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*Supplement of*

## **Influence of late Quaternary climate on the biogeography of Neotropical aquatic species as reflected by non-marine ostracodes**

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## Supplementary material

Table S1. Northern Neotropical fossil records for two endemic (*Cypria petenensis*, *Paracythereis opesta*) and two non-endemic (*Cytheridella ilosvayi*, *Darwinula stevensoni*) ostracode species.

	Locality	<i>Cypria petenensis</i>	<i>Paracythereis opesta</i>	<i>Cytheridella ilosvayi</i>	<i>Darwinula stevensoni</i>	Time Interval Studied (ka BP)	Reference
1	Laguna Petenxil, Guatemala		x			4-0	Goulden, 1966
2	Laguna de Cocos, Belize	x		x	x	5.93-0	Bradbury et al., 1991
3	Cobweb Swamp, Belize			x		7-0	Alcala-Herrera et al., 1994
4	Chichancanab, México	x?				7.6-0	Hodell et al., 1995
5	Punta Laguna, México			x		3.31-0	Curtis et al., 1996
6	Laguna Cobá, México	x?				7.6-0	Whitmore et al., 1996
7	Lago Petén Itzá, Guatemala			x		9.12-0	Curtis et al., 1998
8	Wallywash Great Pond, Jamaica			x	x	12.5-0	Holmes, 1998
9	Salpetén, Guatemala	x				4-0	Rosenmeier et al., 2002a
10	Salpetén, Lago Petén Itzá, Guatemala	x	x	x		8.78-0	Rosenmeier et al., 2002b
11	Lago Petén Itzá, Guatemala		x			11.25-0	Hillesheim et al., 2005
12	Xcaamal, México				x	2.6-0	Hodell et al., 2005
13	Little Salt Spring, United States of America			x	x	12-0	Álvarez-Zarikian et al., 2005
14	Cenote Aktun ha, México			x	x	6.94-0	Gabriel et al., 2009
15	Lago Petén Itzá, Guatemala			x		43-0	Escobar et al., 2010

16	Lago Petén Itzá, Guatemala	x	x	x		5.25-0	Pérez et al., 2010
17	Lago Petén Itzá, Guatemala	x	x		x	24-10	Pérez et al., 2011
18	Lago Petén Itzá, Guatemala		x			43-0	Escobar et al., 2012
19	Laguna Tuspán, Guatemala		x	x	x	5.3-0	Fleury et al., 2014
20	Lago Petén Itzá, Guatemala	x	x	x	x	53-14	Cohuo et al., 2018

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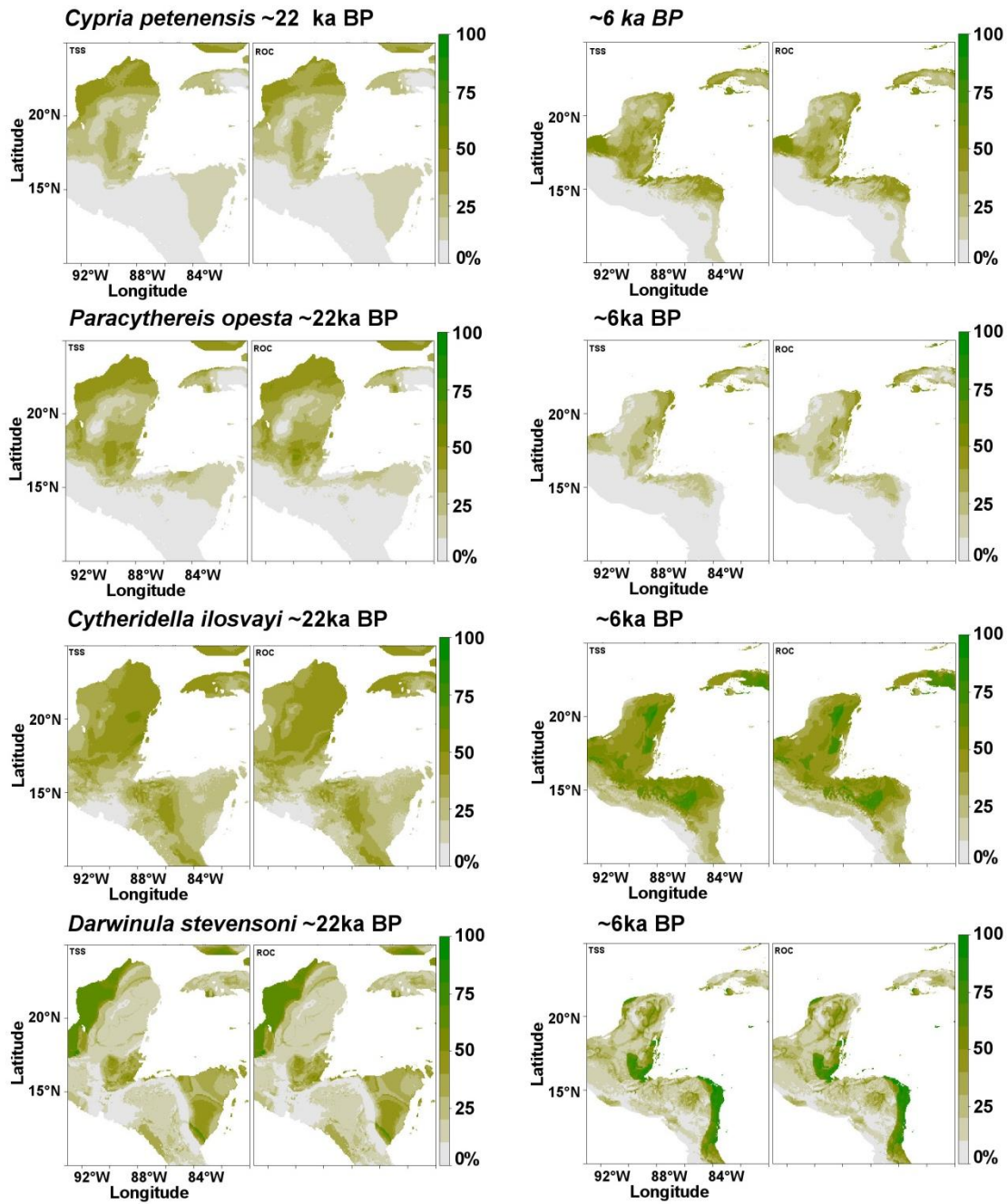
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**Figure S1.** Species distribution models of endemic *Cypria petenensis*, *Paracythereis opesta* and non-endemic *Cytheridella ilosvayi*, *Darwinula stevensoni*. Models are based on downscaled and calibrated climatic information of the MIROC-GSM climatic model for the period of ~22 and ~6 ka BP. Models performance were assessed with true skill statistic (TSS) and area under the receiver operating curve (ROC).

Table S2. Pearson correlation analysis of 19 bioclimatic variables of the Northern Neotropical region.

	Bio 1	Bio 2	Bio 3	Bio 4	Bio 5	Bio 6	Bio 7	Bio 8	Bio 9	Bio10	Bio 11	Bio 12	Bio 13	Bio 14	Bio 15	Bio 16	Bio 17	Bio 18	Bio 19
Bio 1	1																		
Bio 2	-0.22	1																	
Bio 3	-0.18	0.29	1																
Bio 4	0.16	0.16	-0.83	1															
Bio 5	<b>0.9</b>	0.24	-0.19	0.36	1														
Bio 6	<b>0.9</b>	-0.57	-0.03	-0.17	0.56	1													
Bio 7	-0.13	0.88	-0.15	0.55	0.35	-0.57	1												
Bio 8	<b>0.95</b>	-0.2	-0.37	0.4	0.85	0.77	-0.02	1											
Bio 9	<b>0.94</b>	-0.26	-0.05	-0.01	0.79	<b>0.9</b>	-0.23	0.83	1										
Bio10	<b>0.98</b>	-0.16	-0.1	0.66	0.56	0.62	-0.42	0.57	0.62	1									
Bio 11	<b>0.95</b>	-0.26	0.08	-0.14	0.76	<b>0.93</b>	-0.3	0.82	<b>0.94</b>	0.86	1								
Bio 12	0.05	-0.42	0.36	-0.53	-0.21	0.33	-0.59	-0.07	0.18	-0.06	0.21	1							
Bio 13	0.04	-0.25	0.47	-0.6	-0.15	0.28	-0.48	-0.11	0.16	-0.08	0.23	<b>0.92</b>	1						
Bio 14	0.1	-0.48	-0.09	-0.01	-0.12	0.27	-0.44	0.09	0.18	0.07	0.09	0.71	0.47	1					
Bio 15	-0.13	0.54	0.41	-0.29	0.08	-0.24	0.35	-0.21	-0.16	-0.16	-0.02	-0.3	0.02	-0.75	1				
Bio 16	0.05	-0.5	-0.06	-0.03	-0.13	0.29	-0.46	0.09	0.18	-0.07	0.23	<b>0.94</b>	<b>0.98</b>	0.51	-0.03	1			
Bio 17	0.1	-0.45	-0.05	-0.11	-0.37	0.06	-0.44	-0.07	-0.14	0.07	0.1	0.73	0.49	<b>0.98</b>	-0.76	0.52	1		
Bio 18	-0.12	-0.45	0.82	-0.07	-0.11	0.09	-0.21	-0.1	0.09	-0.16	-0.1	0.66	0.56	0.62	-0.42	0.57	0.62	1	
Bio 19	0.22	-0.47	0.26	<b>-0.89</b>	-0.04	0.48	-0.59	0.08	0.36	0.12	0.34	0.79	-0.05	-0.01	0.79	<b>0.9</b>	-0.23	0.83	1

Numbers in bold represent variables with strongest correlation. Codes are as follows: Annual Mean Temperature (Bio1), Mean Diurnal Range (Bio2), Isothermality (Bio 3), Temperature Seasonality (Bio 4), Max Temperature of Warmest Month (Bio 5), Min Temperature of Coldest Month (Bio 6), Temperature Annual Range (Bio 7), Mean Temperature of Wettest Quarter (Bio 8), Mean Temperature of Driest Quarter (Bio 9), Mean Temperature of Warmest Quarter (Bio 10), Mean Temperature of Coldest Quarter (Bio 11), Annual Precipitation (Bio 12), Precipitation of



Wettest Month (Bio 13), Precipitation of Driest Month (Bio 14), Precipitation Seasonality (Bio 15), Precipitation of Wettest Quarter (Bio 16), Precipitation of Driest Quarter (Bio 17), Precipitation of Warmest Quarter (Bio 18), Precipitation of Coldest Quarter (Bio 19).