Online Resource 2

Supplementary material online to the paper “Plant communities and environmental factors in the Guayana Highlands: monitoring for conservation under future climate change”, Systematics and Biodiversity, by Safont, E.*, Vegas-Vilarrúbia, T., Rull, V., Holst, B.K., Huber, O., Nozawa, S., Vivas, Y., Font, X., Silva, A.

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Table S2. Summary data of environmental variables per plot, by group. Mean values are given for quantitative variables (pH soil, EA soil, pH water and EC water). EA of soil ranges from 0 to 1, and EC of water is expressed in mS/cm. The rest of variables are expressed as follows: soil type, 3 qualitative classes (sand, peat, organic); terrain irregularity, binary (0, 1); slope, semi-quantitative (1 for steep, 0.75 for moderate, 0.5 for soft, and 0.25 for flat); orientation, qualitative; and potential flooding events and discontinuity of vegetation cover, binary. Plots are grouped based on the results of K-means clustering. *: measures were made at adjacent water surfaces, NA: data not available, –: data not applicable.

	Plot	Soil type			Terrain irregularity	Slope	Orientation	Potential flooding / Vegetation discontinuity	pH soil	EA soil	pH water	EC water
		Sand	Peat	Organic matter								
Group 1	H4	0.5	0.5	0	0	0.25	–	1	5.14	0.01	5.69	<0.01
	H5	1	0	0	0	0.5	E	1	5.01	<0.01	6.14	<0.01
	H9	1	0	0	0	0.25	–	1	4.88	<0.01	5.20	0.01
	H12	1	0	0	0	0.5	SE	1	4.67	<0.01	–	–
	H13	1	0	0	0	0.5	E	1	4.21	<0.01	–	–
	H14	0	1	0	0	0.5	N	1	NA	NA	–	–
	H15	0	1	0	0	0.5	NA	1	NA	NA	–	–
	H16	0.5	0.5	0	0	0.5	S	1	6.51	0.04	7.45	<0.01
Group 2	H2	0.5	0.5	0	0	0.5	SE	0	6.61	0.05	–	–
	H6	1	0	0	0	0.5	NW	0	3.81	<0.01	4.92*	0.01*
	H7	1	0	0	0	0.5	S	0	4.47	<0.01	–	–
	H8	1	0	0	0	0.5	E	0	3.92	0.01	5.55*	0.01*
	H10	1	0	0	0	0.5	SW	0	3.85	0.01	4.02	0.01
Group 3	H1	1	0	0	0	0.5	S	1	6.10	0.01	7.08	<0.01
Group 4	H3	0.5	0.5	0	0	0.5	E	1	4.19	0.05	5.39	<0.01
	H11	0	0	1	0	1	E	0	3.62	0.08	–	–
	S1	0	0	1	1	0.75	SW	0	4.61	0.07	–	–
	S2	0	0	1	1	0.75	N	0	3.30	0.01	4.10*	<0.01*
Group 5	F1	0	0	1	1	0.75	E	0	4.35	0.05	–	–
	F2	0	0	1	1	0.75	SW	0	3.04	0.01	–	–

Table S3. Summary data of the environmental assessment performed at field camps “Hotel Jacuzzis” (J), “Hotel San Francisco” (SF), and “Hotel Coati” (C). Mean values are provided for quantitative variables, with extreme ones in parentheses. Soil EA ranges from 0 to 1, and water EC is expressed in mS/cm.

Field camp	Estimated capacity	Sample	Type of site	Main disturbance	Soil type	Surrounding vegetation	pH soil	EA soil	pH water	EC water
“Hotel Jacuzzis”	8	J1	Camping area	Establishment of tents	Sand	<i>Poa annua</i>	4.60	0.01	-	-
		J2	Border of vegetation and camping area	Establishment of tents	Sand	<i>Elaphoglossum sp.</i> , <i>Ageratina roraimensis</i> , <i>Cortaderia roraimensis</i>	4.27	0.05	-	-
		J3	Border of vegetation and camping area	Establishment of tents	Sand	<i>A. roraimensis</i> , bryophyte, <i>Ugni myricoides</i>	4.26	0.02	-	-
		J4	Border of vegetation and camping area	Establishment of tents	Organic	<i>Elaphoglossum sp.</i> , <i>A. roraimensis</i> , <i>U. myricoides</i>	2.95	0.09	-	-
		J5	Camping area	Establishment of tents	Organic	<i>Elaphoglossum sp.</i> , <i>A. roraimensis</i> , <i>U. myricoides</i>	1.88	0.06	-	-
“Hotel San Francisco”	8	SF1	Sandy area beneath a rocky ledge, between the camping area and the surrounding vegetation	Dishwashing	Saturated sand	<i>Chusquea linearis</i> , <i>Connellia quelchii</i> , <i>Culcita cuniifolia</i>	4.36	0.04	-	-
		SF2	Vegetation growing on rocky substrate, next to camping area	Disposal of food and water	Rock/organic	<i>Cyathea sp.</i> , <i>Eriosorus sp.</i>	3.67	0.17 (0.30)	-	-
		SF3	Forest beside camping area	Toilet	Organic	<i>Blechnum sp.</i> , <i>Miconia tinifolia</i>	3.83	0.05	-	-
		SF4	Same as SF3 but bordering herbaceous vegetation and the entrance path	Trampling, runoff of SF3	Peat	<i>Schefflera umbellata</i>	4.23	0.05	-	-
“Hotel Coati”	14	C1	Stream inside the grotto, adjacent to kitchen area	Disposal of food and water	Sand	-	6.77	0.15	5.70	<0.01
		C2	Distant end of the grotto	Toilet	Sand	-	6.68	0.03	-	-
		C3	Stream adjacent to camp, at the mouth of the grotto	Dishwashing	Non saturated sand	-	6.76	0.30 (0.70)	5.38	<0.01
		C4	Small ponds along the stream	Dishwashing, bathing	Sand	-	-	-	6.65/6.75	-

Table S4. Summary of studies carried out in Pantepui evaluating pH and conductivity of soil and water in undisturbed environments.

Tepui	Sampling object	Location description	Elevation (m)	Date	pH water	EC water ($\mu\text{S}/\text{cm}$)	pH soil	EA soil	Reference
Chimantá Massif	Stream	"Churí-tepui Cave System"	2200 – 2300	-	4.58	9	-	-	Derka et al., 2009
	Stream	"Churí-tepui Cave System"			4.38	18	-	-	
	Churí	Underground and surface streams, ponds, springs and cave drippings	2200 – 2300	2007, 2009	3.3 – 5.6	2007: 18 – 27 2009: 2 – 18	-	-	Aubrecht et al., 2008, 2011
	Surface soil	Shrubby peat bog	2250	Feb-Mar 1984, Feb 1985	-	-	3.3	-	Cuevas, 1992
	Akopán	Surface soil	1950	Feb 1985	-	-	3.4	-	Cuevas, 1992
	Toronó	Surface soil	2100	Feb 1985	-	-	3.3	-	Cuevas, 1992
	Auyán	Water from ponds, peat bogs, and solution	1500	Feb-Mar 1993, 1996	3.60 – 4.52 (4.19 $\pm$ 0.33)	12.1 – 28.9 (20.2 $\pm$ 6.5)	-	-	Mecchia & Piccini, 1999; Piccini & Mecchia, 2009
	Underground and surface stream water	"Aonda Cave System" and surroundings			3.60 – 5.13 (4.16 $\pm$ 0.44)	9.2 – 27.1 (19.0 $\pm$ 4.4)	-	-	
Roraima	Stream	"The Slope" after the "Base Camp"	1870	28 Jan 2012	4.7	-	-	-	Mecchia et al., 2014
	Spring	Spring at 2.346 m	2346		4.76	19	-	-	Derka et al., 2009
	Surface and underground water	"Roraima Sur Cave System"	Summit	2002 – 2005	3 – 5	-	-	-	Galán et al., 2004
	Surface, underground, and spring water	"Ojos de Cristal Cave System"	Summit	2007, 2009	3.3 – 5.6	2007: 5 – 19 2009: 5 – 8	-	-	Aubrecht et al., 2008, 2011
	Surface water	Water stored in crevices and other depressions	Summit	Dec 1992	~3.5	-	-	-	Michelangeli, 2000
	Surface soil	Vegetation isolates (33 islands)			-	-	3.8 – 4.0		
	Surface soil	Wet meadows and sites with accumulation of organic matter near the "Triple point" (8 sites)	Summit	Dec/Jan	-	-	4.0 – 6.0 (5.0 $\pm$ 0.6)	-	Hamatani, 2000
	Surface soil	Peaty bank of a pond, population of <i>Heliophora nutans</i>	Summit	Jan 2006	-	-	4,0	-	Adlassnig et al., 2010

	Surface water	7 localities of the southern part of the summit	Summit	29-31 Jan 2012	4.8 – 5.8 (5.2 ± 0.4)	-	-	-	Mecchia et al., 2014
	Underground water	10 localities of the southern part of the summit		28 Jan – 01 Feb 2012	4.8 – 5.5 (5.1 ± 0.3)	-	-	-	
	Surface soil and water	20 vegetation plots	Summit	Mar 2011, 2012	4.02 – 7.45 (5.55 ± 1.12)	≤10	3.04 – 6.61 (4.62 ± 0.97)	<0.01-0.08	This study
	Surface soil (0 – 30 cm)				-	-	3.2 – 4.6 (3.7 ± 0.5)	-	
Cuao	Subsurface soil (16 – 80 cm)	6 peatlands	1500 – 1800	Feb 1993	-	-	3.2 – 4.3 (3.7 ± 0.4)	-	Zinck & Huber, 2011
	Deeper soil (55 – 135 cm)				-	-	3.2 – 5.5 (4.6 ± 1.1)	-	
	Surface soil (10 – 20 cm)				-	-	5.0 – 5.3 (5.2 ± 0.2)	-	
Maigualida	Subsurface soil (20 – 60 cm)	2 peatlands	1700 – 2150	Mar 1996	-	-	4.4 – 5.2 (4.8 ± 0.4)	-	Zinck & Huber, 2011
	Deeper soil (60 – 110 cm)				-	-	4.5	-	

References of Table S4

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