

Supplementary Material

The fate of carbon in sediments of the Xingu and Tapajós clearwater rivers, eastern Amazon

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1 Supplementary Data

In the following pages, supplementary data is provided in Table S1 and in Figures S1 to S7.

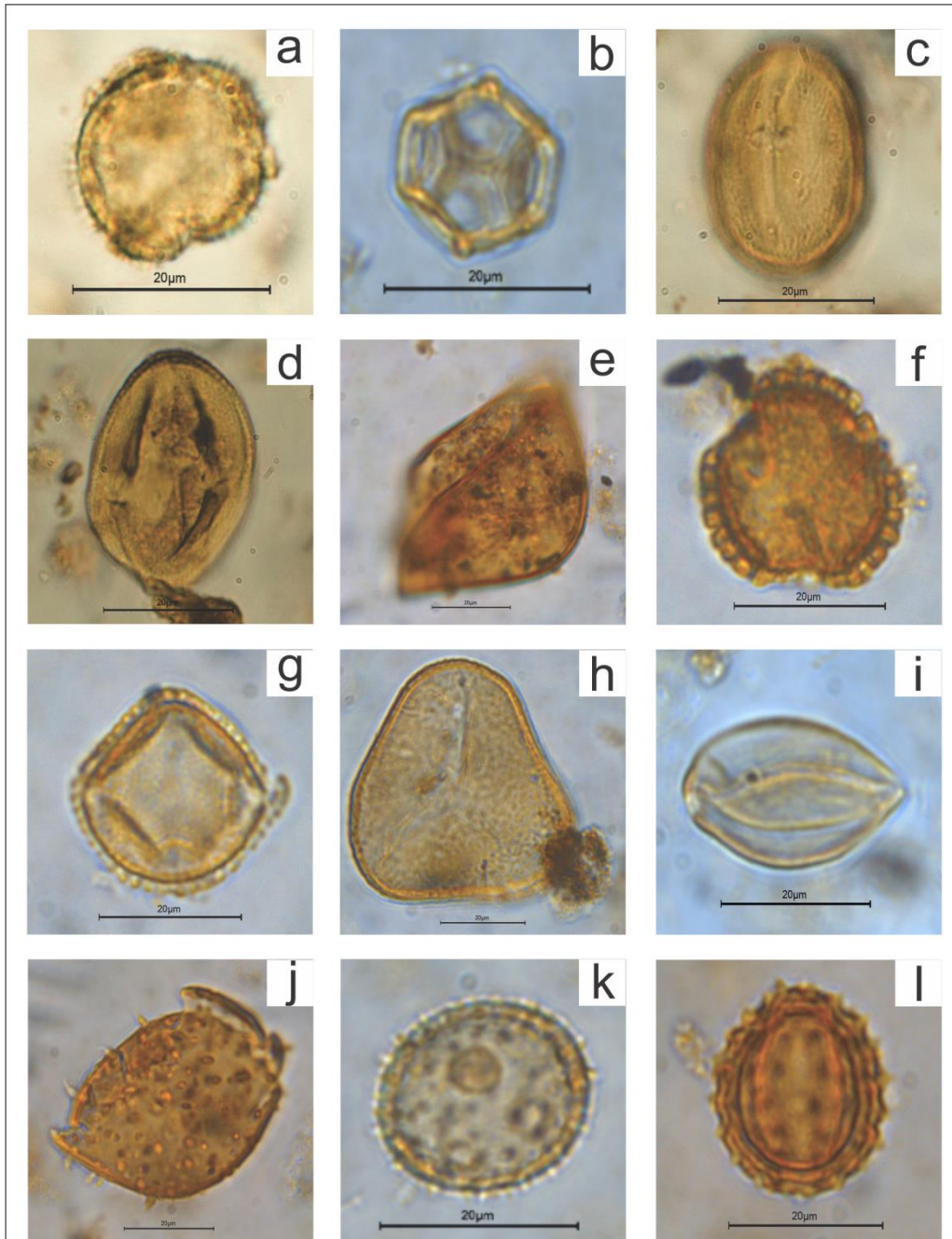
Table S1 - Location and data from suspended sediment samples (SS), riverbed sediment samples (RS) and sediment cores (Core) collected from Xingu, Tapajós and Amazon rivers during dry and wet seasons. The type of analyses that were performed for each sample are discriminated in the “Type” section as follows: Major Elements Concentration determined by ICP-OES (ICP); Major Elements concentration determined by XRF spectrometer (XRF); Major elements concentration by XRF, COT concentration, $\delta^{13}\text{C}_{\text{org}}$ analysis and pollen and diatom analysis (CPD); TOC concentration and $\delta^{13}\text{C}_{\text{org}}$ analysis (OC). Major elements concentration analyzed in XRF spectrometer are given in mg kg^{-1} and concentrations by ICP-OES are given in mg l^{-1} .

Sample	Type	Lat.	Long.	Season	River	Mg	Al	K	Ca	Ti	Mn	Fe	P	TOC	$\delta^{13}\text{C}_{\text{org}}$
XA 01	SS - ICP	-3.218	-52.146	Dry (Out/2011)	Xingu	0.17	4.13	0.50	0.27	0.13	0.22	1.65	0.788	na	na
XA 19	SS - ICP	-3.885	-52.592	Dry (Out/2011)	Xingu	0.15	3.42	0.29	0.20	0.11	0.17	1.30	0.631	na	na
XA 23	SS - ICP	-3.486	-51.691	Dry (Out/2011)	Xingu	0.22	7.96	0.64	0.36	0.24	0.21	2.72	0.922	na	na
XA 26	SS - ICP	-2.646	-51.980	Dry (Out/2011)	Xingu	0.34	9.16	1.00	0.44	0.30	0.27	3.51	0.664	na	na
XA 28	SS - ICP	-3.007	-51.852	Dry (Out/2011)	Xingu	0.12	3.46	0.30	0.18	0.11	0.11	1.36	0.578	na	na
XA 32	SS - ICP	-1.444	-52.235	Dry (Out/2011)	Xingu	0.78	9.70	2.05	0.62	0.46	0.18	4.81	0.687	na	na
XA 39	SS - ICP	-3.221	-52.139	Wet (May/2012)	Xingu	0.10	2.81	0.11	0.15	0.10	0.05	1.51	0.037	na	na
XA 49A	SS - ICP	-3.401	-51.973	Wet (May/2012)	Xingu	0.06	1.75	0.05	0.07	0.05	0.04	0.92	0.029	na	na
XA 53A	SS - ICP	-2.625	-51.969	Wet (May/2012)	Xingu	0.05	1.33	0.04	0.09	0.04	0.06	0.89	0.027	na	na
XA 56	SS - ICP	-1.793	-52.239	Wet (May/2012)	Xingu	0.09	1.29	0.08	0.08	0.05	0.03	1.11	0.026	na	na
XA 60	SS - ICP	-1.498	-52.308	Wet (May/2012)	Amazon	2.13	23.34	4.68	1.55	1.08	0.16	14.65	0.270	na	na
XA 73	SS - ICP	-2.217	-52.160	Wet (May/2012)	Xingu	0.07	1.43	0.04	0.07	0.04	0.06	1.10	0.039	na	na
STM 01	SS - ICP	-1.931	-55.511	Wet (May/2012)	Amazon	2.75	27.14	6.20	2.00	1.52	0.23	16.08	0.298	na	na
STM 11	SS - ICP	-2.425	-54.917	Wet (May/2012)	Tapajós	0.04	1.01	0.01	0.04	0.03	0.02	0.55	0.019	na	na
STM 13	SS - ICP	-2.802	-55.077	Wet (May/2012)	Tapajós	0.05	1.83	0.02	0.04	0.05	0.03	1.00	0.031	na	na
STM 19	SS - ICP	-2.470	-54.997	Wet (May/2012)	Tapajós	0.06	2.19	0.07	0.12	0.05	0.04	1.42	0.045	na	na
STM 22	SS - ICP	-2.450	-54.528	Wet (May/2012)	Amazon	1.84	19.80	4.16	1.34	0.99	0.14	12.47	0.239	na	na
STM 24	SS - ICP	-2.809	-55.070	Dry (Nov/2012)	Tapajós	0.15	2.64	0.11	0.21	0.07	0.07	0.85	0.039	na	na
STM 33	SS - ICP	-3.590	-55.331	Dry (Nov/2012)	Tapajós	0.10	4.05	0.13	0.11	0.10	0.10	1.12	0.042	na	na
STM 37	SS - ICP	-2.471	-54.992	Dry (Nov/2012)	Tapajós	0.06	1.76	0.04	0.10	0.05	0.18	0.67	0.057	na	na
STM 39	SS - ICP	-2.427	-54.936	Dry (Nov/2012)	Tapajós	0.05	1.03	0.04	0.10	0.03	0.13	0.41	0.044	na	na
STM 51	SS - ICP	-2.157	-55.186	Dry (Nov/2012)	Amazon	0.40	4.73	0.67	0.34	0.17	0.03	2.23	0.048	na	na
STM 60	SS - ICP	-2.450	-54.531	Dry (Nov/2012)	Amazon	0.51	6.20	0.95	0.41	0.24	0.04	2.76	0.053	na	na
XA 49B	RS - XRF	-3.401	-51.973	Wet (May/2012)	Xingu	701	58640	5139	2009	1893	75.6	6482	na	0.64	-28.59

Sample	Type	Lat.	Long.	Season	River	Mg	Al	K	Ca	Ti	Mn	Fe	P	TOC	$\delta^{13}\text{C}_{\text{org}}$
XA 53B	RS - XRF	-2.625	-51.969	Wet (May/2012)	Xingu	916	82927	6289	2825	3056	498	41523	na	3.33	-28.48
XA 55	RS - XRF	-1.803	-52.252	Wet (May/2012)	Xingu	4015	64939	12587	5159	3327	215	20289	na	1.74	-29.53
XA 58	RS - XRF	-1.544	-52.287	Wet (May/2012)	Amazon	6038	74044	15670	5713	4508	540	30488	na	0.66	-27.49
XA 59	RS - XRF	-1.496	-52.309	Wet (May/2012)	Amazon	5710	70042	15778	5836	4207	369	24462	na	0.65	-28.07
XA 64	RS - XRF	-1.471	-52.243	Wet (May/2012)	Amazon	6129	68559	15128	6490	4219	441	25534	na	0.55	-27.61
XA 66	RS - XRF	-1.502	-52.219	Wet (May/2012)	Amazon	6065	78082	15516	4833	4677	261	21945	na	0.50	-29.00
XA 76A	RS - XRF	-2.462	-52.097	Wet (May/2012)	Xingu	557	96236	5354	2788	4200	532	39701	na	3.28	-27.98
STM 02	RS - XRF	-1.933	-55.494	Wet (May/2012)	Amazon	5133	59336	12790	6369	4247	306	19137	na	0.26	na
STM 06A	RS - XRF	-2.140	-55.012	Wet (May/2012)	Amazon	6405	74871	16129	6403	4278	519	28761	na	0.66	-27.99
STM 10	RS - XRF	-2.359	-54.912	Wet (May/2012)	Tapajós	5803	75582	16503	5490	4749	409	30149	na	na	na
STM 12	RS - XRF	-2.798	-55.166	Wet (May/2012)	Tapajós	na	34307	1041	1694	1474	43.5	2585	na	0.20	na
STM 20	RS - XRF	-2.446	-54.549	Wet (May/2012)	Amazon	6584	70810	15418	6263	4429	632	31308	na	0.84	-27.98
XA 25	RS - CPD	-2.645	-51.970	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	3.82	-29.36
XA 30	RS - CPD	-1.688	-52.243	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	0.83	-27.85
XA 31	RS - CPD	-1.789	-52.249	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	1.11	-28.38
XA 33	RS - CPD	-1.790	-52.254	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	1.91	-28.28
XA 34	RS - CPD	-1.794	-52.257	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	0.52	-28.33
XA 35	RS - CPD	-2.039	-52.192	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	3.07	-29.81
XA 36	RS - CPD	-2.222	-52.132	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	3.24	-29.84
XA 38	RS - CPD	-2.466	-52.016	Dry (Oct/2011)	Xingu	na	na	na	na	na	na	na	na	3.63	-29.57
XA 49	RS - OC	-3.401	-51.973	Wet (May/2012)	Xingu	na	na	na	na	na	na	na	na	0.64	-28.59
XA 53	RS - OC	-2.625	-51.969	Wet (May/2012)	Xingu	na	na	na	na	na	na	na	na	3.33	-28.48
XA 55	RS - OC	-1.803	-52.252	Wet (May/2012)	Xingu	na	na	na	na	na	na	na	na	1.74	-29.53
XA 76	RS - CPD	-2.462	-52.097	Wet (May/2012)	Xingu	na	na	na	na	na	na	na	na	3.28	-27.98
TAP 02A	RS - OC	-2.472	-54.995	Dry (Sep/2011)	Tapajós	na	na	na	na	na	na	na	na	2.99	-31.04
TAP 02B	RS - OC	-2.472	-54.995	Dry (Sep/2011)	Tapajós	na	na	na	na	na	na	na	na	3.00	-28.19
STM 12	RS - OC	-2.798	-55.166	Wet (May/2012)	Tapajós	na	na	na	na	na	na	na	na	0.20	na
XC-02	Core	-2.413	-52.028	Dry (Nov/2014)	Xingu	na	na	na	na	na	na	na	na	na	na
XC-03	Core	-1.709	-52.280	Dry (Nov/2014)	Xingu	na	na	na	na	na	na	na	na	na	na
XC-05	Core	-2.556	-52.016	Dry (Nov/2014)	Xingu	na	na	na	na	na	na	na	na	na	na

1.1 Supplementary Figures

Figure S1 - Photomicrographs of selected pollen grains recovered from the sediment samples, Plate A.



Alismateceae: *Sagittaria* (a); **Amaranthaceae:** *Alternanthera* (b); **Anacardiaceae:** *Astronium* (c), *Spondias cf. radokoferi* (d); **Annonaceae:** Annonaceae (e); **Aquifoliaceae:** *Ilex* (f); **Araliaceae:** *Didymopanax* (G); **Arecaceae:** *Attalea* (h), *Euterpe* (i), *Mauritia flexuosa* (j), *Mauritiella* (k); **Asteraceae:** Asteraceae 1 (l).

Figure S2 - Photomicrographs of selected pollen grains recovered from the sediment samples, Plate B.

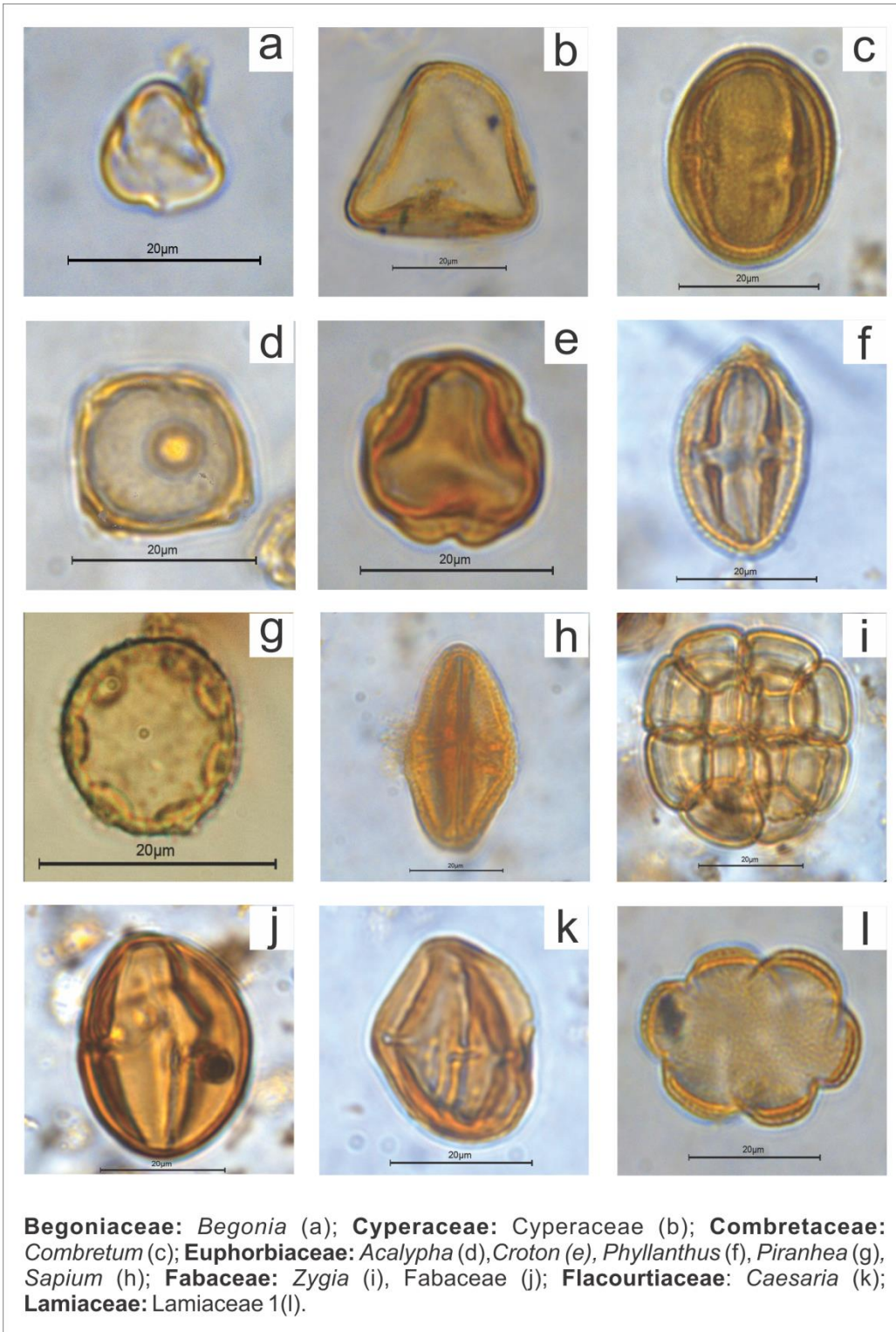


Figure S3 - Photomicrographs of selected pollen grains recovered from the sediment samples, Plate C.

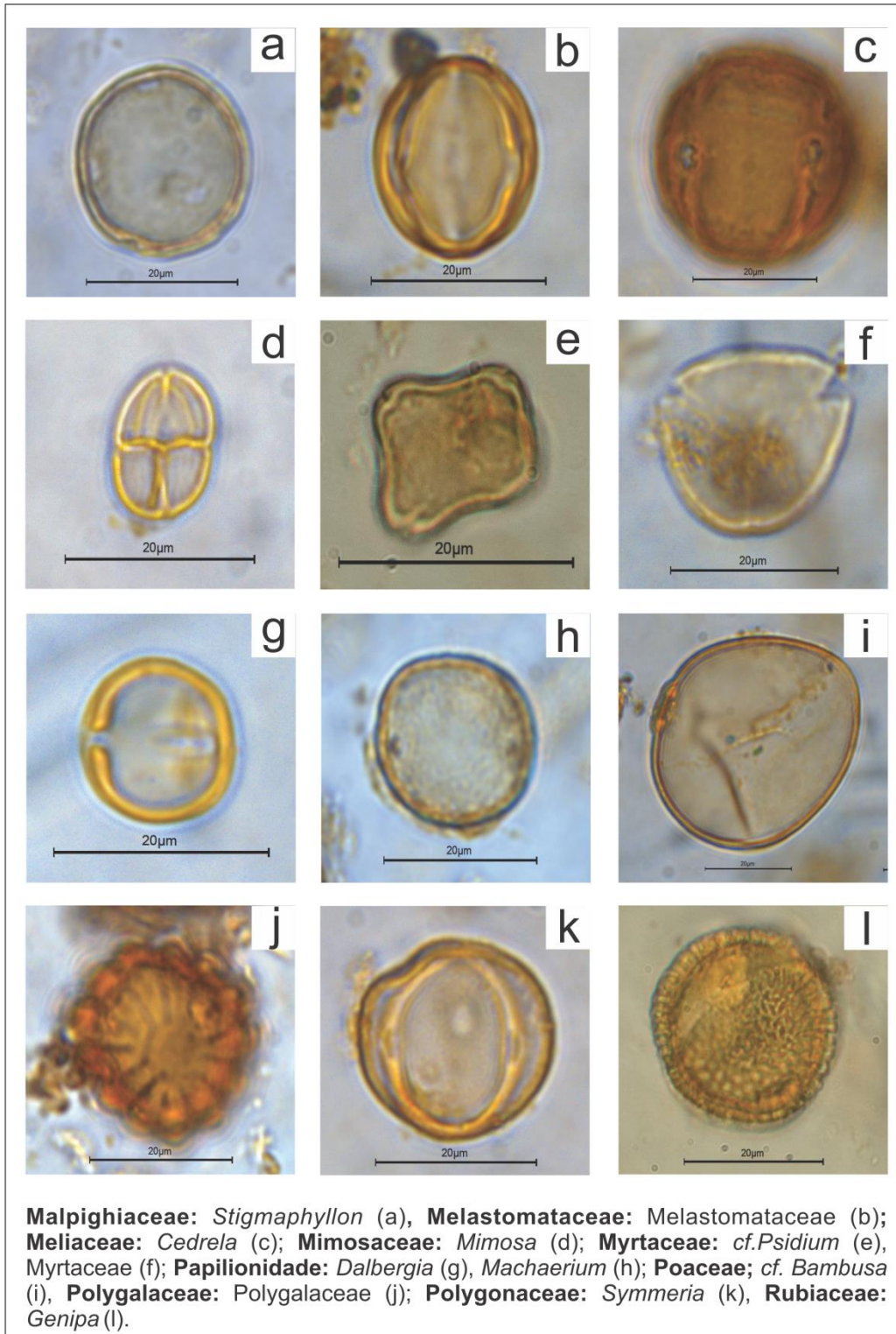


Figure S4 - Photomicrographs of selected pollen grains recovered from the sediment samples, Plate D.

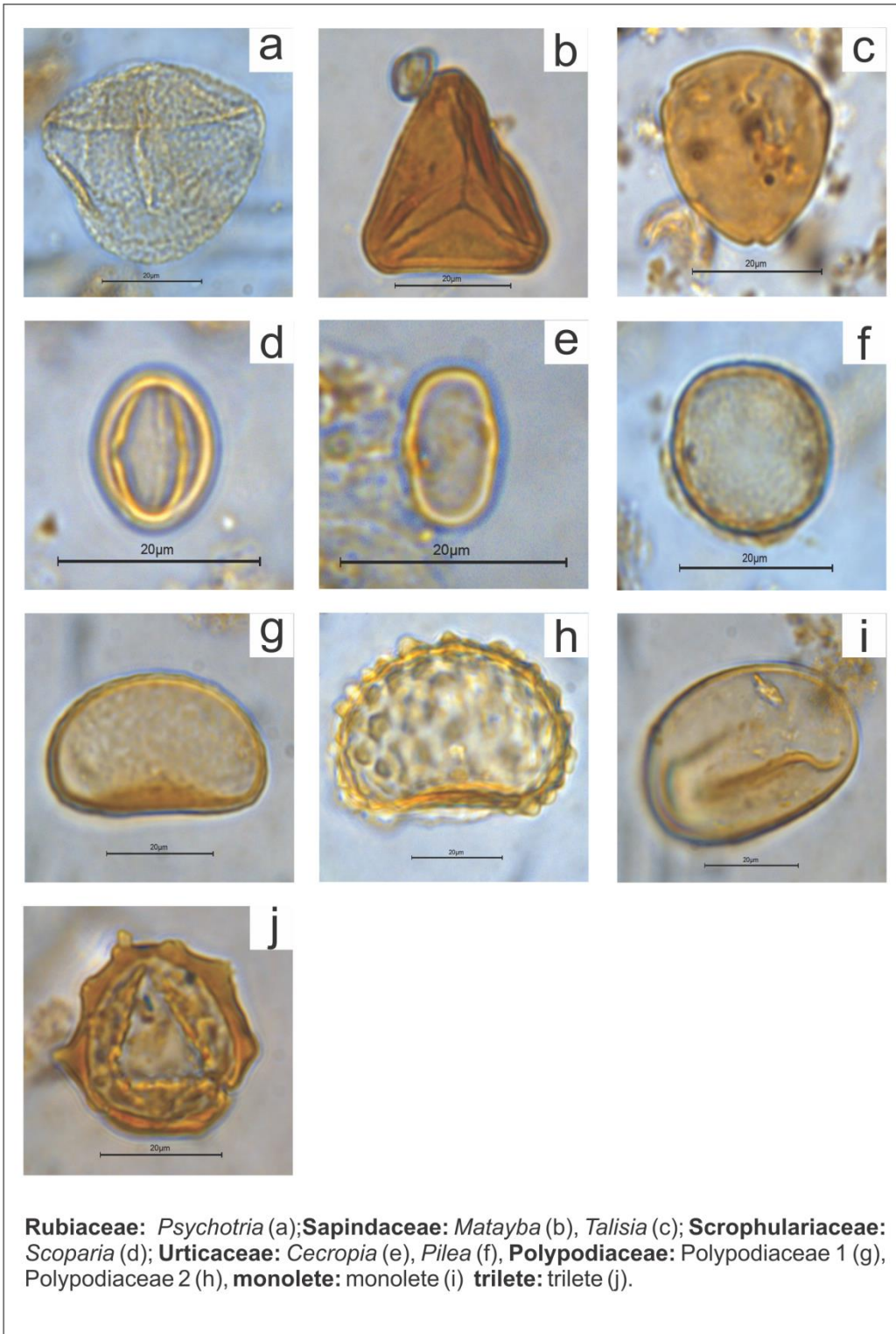


Figure S5 - Results of pollen count from riverbed sediments categorized by predominant vegetation type.

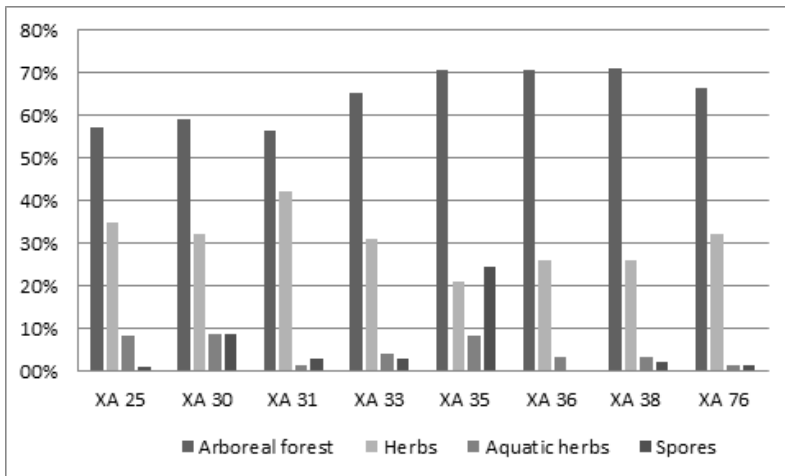


Figure S6 – Relative abundance of diatoms specimens (abundance $\geq 2\%$), with joint contribution higher than 80% in the riverbed sediments of the Xingu River. *Aulacoseira granulata* (AUGR); *Staurosirella pinnata* (SPIT); *Eolimna minima* (EOMI); *Discostella stelligera* (DSTE); *Diploneis ovalis* (DOVA); *Aulacoseira ambigua* (AAMB); *Achnanidium exiguum* (ADEG); *Staurosira* cf. *acutirostrata* (SARO); *Staurosirella* sp.1 (SAR1); *Staurosirella* sp.2 (SAR2); *Fragilaria rolandschmidti* (FROL).

