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Supplement of

Rainfall redistribution in subtropical Chinese forests changes over 22 years

Wanjun Zhang et al.

Correspondence to: Xin Xiong (xiongx@lsbg.cn) and Juxiu Liu (ljxiu@scbg.ac.cn)

1 **Table Supplement**

2 **Table S1** Forest community structure and biodiversity

Forest type	Community composition	R_0	H'	J	D
Broadleaf forest	Tree (*Syzygium acuminatissima*, *Cryptocarya chinensis*, *Gironniera subaequalis* Planch., *Schima superba*, *Aporosa yunnanensis*, etc.)	13.66	2.69	1.04	0.73
	Shrub (*Rhodomyrtus tomentosa* (Ait.) Hassk., *Baeckea frutescens* L., *Melastoma candidum* D. Don, etc.)	18.03	2.66	0.93	0.75
	Herb (*Eriachne pallescens* R. Br., *Pteris vittata* L., Ischaemum ciliare Retz., etc.)	7.85	2.60	1.33	0.79
Mixed broadleaf-pine forest	Tree (*Cryptocarya chinensis, Schima superba, Pinus massoniana.*, etc)	7.14	2.24	1.17	0.71
	Shrub (*Litsea rotundifolia* var. *oblongifolia* (Nees) C. K. Allen, *Psychotria asiatica* L., *Ardisia quinquegona* Blume, etc.)	8.80	2.26	1.05	0.70
	Herb (*Gahnia tristis* Nees in Hooker & Arnott)	4.80	1.69	1.19	0.60
Pine forest	Tree (*Pinus massoniana.*)	8.65	2.62	1.24	0.79
	Shrub (*Blastus cochinchinensis* Lour., *Psychotria asiatica* L., etc.)	14.83	3.08	1.16	0.83
	Herb (*Tectaria harlandii* (Hook.) C. M. Kuo, *Alpinia oblongifolia* Hayata, etc.)	8.20	2.29	1.16	0.71

3 R_0: Patrick richness, H': Shannon-Weiner index, J: Pielou index, D: Simpson index

4

5   **Table S2** Growth indicators of 8 monitored tree species in the forests

Forest type	No.		DBH	Height	Crown area
Broadleaf forest	SF1	*Acmena acuminatissima* (Blume) Merr. et Perry	23.6 ± 5.3	12.1 ± 2.1	18.1 ± 8.3
	SF2	*Cryptocarya chinensis* (Hance) Hemsl.	28.8 ± 2.2	16.5 ± 1.4	28.5 ± 5.1
	SF3	*Gironniera subaequalis* Planch.	23.8 ± 0.5	13.8 ± 0.7	26.3 ± 1.9
	SF4	*Schima superba* Gardn. et Champ.	30.6 ± 1.7	20.4 ± 0.5	21.9 ± 2.9
Mixed broadleaf-pine forest	SF5	*Castanea henryi* (Skam) Rehd. et Wils.	24.9 ± 3.2	12.2 ± 1.5	34.9 ± 1.0
	SF6	*Schima superba* Gardn. et Champ.	21.6 ± 1.2	13.2 ± 0.8	18.1 ± 2.2
	SF7	*Pinus massoniana* Lamb.	35.7 ± 1.5	15.2 ± 0.8	27.5 ± 7.4
Pine forest	SF8	*Pinus massoniana* Lamb.	34.9 ± 1.2	10.2 ± 2.6	27.1 ± 7.2

6   DBH: diameter at breast height. 3 replications of each tree species, Mean ± SD

7

8   **Table S3** Anomaly of annual rainfall, throughfall and stemflow in the three forest types from 2001-
9   2022

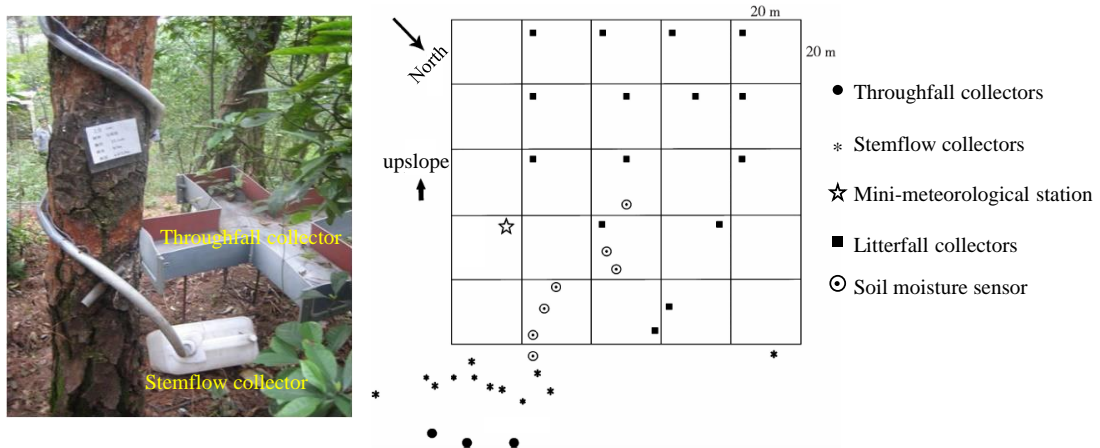| Year	Rainfall	Broadleaf forest		Mixed forest		Pine forest	
		TF	SF	TF	SF	TF	SF
2001	1889.2		30.4	1772.9	25.7	1724.9	11.1
2002	1818.9	1550.0	17.2	1401.5		1632.5	12.8
2003	1344.7	1150.5	13.2	1089.1	13.1	1182.4	12.1
2004	1328.1	1242.1	18.4	954.2	19.4	1254.6	12.4
2005	1615.0	1513.1	22.3	1458.1	21.8	1517.3	13.9
2006	2227.6	1581.2	30.9	2000.5	32.2	2048.7	24.8
2007	1423.1	1377.8	17.1	1306.3	18.8	1379.8	9.0
2008	2361.1	2067.6	22.0	2186.6	20.8	2192.6	13.3
2009	1760.4	1264.7	90.8	1309.0	48.3	1564.5	15.0
2010	1735.8	1509.3	86.8	1531.9	55.3	1519.0	9.2
2011	1370.0	1249.6	91.5	1223.9	38.8	1214.7	10.5
2012	2028.3	1856.9	114.0	1684.0	67.0	1676.4	19.9
2013	2036.6	1652.9	101.9	1579.1	56.9	1522.3	33.7
2014	1979.1	1457.0	97.3	1624.9	44.0	1645.4	30.1
2015	2182.0	1641.1	88.5	1870.4	71.1	1883.1	11.1
2016	1920.8	1693.2	100.1	1776.1	74.0	1749.6	22.6
2017	1860.8	1609.5	86.7	1673.1	70.3	1635.4	19.5
2018	2209.3	1664.8	119.7	1600.6	71.0	1599.7	22.7
2019	2158.7	1725.7	119.1	1895.7	67.9	1967.9	16.8
2020	1934.9	1543.5	109.4	1680.7	80.4	1534.8	35.4
2021	1506.8	1100.7	40.2	1203.1	49.4	1242.0	27.7
2022	1978.3	1517.7	84.1	1754.2	67.3	1722.0	26.2
Mean	1848.6	1522.3	68.3	1571.6	48.3	1609.5	18.6

10

Figure Supplement

Fig. S1 Collecting equipment and their locations of throughfall and stemflow
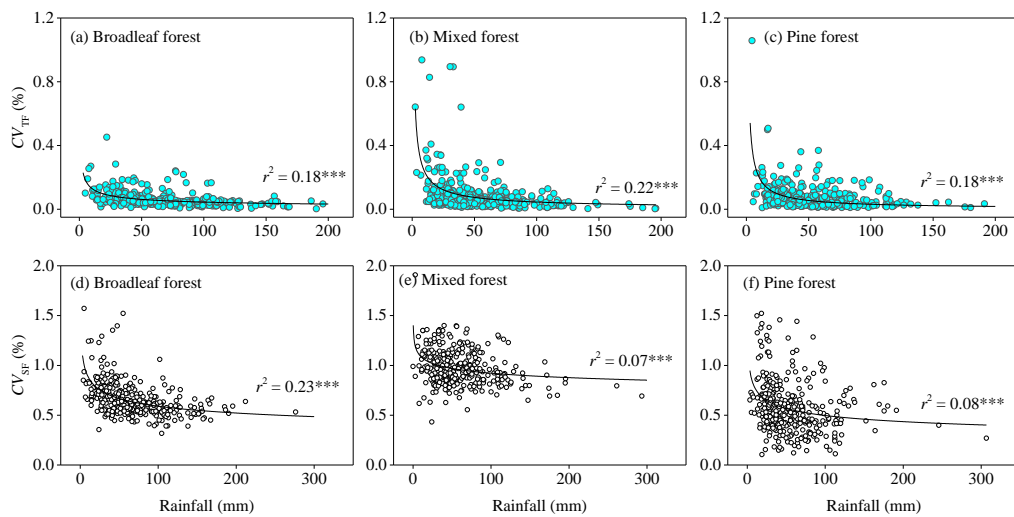

Fig. S2 Coefficient of variation changing of throughfall ratio (a~c) and stemflow ratio (d~f) with rainfall volume. r: Pearson coefficient of correlation; *: $P < 0.05$, **: $P < 0.01$, ***: $P < 0.001$