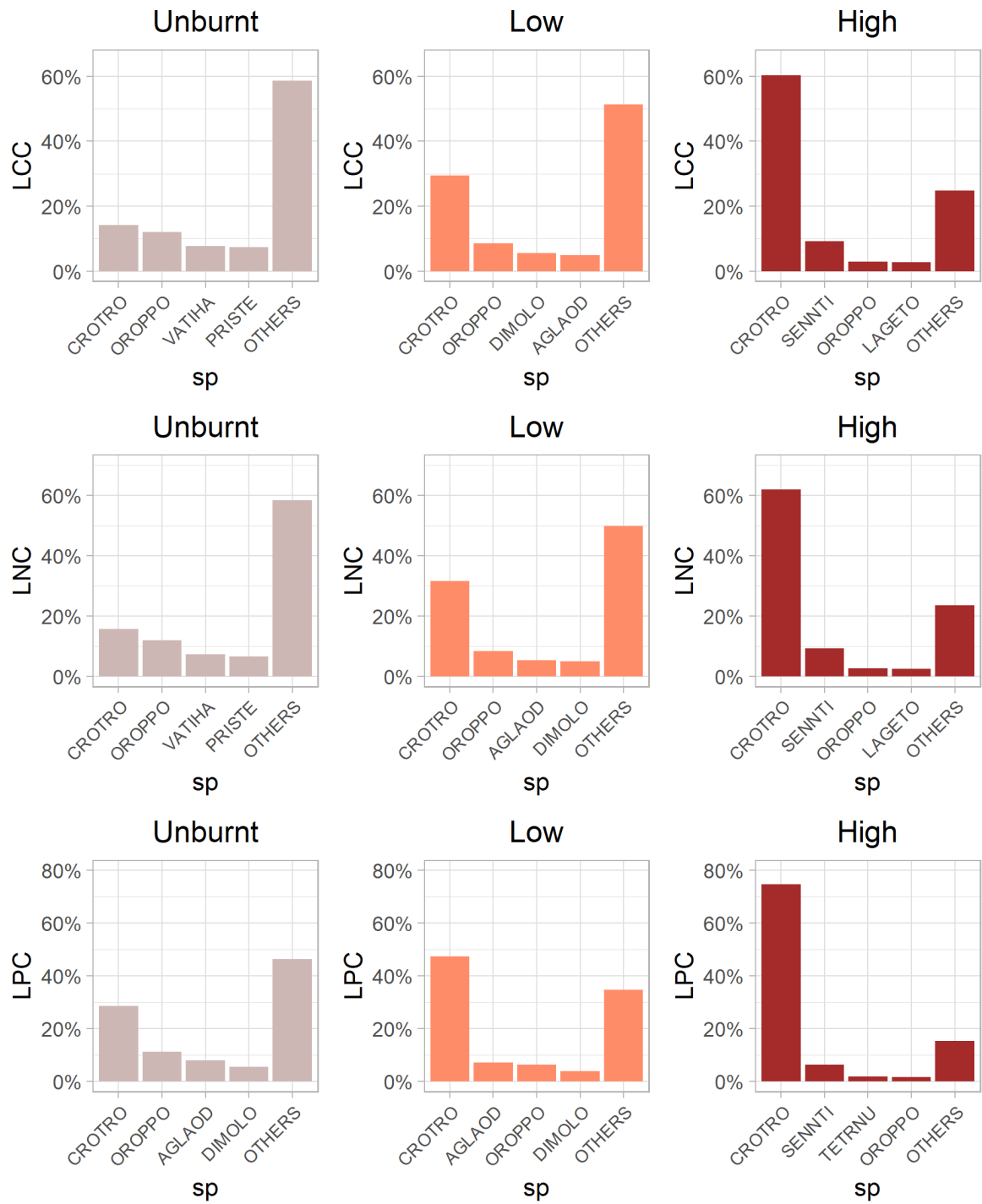


Figure S5. (Cont.)



**Figure S5. (Cont.)**

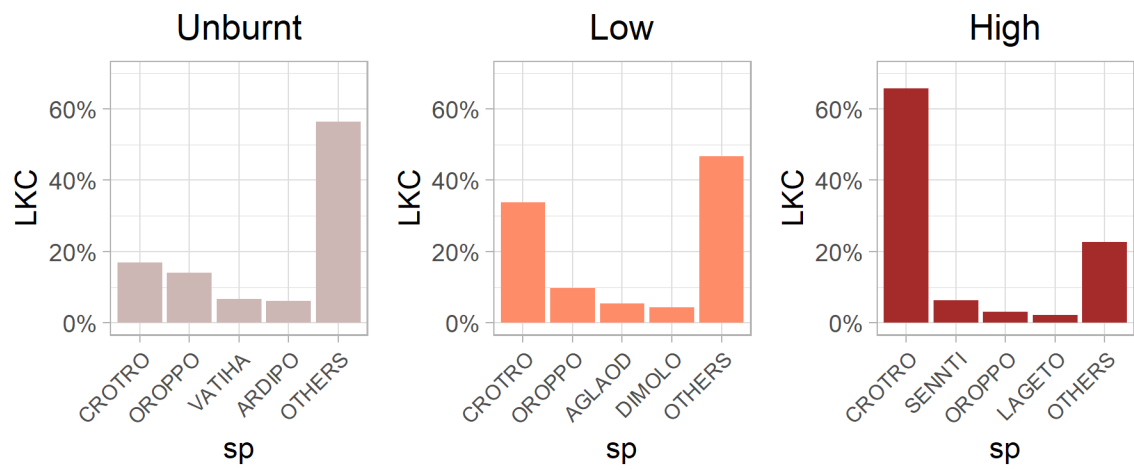
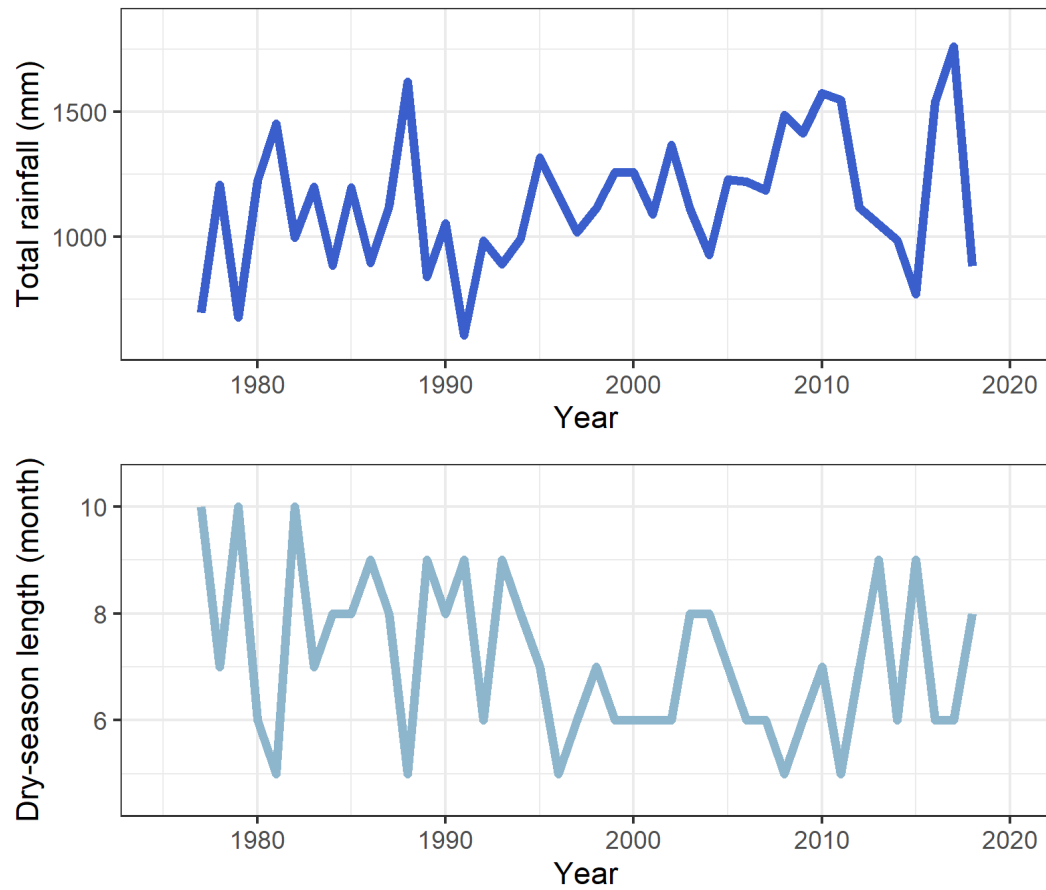


Figure S5. (Cont.)



**Figure S6.** Time-series of length of the dry season (bottom) and total annual rainfall (top) from the 41 years (1977-2018). The rainfall data are from Nakhon Sawan Meteorological Station, Thailand. The length of the dry season is calculated by the total number of months where rainfall less than 100 mm.