

Supplementary Material

Leaf water $\delta^{18}\text{O}$ reflects water vapour exchange and uptake by C_3 and CAM epiphytic bromeliads in Panama

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Table S1. Description of sites along an altitudinal gradient across the Central Cordillera of Panama, where seasonal fluctuation in rainfall, atmospheric water vapour and leaf water $\delta^{18}\text{O}$ was measured

	Description	Elevation (m)^a	Precipitation (m y⁻¹)^b	Latitude (°N)^a	Longitude (°W)^a
1	Lowland/deciduous	16	2.500	8°10'400	81°51'908
2	Lowland/deciduous	72	3.169	8°24'484	82°19'068
3	Lowland/deciduous	92	2.500	8°15'839	81°51'243
4	Lowland/deciduous	104	2.653	8°24'047	82°14'873
5	Lowland/deciduous	128	4.104	8°28'212	82°16'869
6	Lowland/deciduous	263	2.653	8°33'097	82°17'091
7	Lowland/deciduous	433	3.276	8°33'674	82°15'214
8	Transition to forest	654	3.276	8°35'134	82°14'125
9	Transition to forest	911	3.567	8°36'922	82°13'265
10	Transition to forest	1013	3.567	8°37'676	82°12'666
11	Transition to forest	1126	3.567	8°40'332	82°13'283
12	Transition to forest	1232	3.684	8°43'330	82°14'245
13	Pristine montane forest	1239	5.986	8°43'849	82°15'498
14	Pristine montane forest	1364	5.986	8°43'849	82°15'498
15*	Pristine montane forest	978	5.986	8°35'125	82°14'151
16*	Pristine montane forest	360	5.986	8°50'050	82°11'106
17*	Lowland/deciduous	157	3.458	8°56'445	82°10'131
18*	Lowland/deciduous	124	3.458	9°03'123	82°18'113
19*	Lowland/deciduous	22	3.458	9°08'582	82°19'301
20*	Lowland/deciduous	12	3.458	9°11'386	82°20'343

^aElevation and geographic coordinates were measured using a geographic position device which included a barometric altimeter (e-Trex Summit, Garmin International, Inc. 2000).

^bPrecipitation was obtained from nearby meteorological stations (ETESA –Empresa de Transmisión Eléctrica SA- meteorological data).

*Sites along the Caribbean slope of the Central Cordillera.

Table S2. Epiphytic Bromeliads included in $\delta^{18}\text{O}_{\text{lw}}$ survey along an altitudinal gradient across the Central Cordillera, Panama

Unknown species were photographed and specimens preserved. Presence of Crassulacean Acid Metabolism (*) was confirmed by analysis of $\delta^{13}\text{C}$ in organic matter (see Materials and Methods). Site number corresponds to Table 1.6

SPECIES	SITE																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<i>Guzmania coriostachya</i>													+	+	+	+				
<i>Guzmania calamifolia</i>													+	+		+				
<i>Guzmania musaica</i>													+	+	+					
<i>Werauhia capitata</i>													+	+		+			+	
<i>Werauhia hygrometrica</i>													+	+	+	+				
<i>Racinea sp.</i>													+	+						
<i>Werauhia sp.</i>														+	+					
<i>Guzmania sp.</i>													+	+	+					
<i>Tillandsia anceps</i>													+		+	+				
<i>Guzmania obtusifolia</i>													+		+	+				
<i>Werauhia latipens</i>													+	+	+					
<i>Werauhia sp.</i>													+	+						
<i>Guzmania stenostachya</i>														+						
<i>Werauhia sp.</i>													+	+						
<i>Werauhia ringen</i>														+						
<i>Werauhia kupperiana</i>													+			+				
<i>Werauhia vitata</i>													+		+	+				
<i>Guzmania dissitiflora</i>													+							
<i>Werauhia sp.</i>													+							
<i>Aechmea veitchii</i>													+		+					
<i>Werauhia sp.</i>												+	+							
* <i>Tillandsia sp.</i>													+							
<i>Tillandsia sp.</i>										+	+		+							
<i>Guzmania nicaraguensis</i>													+							
* <i>Tillandsia sp.</i>													+							
* <i>Tillandsia</i>												+	+							
<i>Werauhia sp.</i>													+							
<i>Catopsis nutans</i>	+		+	+		+	+	+	+	+	+	+								
<i>Werauhia sanguinolenta</i>	+	+	+	+	+	+	+	+	+	+										
* <i>Tillandsia catup-meduasae</i>	+	+	+	+		+	+	+												
* <i>Tillandsia juncea</i>						+				+							+			+
* <i>Tillandsia sp.</i>					+	+	+	+	+	+										

SPECIES	SITE																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<i>*Tillandsia fasciculata</i>	+	+		+		+		+		+		+		+		+		+		+	
<i>*Tillandsia balbisiana</i>	+	+	+	+																	
<i>*Aechmea mariae-reginae</i>																		+			
<i>*Aechmea nudicalis</i>																		+	+	+	+
<i>*Aechmea aquilega</i>																			+	+	
<i>*Tillandsia bulbosa</i>																			+		+
<i>Catopsis sissiliflora</i>																			+	+	+