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Supplementary Material

Tab. S1 - Summary statistics for microclimatic factors in the crane plot.

Factors	Units	Whole profile			Top of canopy			1.5 - 2 m above ground		
		n	Mean	Stand deviation	n	Mean	Stand deviation	n	Mean	Stand deviation
LAI	/	308	2.54	1.79	40	0.48	0.60	39	4.81	0.97
DIFN	%	308	32.05	33.86	40	76.95	24.19	39	4.18	3.33
R:FR ratio	/	308	0.81	0.24	40	1.06	0.13	39	0.55	0.18
ADRT	℃	22	8.5	1.7	3	10.1	0.3	3	5.6	0.9
MART	℃	22	7.3	1.0	3	8.2	0.2	3	5.5	0.9
AMT	℃	22	20.8	0.4	3	21.2	0.04	3	20.2	0.2
ADRRH	%	22	27	10	3	37	2	3	10	5
MARRH	%	22	31	4	3	32	0.4	3	24	7
AMRH	%	22	91	4	3	87	1	3	97	1

Tab. S2 - Estimates and 95% confidence intervals of the thresholds of the PLRM results for microclimatic factors *vs*. height.

Independent variables	Dependent variables	Threshold	Estimates	SE	95% confidence intervals		r^2 of PLRM
					Lower	Upper	
H_{ground}	DIFN	Threshold	26.2	3.6	19.0	33.3	0.3200
	LAI	Threshold	19.0	1.6	15.8	22.2	0.5746
	R_FR	Threshold	21.2	3.3	14.6	27.7	0.4195
	ADRT	Threshold	35.9	5.9	23.6	48.3	0.8738
	MART	Threshold	27.1	6.7	12.9	41.3	0.7707
	AMT	Threshold	46.2	7.9	29.7	62.7	0.8519
	ADRRH	Threshold	38.4	5.4	27.0	49.7	0.8846
	MARRH	Threshold	15.2	4.5	5.8	24.6	0.5732
	AMRH	Threshold	22.0	7.8	5.6	38.4	0.8712
H_{canopy}	DIFN	Threshold	-14.0	2.0	-17.9	-10.1	0.4427
	LAI	Threshold 1	-36.6	6.6	-49.7	-23.5	0.4680
		Threshold 2	-22.6	2.7	-27.9	-17.4	
	R_FR	Threshold 1	-43.8	6.8	-57.2	-30.5	0.3343
		Threshold 2	-13.0	2.5	-18.0	-8.0	
	ADRT	Threshold	-24.5	3.4	-31.6	-17.4	0.9490
	MART	Threshold	-36.0	4.5	-45.5	-26.4	0.8788
	AMT	Threshold	-16.7	6.5	-30.3	-3.0	0.9260
	ADRRH	Threshold	-24.5	3.5	-31.9	-17.1	0.9563
	MARRH	Threshold	-39.8	3.7	-47.5	-32.2	0.7373
	AMRH	Threshold	-40.7	5.9	-53.1	-28.3	0.9227

Tab. S3 - Estimates and 95% confidence intervals of the slopes of the PLRM results for microclimatic factors *vs*. height.

Independent variables	Dependent variables	Slopes	Estimates	SE	*t*-value	95% confidence intervals	
						Lower	Higher
H_{ground}	DIFN	slope1 (β_1)	0.0200	0.0024	8.3834	0.0153	0.0247
		slope2 ($\beta_1+\beta_2$)	0.0026	0.0033	0.7814	-0.0039	0.0091
	LAI	slope1 (β_1)	-0.1804	0.0169	-10.6890	-0.2136	-0.1472
		slope2 ($\beta_1+\beta_2$)	-0.0297	0.0083	-3.5883	-0.0460	-0.0134
	R:FR ratio	slope1 (β_1)	0.0170	0.0024	7.0628	0.0122	0.0217
		slope2 ($\beta_1+\beta_2$)	0.0052	0.0013	3.8923	0.0026	0.0078
	ADRT	slope1 (β_1)	0.1172	0.0221	5.3101	0.0708	0.1636
		slope2 ($\beta_1+\beta_2$)	0.0186	0.0177	1.0508	-0.0186	0.0558
	MART	slope1 (β_1)	0.0852	0.0345	2.4666	0.0126	0.1577
		slope2 ($\beta_1+\beta_2$)	0.0161	0.0090	1.7754	-0.0029	0.0350
	AMT	slope1 (β_1)	0.0218	0.0035	6.2902	0.0145	0.0291
		slope2 ($\beta_1+\beta_2$)	0.0029	0.0080	0.3655	-0.0139	0.0198
	ADRRH	slope1 (β_1)	0.6689	0.1253	5.3401	0.4058	0.9321
		slope2 ($\beta_1+\beta_2$)	0.0861	0.1033	0.8340	-0.1308	0.3031
	MARRH	slope1 (β_1)	0.5939	0.5964	0.9957	-0.6592	1.8469
		slope2 ($\beta_1+\beta_2$)	0.0331	0.0190	1.7481	-0.0067	0.0730
	AMRH	slope1 (β_1)	-0.2656	0.1007	-2.6376	-0.4771	-0.0540
		slope2 ($\beta_1+\beta_2$)	-0.1243	0.0230	-5.3953	-0.1727	-0.0759
H_{canopy}	DIFN	slope1 (β_1)	0.0053	0.0013	4.1976	0.0028	0.0078
		slope2 ($\beta_1+\beta_2$)	0.0366	0.0067	5.4567	0.0234	0.0497
	LAI	slope1 (β_1)	-0.0715	0.0228	-3.1352	-0.1163	-0.0266
		slope2 ($\beta_1+\beta_2$)	0.0046	0.0496	0.0931	-0.0929	0.1022
		slope3 ($\beta_1+\beta_2+\beta_3$)	-0.1310	0.0135	-9.7162	-0.1576	-0.1045
	R:FR ratio	slope1 (β_1)	0.0133	0.0089	1.5029	-0.0041	0.0307
		slope2 ($\beta_1+\beta_2$)	0.0033	0.0021	1.5702	-0.0008	0.0074
		slope3 ($\beta_1+\beta_2+\beta_3$)	0.0223	0.0038	5.8811	0.0149	0.0298
	ADRT	slope1 (β_1)	0.1201	0.0147	8.1596	0.0891	0.1510
		slope2 ($\beta_1+\beta_2$)	0.0161	0.0144	1.1188	-0.0141	0.0462
	MART	slope1 (β_1)	0.0951	0.0299	3.1752	0.0322	0.1580
		slope2 ($\beta_1+\beta_2$)	0.0182	0.0068	2.6741	0.0039	0.0326
	AMT	slope1 (β_1)	0.0226	0.0028	8.2043	0.0168	0.0284
		slope2 ($\beta1+\beta_2$)	0.0062	0.0059	1.0554	-0.0061	0.0185
	ADRRH	slope1 (β_1)	0.7006	0.0674	10.3880	0.5589	0.8423
		slope2 ($\beta_1+\beta_2$)	0.1342	0.0951	1.4110	-0.0656	0.3339
	MARRH	slope1 (β_1)	0.4919	0.1963	2.5064	0.0796	0.9042
		slope2 ($\beta_1+\beta_2$)	-0.0039	0.0136	-0.2854	-0.0324	0.0246
	AMRH	slope1 (β_1)	-0.2793	0.0852	-3.2786	-0.4583	-0.1003
		slope2 ($\beta_1+\beta_2$)	-0.1306	0.0164	-7.9824	-0.1650	-0.0962

Tab. S4 - Pearson's correlation coefficients (PCCs) of the MMT, MMRH, and precipitation. (*): $P < 0.05$; (**): $P < 0.01$.

	Mean value of MMT in vertical	**Maximum MMT difference in vertical**	**Mean value of MMRH in vertical**	**Maximum MMRH difference in vertical**	**Monthly precipitation**
Mean value of MMT in vertical	1***	-0.147	0.106	-0.219	0.833***
Maximum MMT difference in vertical	-0.147	1***	-0.969***	0.991***	-0.484
Mean value of MMRH in vertical	0.106	-0.969***	1***	-0.962***	0.376
Maximum MMRH difference in vertical	-0.219	0.991***	-0.962***	1***	-0.510
Monthly precipitation	0.833***	-0.484	0.376	-0.510	1***
Precipitation of last month	0.698*	-0.667*	0.651*	-0.703*	0.798**

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Fig. S1 - Distribution of observation profiles in the orthophoto map (a) and the digital surface model (b). The white cycle denotes the position of a vertical observation profile for the light environment, and the red cycle denotes the position of a vertical observation profile for the temperature and RH.

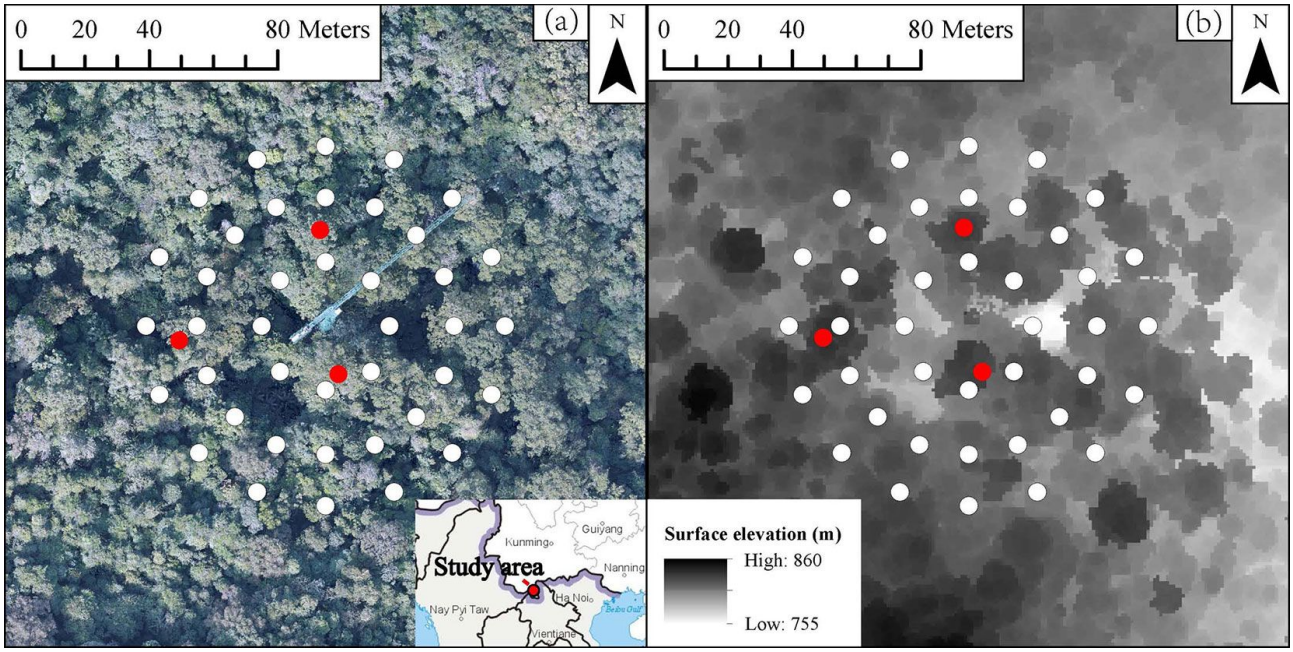

Fig. S2 - Variation in natural logarithm transformed DIFN in reference to H_{ground} (**a**) and H_{canopy} (**b**). The equations are the results of simple linear model fitting.

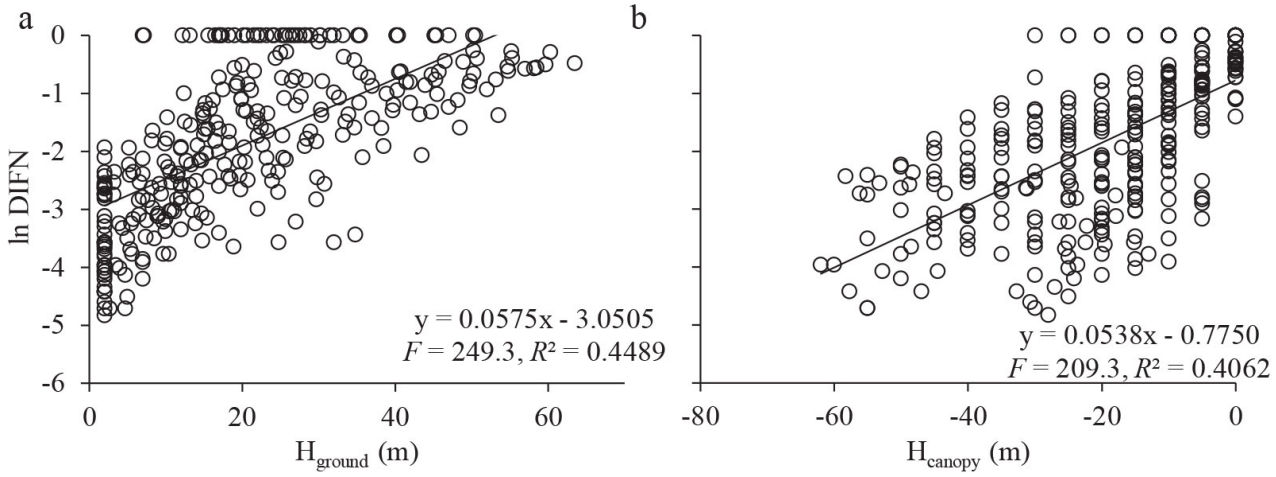

Fig. S3 - The relationship between individual tree height and crown depth of *P. chinensis*. The equations are the results of simple linear model fitting.

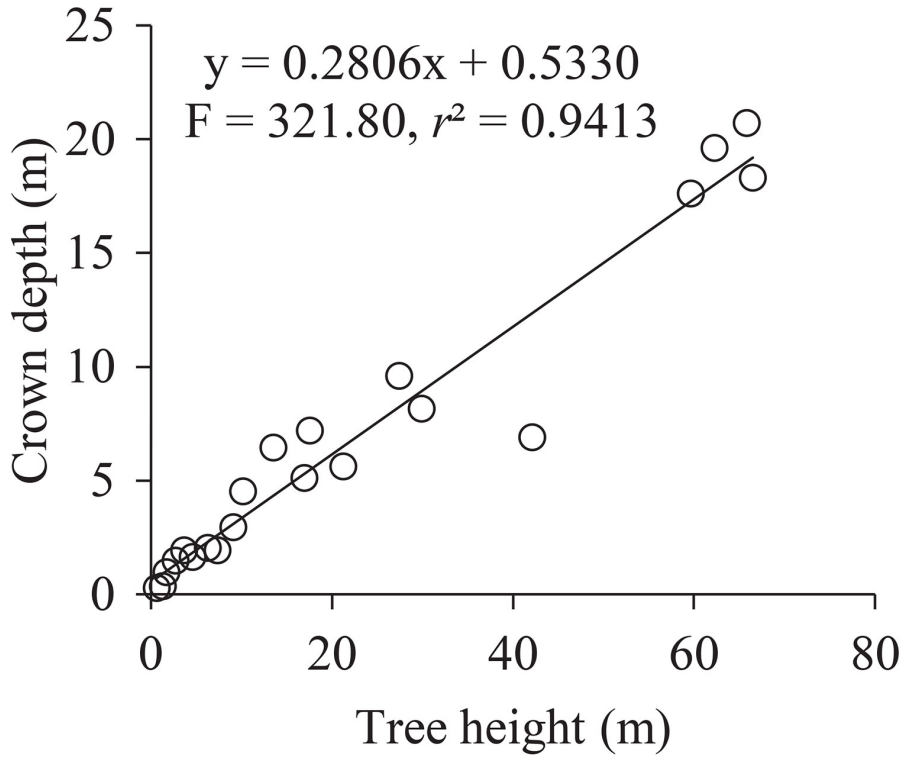

Fig. S4 - Variation in the ln (DIFN) (a) and LAI (b) with reference to the R:FR ratio. The equations are the results of simple linear model fitting.