

Supporting Information. D'Andrea, R., J. Guittar, J. P. O'Dwyer, H. Figueroa, S. J. Wright, R. Condit, and A. Ostling. 2020. Counting niches: Abundance-by-trait patterns reveal niche partitioning in a Neotropical forest. *Ecology*

Appendix S1

Table S1. Clustering results are consistent across censuses. To save computational resources, traits with insignificant results were tested every two censuses. RP: regional pool. RGR: relative dbh growth rate. MRT: mortality.

Trait	Census	Species	Individuals	Clusters	Z-score	P-value
Maximum height	1982	252	21,423	4	2.6	0.005
	1985	253	21,670	4	2.6	0.003
	1990	254	22,340	4	2.5	0.003
	1995	257	21,341	4	2.4	0.011
	2000	259	20,620	4	2.3	0.012
	2005	260	20,177	4	2.1	0.024
	2010	260	20,631	4	2.2	0.014
	RP	242	13,743	1	3.4	0.001
Wood density	1982	223	17,332	1	2.8	0.001
	1985	223	17,902	1	2.8	0.001
	1990	224	18,597	1	2	0.025
	1995	227	17,646	5	2.2	0.023
	2000	229	17,139	5	2.1	0.017
	2005	229	16,874	5	1.9	0.035
	2010	229	17,325	5	1.7	0.055
	RP	219	9,273	20	1.6	0.058
Leaf mass per area	1982	243	18,478	18	-1	0.839
	1990	245	19,947	3	-0.4	0.618
	2000	250	18,368	3	0.2	0.396
	2010	251	18,437	3	1	0.15
	RP	234	9,528	3	1.5	0.072
Seed mass	1982	183	18,735	16	-0.2	0.548
	1990	184	19,707	13	0.3	0.396
	2000	185	18,259	15	0.2	0.377
	2010	185	18,154	13	0.2	0.407
	RP	177	10,667	3	1	0.158

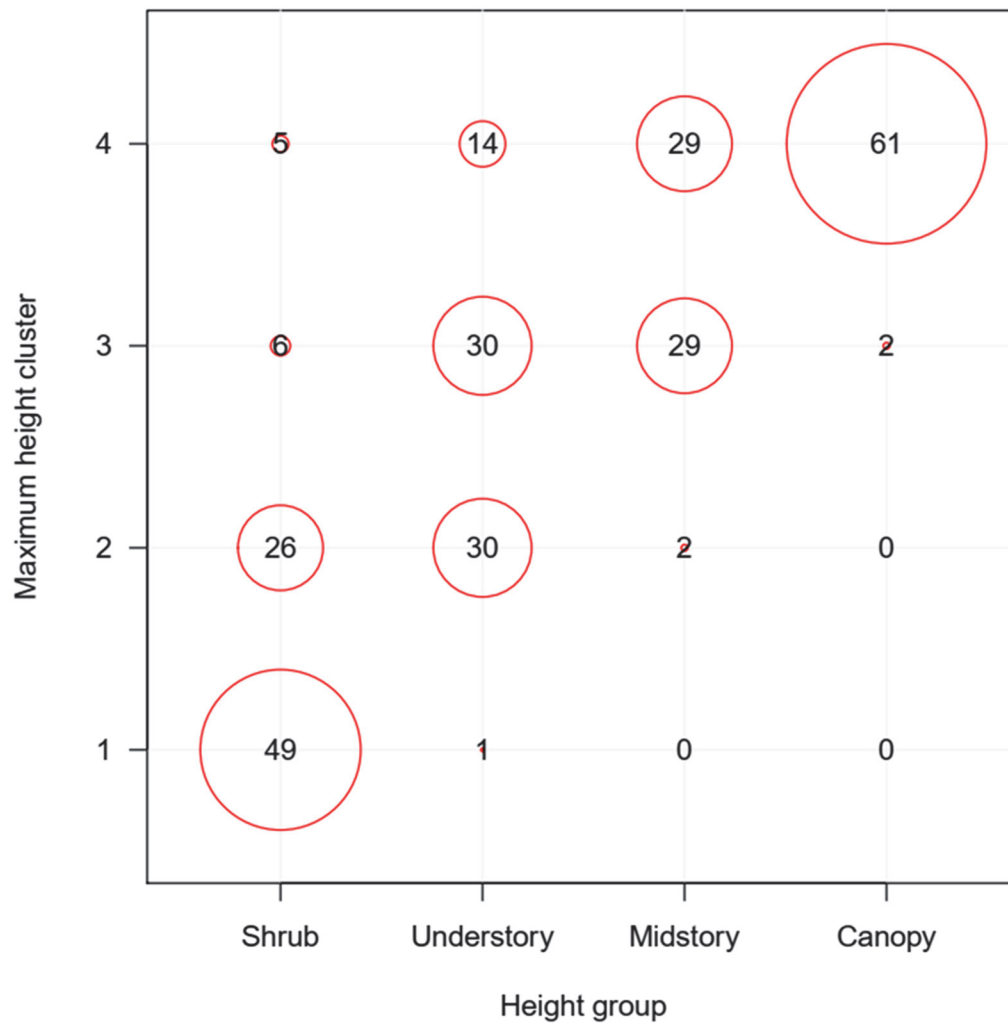


Figure S1. Correspondence between quantitative height clusters and qualitative classification. Circle sizes are proportional to the numbers within, which show how many species are classified in each combination of our four height clusters and the four qualitative height groups. Largest values are close to the diagonal, indicating a good match between the two classifications. Cramér's V, which measures the degree of association between two categorical variables, was 0.58 (0 = no association, 1 = perfect correspondence). Data for the qualitative groupings obtained from Wright et al³⁵. Note that this classification into height groups (x-axis) was based on typical height of reproductive adults, not the species maximum height. As such, some species are classified one height group below their corresponding maximum-height cluster, hence the bias towards placement above the diagonal.

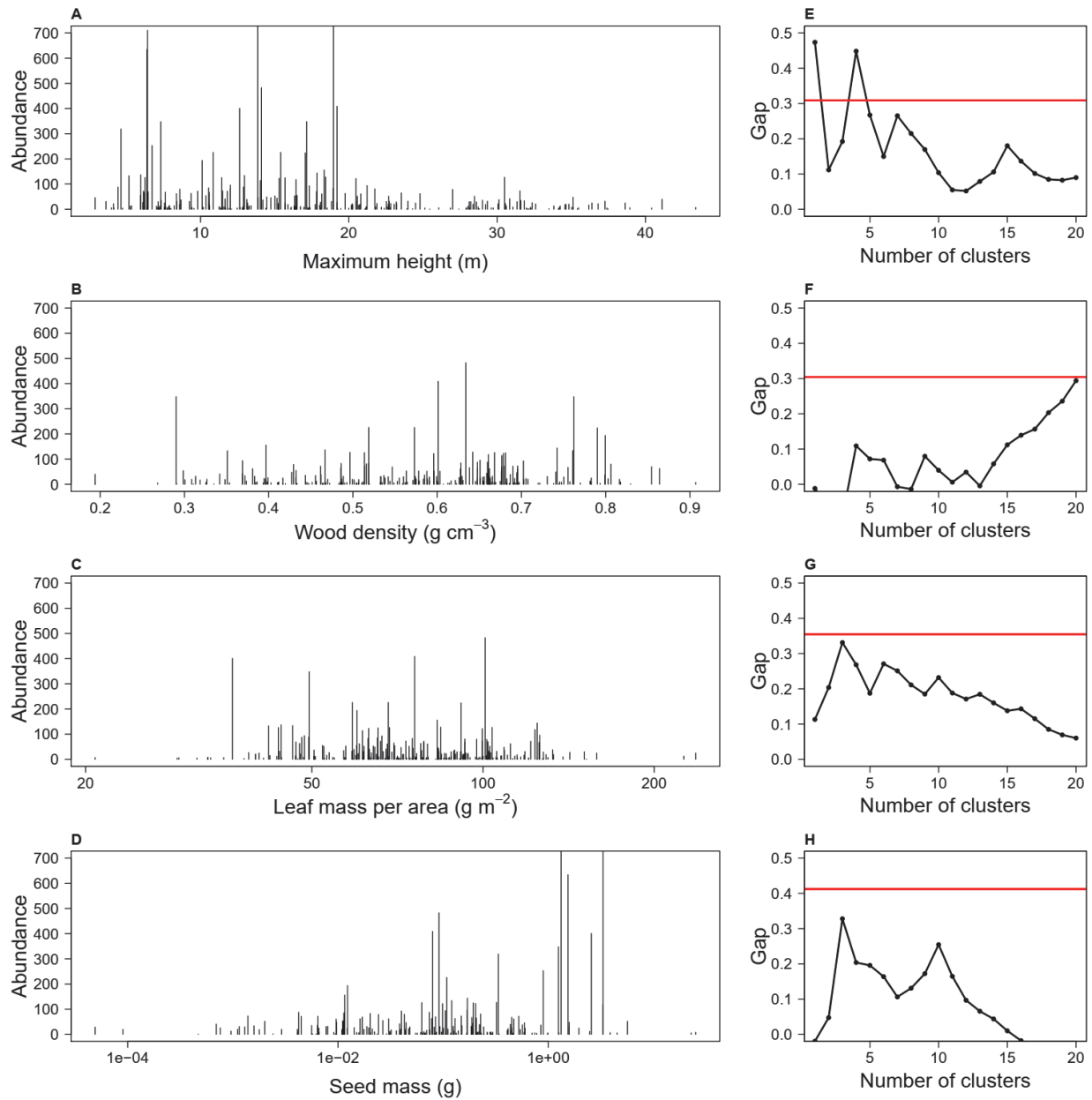


Figure S2. Regional pool results. Results displayed in analogous form to Fig. 2. Only maximum height is clustered, with significance at $K = 1$ and $K = 4$. Wood density and LMA are marginally significant at $K = 20$ and $K = 3$, respectively.

Figures S3-S6. BCI results for all available censuses. Pattern was consistent across censuses, especially for maximum height (Fig S3). In wood density (Fig S4), the peak at $K = 5$ tops $K = 1$ as the highest gap index over time. LMA (Fig S5) and seed mass (Fig S6) results were obtained for alternate censuses to save computational resources.

Figure S3.

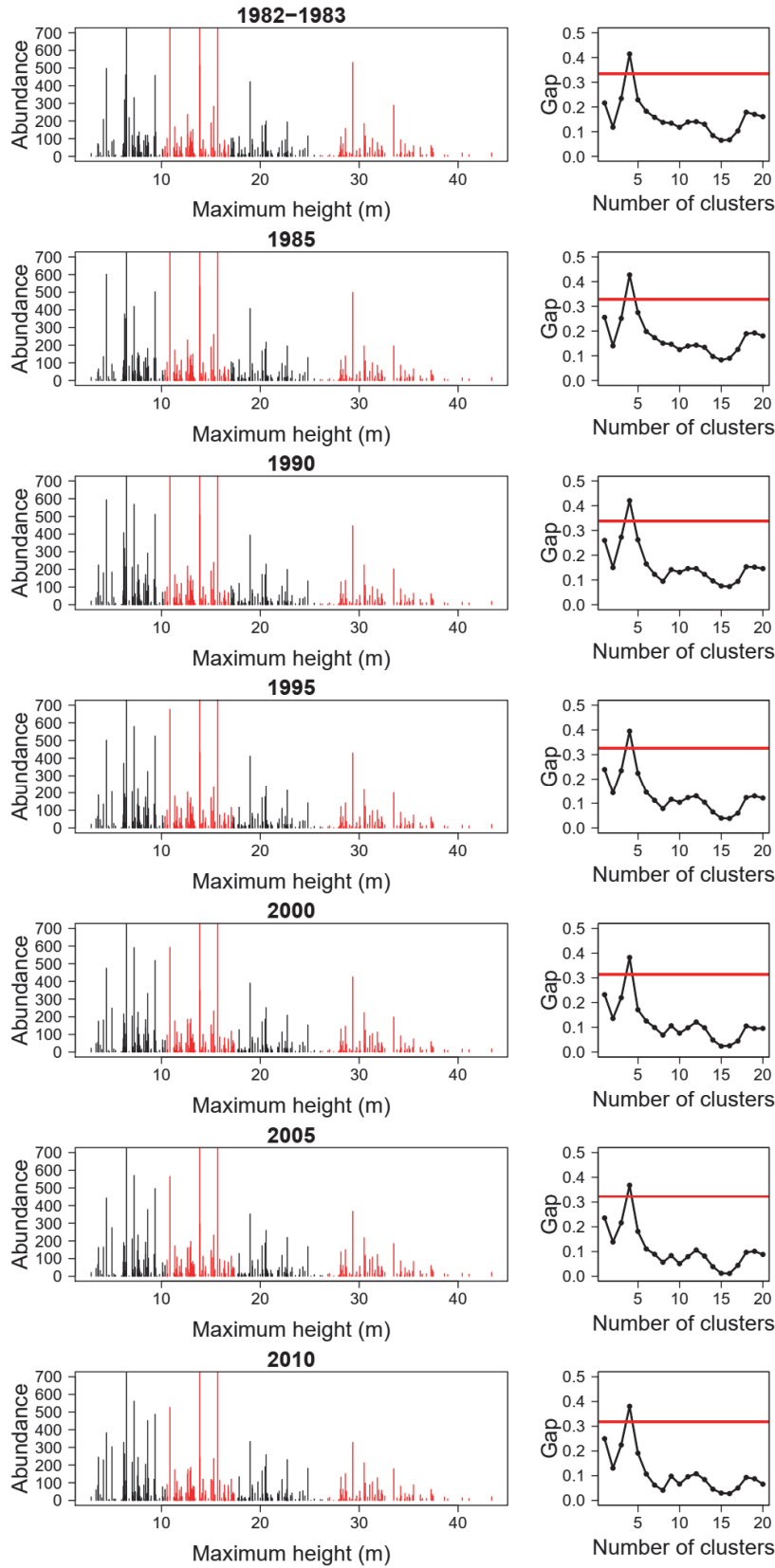


Figure S4.

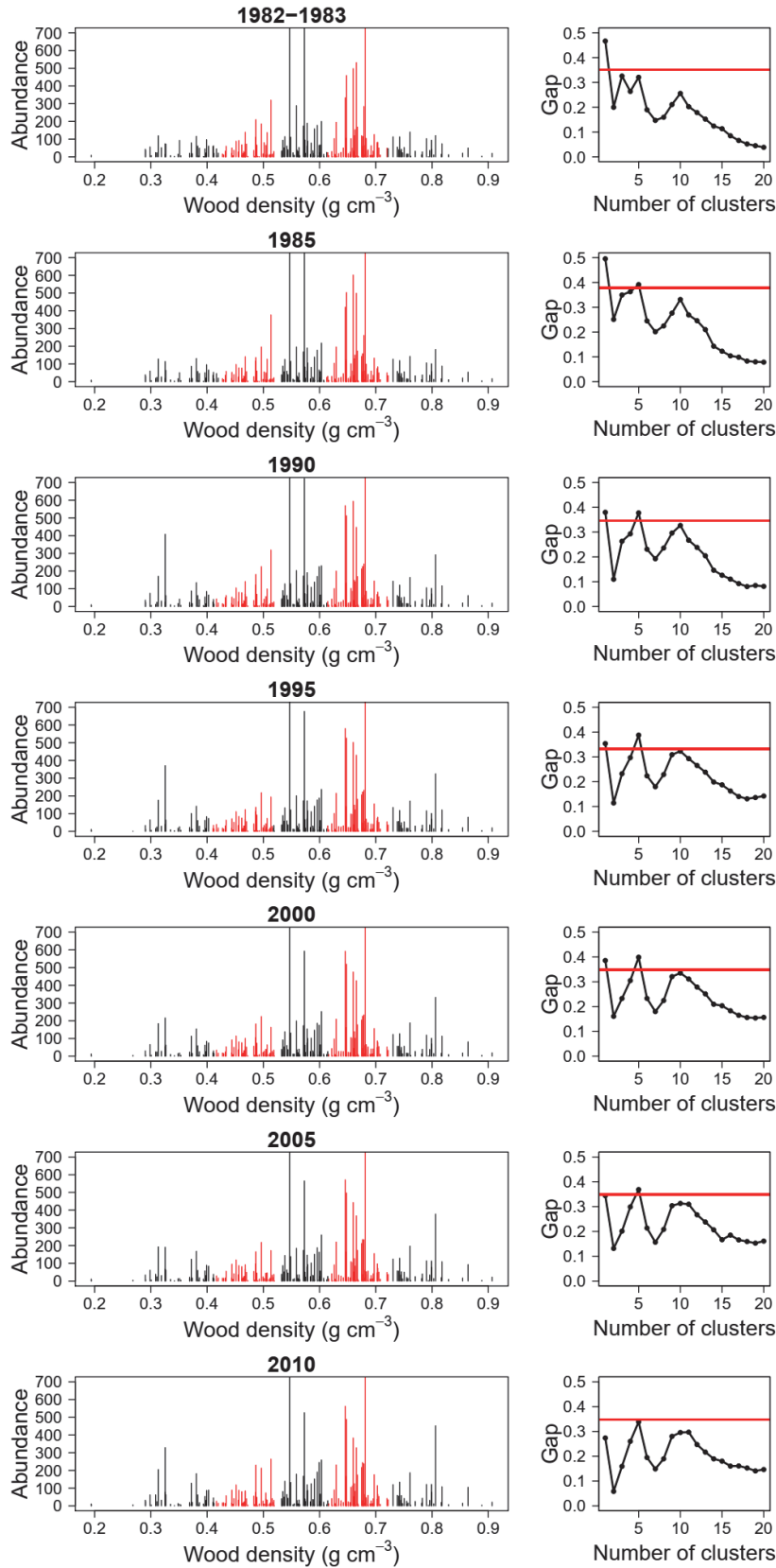


Figure S5.

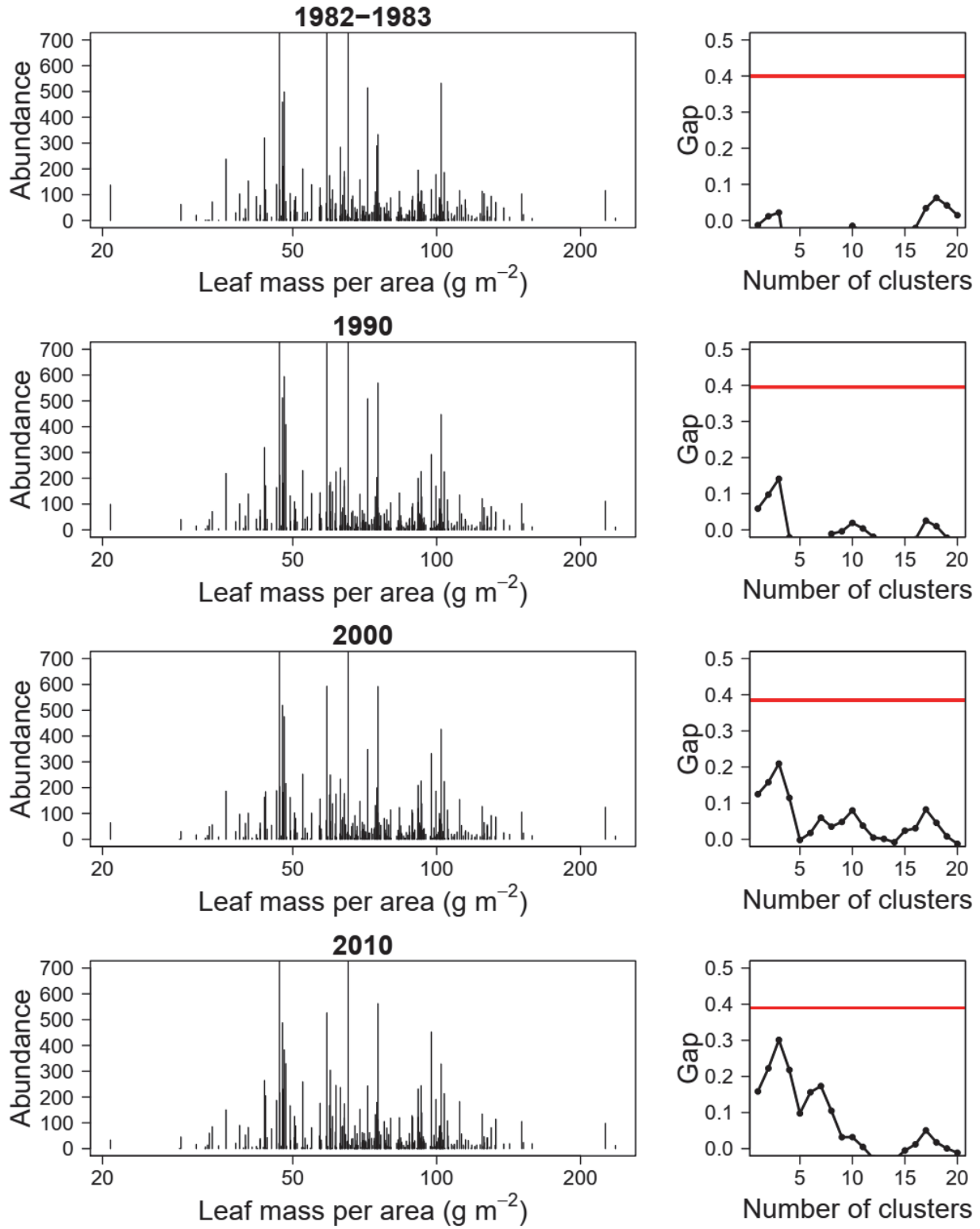


Figure S6.

