Supplementary data for “Silurian vegetation stature and density inferred from fossil soils and plants in Pennsylvania, U.S.A.” by G.J. Retallack

Table S1. Chemical analyses (wt %) of Silurian palaeosols

R#	Pedotype	Hz	cm	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	P_20_5	LOI	Total
154	Lehigh Gap	>	>	62.4	1.18	17.63	6.69	in Fe^2		2.35	0.39	0.81	4.44		3.11	94.71
155	Lehigh Gap	A	10	67.14	1.11	15.02	6.72	in Fe^2		1.8	0.36	1	3.71		2.62	95.75
156	Lehigh Gap	A	50	68.55	1.1	14.28	6.33	in Fe^2		1.48	0.24	0.95	3.71		2.32	95.54
157	Lehigh Gap	Bk	90	60.72	0.92	12.28	5.86	in Fe^2		1.79	5.45	1.06	2.88		6.6	90.04
158	Palmerton	A	10	61.39	1.07	15.68	7.05	in Fe^2		2.07	2.8	0.96	3.79		4.63	93.74
159	Palmerton	C	30	64.74	1.04	15.84	6.97	in Fe^2		2.37	0.29	0.95	3.69		2.9	94.85
160	Palmerton	C	50	70.14	0.96	7.8	4.94	in Fe^2		2.34	3.75	0.81	1.34		5.47	91.12
2246	Brenda	A	12	73.91	1.22	12.33	4.9	0.69	0.01	0.5	0.02	0.3	3.01	0.04	2.67	99.81
2247	Brenda	A	25	66.07	1.21	16.29	5.39	1.61	0.01	0.95	0.02	0.26	4.07	0.04	3.48	99.7
2248	Brenda	A	45	72.13	1.35	13.3	4.06	1.42	0.01	0.75	0.02	0.23	3.38	0.04	2.76	99.73
2249	Brenda	A	73	72.7	1.29	12.46	5.6	0.9	0.01	0.54	0.02	0.2	3.22	0.04	2.57	99.77
2250	Brenda	AC	107	74.45	1.28	12.12	4.22	1.03	0.01	0.62	0.02	0.18	2.96	0.04	2.8	99.96
2251	Brenda	C	140	76.49	0.93	9.14	6.76	0.67	0.01	0.61	0.03	0.11	1.97	0.05	2.38	99.34
2252	Brenda	C	167	73.05	1.41	12.93	2.02	2.77	0.01	0.89	0.02	0.21	2.9	0.05	2.9	99.59
2253	Brenda	C	194	75.92	1.3	11.49	1.83	2.77	0.01	0.86	0.02	0.18	2.39	0.06	2.78	100.06
2255	Lisette	A	4	64.47	1.12	16.67	3.83	3.6	0.03	1.44	0.13	0.43	3.99	0.05	3.45	99.77
2256	Lisette	A	15	68	1.07	15.1	3.87	3.41	0.03	1.35	0.15	0.43	3.53	0.06	3.15	100.65
2257	Lisette	A	25	64.6	1.15	16.93	4.05	3.34	0.02	1.39	0.11	0.4	4.06	0.06	3.36	99.98
2258	Lisette	AC	40	68.13	1.12	14.53	3.96	3.09	0.02	1.2	0.15	0.55	3.4	0.06	2.98	99.66
2259	Lisette	AC	58	63.5	1.14	16.83	4.85	3.67	0.02	1.41	0.08	0.39	4.1	0.05	3.39	99.96
2260	Lisette	C	72	72.96	1.05	12.88	2.1	3.09	0.04	1.12	0.09	0.6	2.83	0.07	2.69	99.98
2261	Lisette	C	82	73.47	1.08	12.22	1.27	3.99	0.04	1.3	0.19	0.6	2.41	0.06	2.56	99.77
2263	Debbie	A	3	59.02	1.38	19.96	5.99	1.67	0.02	1.45	0.18	0.63	4.96	0.15	3.66	99.43
2264	Debbie	A	10	65.38	1.01	15.61	4.55	2.83	0.03	2.21	0.12	0.42	3.57	0.11	3.29	99.55
2265	Debbie	A	30	65.03	1.3	17.55	5.13	1.48	0.02	1.38	0.15	0.67	4.32	0.12	3.21	100.69
2266	Debbie	C	58	64.01	1.12	16.21	6.38	1.99	0.02	1.68	0.11	0.47	4.01	0.09	3.22	99.66
2267	Debbie	C	77	62.73	1.15	16.58	7.62	1.8	0.02	1.55	0.12	0.52	4.14	0.08	3.18	99.85
2269	Barry	A	5	70.68	1.14	12.36	4.53	0.96	0.12	1.49	1.09	0.75	2.84	0.06	3.73	99.99
2270	Barry	A	15	77.85	0.96	9.53	4.58	0.71	0.04	0.77	0.32	0.96	2.04	0.05	1.88	99.92
2271	Barry	AB	27	58.28	0.96	13.34	3.59	2.06	0.44	3.77	4.39	0.5	3.18	0.05	8.73	99.64
2272	Barry	Bk	40	65.16	1	13.42	4.68	1.29	0.22	2.1	2.05	0.69	3.23	0.06	5.3	99.48
2273	Barry	Bk	55	65.99	0.88	11.05	5.36	1.48	0.28	2.45	2.72	0.69	2.56	0.05	5.76	99.54
2274	Barry	Bg	70	66.03	0.79	10.04	5.35	1.87	0.34	2.89	3.04	0.65	2.16	0.04	6.12	99.61
2275	Barry	Bg	83	69.03	1.14	14.72	4.89	1.22	0.04	1.54	0.32	0.67	3.4	0.05	3.06	100.36
2276	Barry	Bg	100	76.06	0.97	10.63	4.75	0.77	0.01	0.91	0.06	0.66	2.45	0.05	2.01	99.59
2277	Barry	Bg	122	77.62	0.94	9.22	5.2	0.77	0.01	0.86	0.1	0.71	1.98	0.04	1.83	99.57
2278	Barry	C	143	78.5	0.94	9.26	4.5	0.77	0.01	0.71	0.11	0.52	2.13	0.07	1.8	99.57
2279	Milton	A	0	56.49	0.54	13.10	1.99	in Fe^2	0.11	1.82	10.66	1.94	2.62	0.18		
2280	Milton	A	20	55.31	0.72	17.58	2.88	in Fe^2	0.09	1.94	5.86	1.60	3.92	0.17		
2281	Milton	A	40	52.60	0.65	16.68	2.85	in Fe^2	0.08	2.20	7.55	1.68	3.58	0.19		
2282	Milton	Bw	60	58.99	0.80	18.53	3.48	in Fe^2	0.06	1.86	4.04	1.22	4.59	0.16		
2283	Milton	Bw	80	60.28	0.83	18.92	5.30	in Fe^2	0.05	1.98	3.60	1.29	4.81	0.16		
2284	Milton	Bw	100	58.92	0.86	19.03	5.77	in Fe^2	0.06	1.94	3.47	1.23	4.87	0.16		
2285	Milton	Bw	120	60.36	0.87	19.85	6.30	in Fe^2	0.05	2.07	3.10	1.36	5.18	0.16		
2286	Milton	Bw	140	57.97	0.89	20.03	6.75	in Fe^2	0.05	2.03	3.04	1.36	5.23	0.16		

2287	Milton	Bw	160	58.73	0.91	20.35	6.76	in Fe^2	0.05	2.03	2.72	1.35	5.36	0.17
2288	Milton	C	180	58.34	0.90	19.35	6.80	in Fe^2	0.05	2.09	3.38	1.30	4.99	0.17
2289	Milton	C	200	60.11	0.87	19.20	6.23	in Fe^2	0.04	2.08	3.46	1.35	4.99	0.17
2290	Milton	C	220	61.63	0.93	19.59	7.58	in Fe^2	0.05	2.12	2.68	1.23	5.23	0.17
2291	Milton	C	240	60.53	0.93	19.93	7.92	in Fe^2	0.04	2.14	2.88	1.28	5.29	0.17
2292	Milton	C	260	59.39	0.90	20.65	7.56	in Fe^2	0.04	2.16	2.64	1.46	5.50	0.17
2293	Muddy Run	A	280	60.37	0.91	20.58	8.11	in Fe^2	0.05	2.16	2.39	1.22	5.59	0.17
2294	Muddy Run	C	300	58.18	0.93	21.06	8.77	in Fe^2	0.05	2.26	2.21	1.23	5.77	0.17
2295	Muddy Run	A	320	62.20	1.60	20.87	9.16	in Fe^2	0.04	2.10	0.68	1.01	5.82	0.17
	errors			2.705	0.06	0.825	0.395			0.025	0.175	0.22	0.105	0.125

Note: Samples R154-160 are from a Baird Corp PSI ICP spectrophotometer by C. Cool and A Irving, Department of Geological Sciences, University of Washington, Seattle. Samples R2246-2278 are from XRF analysis with potassium dichromate titration for ferrous iron by ALS-Chemex, North Vancouver, British Columbia, against BC Canada granodioritic stream gravel SDMS-2. Analyses of R2279-2295 are from Driese et al. (1992). Error is from 10 analyses by ALS-Chemex, Vancouver, BC, Canada. Unoccupied cells were not analyzed.

Table S2. Trace elements (ppmv) and density (g cm^{-3}) of Silurian palaeosols

R#	Pedotype	Hz	cm	Ba	Sr	Y	Nb	Zr	Rb	$g.cm^{-3}$
2246	Brenda	A	12	498	55	36	26	512	137	2.72
2247	Brenda	A	25	647	64	35	25	249	173	2.66
2248	Brenda	A	45	534	54	32	32	372	155	2.75
2249	Brenda	A	73	510	60	32	25	301	148	2.68
2250	Brenda	AC	107	519	54	49	29	458	139	2.71
2251	Brenda	C	140	384	56	77	18	563	96	2.72
2252	Brenda	C	167	477	67	81	32	430	134	2.74
2253	Brenda	C	194	415	58	85	32	520	114	2.71
2255	Lisette	A	4	649	54	33	26	312	156	2.87
2256	Lisette	A	15	596	49	35	19	364	152	2.83
2257	Lisette	A	25	687	52	33	25	292	166	2.85
2258	Lisette	AC	40	575	46	36	25	363	134	2.8
2259	Lisette	AC	58	658	50	41	23	213	157	2.86
2260	Lisette	C	72	563	47	42	26	324	129	2.8
2261	Lisette	C	82	470	49	39	23	509	122	2.8
2263	Debbie	A	3	870	99	56	25	302	175	2.86
2264	Debbie	A	10	685	57	39	27	203	140	2.86
2265	Debbie	A	30	751	74	48	28	425	164	2.85
2266	Debbie	C	58	738	55	35	24	240	150	2.8
2267	Debbie	C	77	784	61	35	23	268	151	2.87
2269	Barry	A	5	560	80	40	26	351	124	2.78
2270	Barry	A	15	467	61	46	25	728	94	2.75
2271	Barry	AB	27	574	81	39	22	271	124	2.86
2272	Barry	Bk	40	596	76	39	21	274	129	2.8
2273	Barry	Bk	55	530	65	35	20	296	100	2.83
2274	Barry	Bg	70	431	64	31	21	233	94	2.84
2275	Barry	Bg	83	659	74	36	20	376	133	2.81
2276	Barry	Bg	100	490	74	43	22	641	108	2.83
2277	Barry	Bg	122	474	66	39	22	910	92	2.81

2278	Barry	C	143	654	90	37	24	582	100	2.83
2279	Milton	A	0	130	210			220	80	2.73
2280	Milton	A	20	320	210			165	130	2.73
2281	Milton	A	40	270	240			160	120	2.72
2282	Milton	Bw	60	410	140			137	160	2.73
2283	Milton	Bw	80	470	120			121	170	2.71
2284	Milton	Bw	100	370	120			108	180	2.74
2285	Milton	Bw	120	400	110			98	190	2.75
2286	Milton	Bw	140	470	110			81	190	2.79
2287	Milton	Bw	160	470	110			91	200	2.79
2288	Milton	C	180	440	120			116	180	2.78
2289	Milton	C	200	460	120			126	170	2.78
2290	Milton	C	220	520	100			110	190	2.77
2291	Milton	C	240	390	110			106	190	2.81
2292	Milton	C	260	480	100			89	190	2.79
2293	Muddy Run	A	280	360	90			78	200	2.80
2294	Muddy Run	C	300	390	90			58	220	2.98
2295	Muddy Run	A	320	400	70			87	220	2.82
	errors			9	5	1	1	3		0.04

Note: Samples R154-160 are from a Baird Corp PSI ICP spectrophotometer by C. Cool and A Irving, Department of Geological Sciences, University of Washington, Seattle. Samples R2246-2278 are from XRF analysis with potassium dichromate titration for ferrous iron by ALS-Chemex, North Vancouver, British Columbia, against BC Canada granodioritic stream gravel SDMS-2. Analyses of R2279-2295 are from Driese et al. (1992). Errors are two standard deviations from 10 analyses by ALS-Chemex, Vancouver, BC, Canada. Density determined by clod method with error from 10 replicate determinations. Unoccupied cells were not analyzed.

Table S3. Point count data (vol. %) of Silurian palaeosols

R#	Pedotype	Hz	cm	Clay	silt	sand	clay	carbonate	rock	feldspar	mica	quartz	opaque
154	Lehigh Gap	>	>	51.6	43.8	3.8	52.0	0	4.8	13.4	9.0	13.2	3.6
155	Lehigh Gap	A	10	53.2	34.2	12.6	52.8	0	7.8	16.2	4.0	17.4	1.8
156	Lehigh Gap	A	50	48.4	31.4	20.2	48.2	0	6.6	17.8	3.0	19.8	4.6
157	Lehigh Gap	Bk	90	41.8	40.9	17.3	41.0	12.2	6.0	12.6	2.8	17.2	3.2
158	Palmerton	A	10	44.6	47.6	7.8	44.5	5.3	1.8	0.3	4.0	44.3	0
159	Palmerton	C	30	45.0	46.2	8.8	45.5	0	1.8	0	3.5	51.0	0
160	Palmerton	C	50	28.2	16.2	55.6	26.8	6.6	7.1	0.7	8.3	50.5	0
2245	Brenda	>	>	39.6	44.4	16.0	38.3	12.8	4.2	16.8	2.2	19.0	6.2
2246	Brenda	A	12	47.8	38.6	13.6	45.8	0	2.0	22.8	3.8	22.8	5.0
2247	Brenda	A	25	39.0	42.8	18.2	39.0	0	3.2	26.0	4.8	22.4	4.6
2248	Brenda	A	45	38.2	44.8	17.0	36.4	0	5.0	28.2	0.4	22.6	7.4
2249	Brenda	A	73	29.8	62.6	7.6	29.8	0	4.2	29.6	4.8	27.2	4.4
2250	Brenda	AC	107	28.4	67.2	4.4	30.8	0	5.6	27.0	4.0	22.2	10.4
2251	Brenda	C	140	30.4	61.8	7.8	32.8	0	3.8	28.2	5.6	25.2	4.4
2252	Brenda	C	167	29.4	50.0	20.6	29.4	0	4.4	32.0	6.6	26.6	1.0
2253	Brenda	C	194	25.0	57.2	17.8	26.0	0	3.6	31.0	7.6	30.4	1.4
2254	Lisette	>	>	27.0	65.0	8.0	29.8	1.6	3.4	29.6	2.6	28.6	4.4
2255	Lisette	A	4	35.4	54.8	9.8	36.2	0	3.6	26.0	5.2	24.8	4.2
2256	Lisette	A	15	36.0	62.0	2.0	36.6	0	4.6	27.4	2.8	25.6	3.0
2257	Lisette	A	25	37.4	57.2	5.4	36.4	0	6.8	25.8	3.4	21.4	6.2

2258	Lisette	AC	40	31.2	59.2	9.6	33.0	0	6.4	26.6	4.0	23.4	6.4
2259	Lisette	AC	58	35.2	53.6	11.2	34.4	0	3.8	28.2	3.2	24.2	6,2
2260	Lisette	C	72	30.6	66.8	2.6	30.4	0	5.0	29.8	7.4	24.4	3.0
2261	Lisette	C	82	28.6	65.6	5.8	27.2	0	2.8	31.8	9.0	25.0	4.2
2262	Debbie	>	>	17.6	6.4	76.0	18.8	0	8.8	34.0	2.8	31.8	3.8
2263	Debbie	A	3	31.6	67.0	1.4	33.8	0	8.4	26.4	6.4	19.8	5.2
2264	Debbie	A	10	28.6	68.0	3.4	28.8	0	7.0	28.6	6.0	20.8	8.8
2265	Debbie	A	30	28.0	62.2	9.8	29.4	0	9.0	28.0	5.0	22.8	9.0
2266	Debbie	C	50	29.8	60.4	9.8	30.0	0	7.6	26.8	8.4	22.0	5.2
2267	Debbie	C	77	19.8	68.8	11.4	18.4	0	6.8	34.6	8.2	26.8	5.2
2268	Barry	>	>	30.0	59.4	10.6	29.6	0	5.8	29.6	6.0	23.4	5.6
2269	Barry	A	5	39.2	56.2	4.6	37.8	0	6.6	26.0	4.4	20.0	4.4
2270	Barry	A	15	33.2	61.0	5.8	32.6	0	4.6	30.0	4.4	25.6	2.8
2271	Barry	AB	27	27.2	60.0	12.8	28.8	6.2	5.2	26.6	3.2	22.6	7.4
2272	Barry	Bk	40	24.8	59.2	16.0	23.6	40.2	1.6	16.8	1.8	12.8	3.2
2273	Barry	Bk	55	27.8	66.6	5.6	26.2	1.8	1.6	33.2	6.6	26.2	2.6
2274	Barry	Bg	70	24.4	69.0	6.6	25.6	17.0	3.2	26.8	4.2	19.4	3.8
2275	Barry	Bg	83	29.8	58.6	11.6	28.0	0	3.4	31.8	6.4	27.2	3.2
2276	Barry	C	100	26.2	5.8	68.0	26.8	0	9.0	29.8	2.2	28.0	4.2
2277	Barry	C	122	21.6	17.8	60.6	21.4	0	9.8	31.2	4.2	29.8	3.6
2278	Barry	C	143	14.8	26.0	59.2	16.4	0	15.8	29.6	6.2	28.2	3.8
2279	Milton	>	>	46.4	46.6	7.0	47.0	1.8	2.2	20.4	3.6	17.6	7.4
2280	Milton	A	20	31.8	46.8	21.4	32.3	20.0	0.4	24.2	1.8	17.0	4.4
2281	Milton	A	40	30.2	48.6	21.2	32.4	20.0	2.6	23.2	2.2	15.8	3.8
2282	Milton	A	60	30.8	53.8	15.4	28.4	18.8	1.6	25.8	3.2	18.4	3.8
2283	Milton	Bw	80	30.6	62.2	7.2	31.8	2.8	3.2	29.2	4.6	24.2	4.2
2284	Milton	Bw	100	31.4	59.8	8.8	30.8	4.0	3.0	31.8	3.0	24.6	3.0
2285	Milton	Bw	120	31.2	62.4	6.4	31.0	0.2	3.0	30.6	4.4	24.8	4.4
2286	Milton	Bw	160	30.0	57.8	12.8	28.8	8.0	2.4	31.2	4.2	22.2	3.2
2287	Milton	C	200	29.4	58.6	12.0	28.4	6.2	2.8	30.6	3.6	23.6	4.8
2288	Muddy Run	A	10	34.4	56.4	9.2	32.6	5.8	3.4	30.4	2.2	23.4	2.2
2289	Muddy Run	C	30	36.0	60.8	3.2	33.4	0	3.4	31.4	5.2	25.4	1.2
2290	Muddy Run	C	50	30.4	67.4	2.2	31.2	0	2.6	30.4	5.8	26.4	3.6
2291	Turbot Hills	A	10	34.4	60.4	5.2	37.0	6.2	2.0	26.4	3.6	20.4	4.4
2292	Turbot Hills	Bw	70	29.6	60.8	9.6	29.2	4.6	2.4	28.8	4.4	25.2	5.4
2293	Turbot Hills	Bw	120	24.2	67.8	8.0	22.8	0	2.6	31.4	6.8	35.4	1.0
2294	Turbot Hills	C	150	20.4	56.0	23.6	21.0	20.6	2.0	28.8	2.4	21.2	4.0
2295	Turbot Hills	C	180	29.2	57.8	13.0	30.6	8.0	1.0	30.6	2.0	23.0	4.8

Note: Two separate counts are tabulated here: one for grain size, and other for mineral content. Identity of clay counts in each is a quality control. Error of these 500 point counts are ± 2% for components > 5%.

Table S3. Petrographic textures of Silurian palaeosols

R#	Pedotype	Hz	cm	Soil texture	Birefringence fabric
154	Lehigh Gap	>	>	Silty clay	Porphyroskelic argillasepic
155	Lehigh Gap	A	10	Clay	Porphyroskelic skelmosepic
156	Lehigh Gap	A	50	Clay	Porphyroskelic skelmosepic
157	Lehigh Gap	Bk	90	Clay	Porphyroskelic argillasepic
158	Palmerton	A	10	Silty clay	Agglomeroplasmic skelmosepic
159	Palmerton	C	30	Silty clay	Agglomeroplasmic skelmosepic
160	Palmerton	C	50	Sandy clay loam	Intertextic silasepic

2245	Brenda	>	>	Silty clay loam	Porphyroseklic insepic
2246	Brenda	A	12	Clay	Porphryoseklic insepic
2247	Brenda	A	25	Silty clay loam	Porphyroseklic mosepic
2248	Brenda	A	45	Silty clay loam	Agglomeroplasmic mosepic
2249	Brenda	A	73	Silty clay loam	Agglomeroplasmic mosepic
2250	Brenda	AC	107	Silty clay loam	Porphyroseklic mosepic
2251	Brenda	C	140	Silty clay loam	Granular silasepic
2252	Brenda	C	167	Clay loam	Agglomeoplamsmic insepic
2253	Brenda	C	194	Silt loam	Granular silasepic
2254	Lisette	>	>	Silty clay loam	Granular silasepic
2255	Lisette	A	4	Silty clay loam	Porphyrosekelic insepic
2256	Lisette	A	15	Silty clay loam	Porphyrosekelic insepic
2257	Lisette	A	25	Silty clay loam	Porphyrosekelic isotic
2258	Lisette	AC	40	Silty clay loam	Porphyrosekelic isotic
2259	Lisette	AC	58	Silty clay loam	Porphyrosekelic insepic
2260	Lisette	C	72	Silty clay loam	Porphyrosekelic insepic
2261	Lisette	C	82	Silty clay loam	Porphyrosekelic insepic
2262	Debbie	>	>	Sandy loam	Granular silasepic
2263	Debbie	A	3	Silty clay loam	Porphyrosekelic insepic
2264	Debbie	A	10	Silty clay loam	Porphyrosekelic mosepic
2265	Debbie	A	30	Silty clay loam	Porphyrosekelic insepic
2266	Debbie	C	50	Silty clay loam	Agglomeroplasmic argillasepic
2267	Debbie	C	77	Silt loam	Agglomeroplasmic argillasepic
2268	Barry	>	>	Silty clay loam	Porphyroskelic isotic
2269	Barry	A	5	Silty clay loam	Agglomeroplasmic insepic
2270	Barry	A	15	Silty clay loam	Agglomeroplasmic insepic
2271	Barry	AB	27	Silty clay loam	Agglomeroplasmic insepic
2272	Barry	Bk	40	Silt loam	Agglomeroplasmic insepic
2273	Barry	Bk	55	Silty clay loam	Porphyroskelic insepic
2274	Barry	Bg	70	Silt loam	Porphyroskelic insepic
2275	Barry	Bg	83	Silty clay loam	Porphyroskelic argillasepic
2276	Barry	C	100	Sandy clay loam	Granular isotic
2277	Barry	C	122	Sandy clay loam	Granular isotic
2278	Barry	C	143	Sandy loam	Granular isotic
2279	Milton	>	>	Silty clay	Porphyroskelic argillasepic
2280	Milton	A	20	Clay loam	Porphyroskelic insepic
2281	Milton	A	40	Clay loam	Porphyroskelic insepic
2282	Milton	A	60	Silty clay loam	Porphyroskelic insepic
2283	Milton	Bw	80	Silty clay loam	Porphyroskelic insepic
2284	Milton	Bw	100	Silty clay loam	Porphyroskelic mosepic
2285	Milton	Bw	120	Silty clay loam	Porphyroskelic mosepic
2286	Milton	Bw	160	Silty clay loam	Porphyroskelic mosepic
2287	Milton	C	200	Silty clay loam	Porphyroskelic argillasepic
2288	Muddy Run	A	10	Silty clay loam	Porphyroskelic bimasepic
2289	Muddy Run	C	30	Silty clay loam	Porphyroskelic bimasepic
2290	Muddy Run	C	50	Silty clay loam	Porphyroskelic argillasepic
2291	Turbot Hills	A	10	Silty clay loam	Porphyroskelic bimasepic
2292	Turbot Hills	Bw	70	Silty clay loam	Porphyroskelic mosepic
2293	Turbot Hills	Bw	120	Silt loam	Porphyroskelic bimasepic
2294	Turbot Hills	C	150	Silt loam	Porphyroskelic bimasepic
2295	Turbot Hills	C	180	Silty clay loam	Porphyroskelic argillasepic

Table S4. Sizes of drab mottles in surface of selected Silurian palaeosols

Pedotype	Level (cm)	Left (cm)	Right (cm)	Diameter halo (cm)	Diameter trunk (cm)	Height-diagnostic diameter (cm)	Reconstructed height (m)	Midline spacing (cm)	Density (number/m2)
Brenda	18.5	2	8	6	2.76	2.07	0.68	17.50	32.65
Brenda	18.5	19.5	21.5	2	1.60	1.20	0.42	15.00	44.44
Brenda	18.5	31	34	3	1.95	1.47	0.50	8.50	138.41
Brenda	18.5	39.5	40.5	1	1.13	0.85	0.30	10.50	90.70
Brenda	18.5	43.6	48.2	4.6	2.42	1.82	0.60	13.30	56.53
Brenda	18.5	50.2	56.2	6	2.76	2.07	0.68	5.35	349.38
Brenda	18.5	57.8	58.3	0.5	0.80	0.60	0.22	26.10	14.68
Brenda	18.5	79.8	82.7	2.9	1.92	1.44	0.49	24.70	16.39
Brenda	18.5	98.3	103.4	5.1	2.55	1.91	0.63	17.20	33.80
Brenda	18.5	106.5	114.2	7.7	3.13	2.35	0.76	8.10	152.42
Brenda	18.5	116.8	117.9	1.1	1.18	0.89	0.32	12.60	62.99
Brenda	18.5	128.3	129.4	1.1	1.18	0.89	0.32	23.25	18.50
Brenda	18.5	145.2	149.8	4.6	2.42	1.82	0.60	18.30	29.86
Brenda	18.5	163.7	165.1	1.4	1.34	1.00	0.35	17.00	34.60
Brenda	18.5	179.6	180.8	1.2	1.24	0.93	0.33	13.05	58.72
Brenda	18.5	184.4	190.3	5.9	2.74	2.06	0.67	18.75	28.44
Brenda	18.5	198.3	203.5	5.2	2.57	1.93	0.64	24.55	16.59
Brenda	18.5	219.3	223.4	4.1	2.28	1.71	0.57	25.95	14.85
Brenda	18.5	245.5	246.7	1.2	1.24	0.93	0.33	13.30	56.53
Brenda	18.5	249.8	256.2	6.4	2.85	2.14	0.70	20.20	24.51
Brenda	18.5	264.5	270.3	5.8	2.72	2.04	0.67	29.40	11.57
Brenda	18.5	289.6	294.4	4.8	2.47	1.85	0.61		
MEANS					2.06	0.70	0.52	17.27	61.27
STANDARD DEVIATIONS					0.70	0.24	0.16	6.48	74.58
Brenda	10.5	17.2	24.3	7.1	3.01	2.25	0.73	15.50	41.62
Brenda	10.5	33.1	35.2	2.1	1.64	1.23	0.42	22.50	19.75
Brenda	10.5	44.5	52.6	8.1	3.21	2.41	0.78	28.80	12.06
Brenda	10.5	68.2	74.3	6.1	2.79	2.09	0.68	22.80	19.24
Brenda	10.5	88.2	92.1	3.9	2.23	1.67	0.56	23.60	17.95
Brenda	10.5	110.3	112.6	2.3	1.71	1.28	0.44	40.60	6.07
Brenda	10.5	149.5	151.2	1.7	1.47	1.10	0.39	27.85	12.89
Brenda	10.5	169.5	175.3	5.8	2.72	2.04	0.67	33.80	8.75
Brenda	10.5	201.4	204.6	3.2	2.02	1.51	0.51	38.20	6.85
Brenda	10.5	236.4	239.6	3.2	2.02	1.51	0.51	53.95	3.44
Brenda	10.5	281.3	288.4	7.1	3.01	2.25	0.73		
MEANS					2.35	0.80	0.58	30.76	14.86
STANDARD DEVIATIONS					0.59	0.20	0.13	10.62	10.44
Brenda	8.9	9.6	12.3	2.7	1.85	1.39	0.48	30.20	10.96

Brenda	8.9	29.3	37.2	7.9	3.17	2.38	0.77	29.55	11.45
Brenda	8.9	56.2	60.6	4.4	2.37	1.78	0.59	17.90	31.21
Brenda	8.9	68.2	73.6	5.4	2.62	1.97	0.65	25.35	15.56
Brenda	8.9	88.6	93.7	5.1	2.55	1.91	0.63	33.30	9.02
Brenda	8.9	121.3	123.4	2.1	1.64	1.23	0.42	51.20	3.81
Brenda	8.9	163.2	170.1	6.9	2.96	2.22	0.72	32.25	9.61
Brenda	8.9	190.8	196.2	5.4	2.62	1.97	0.65	28.95	11.93
Brenda	8.9	217.2	220.7	3.5	2.11	1.58	0.53	27.70	13.03
Brenda	8.9	242.6	245.3	2.7	1.85	1.39	0.48	28.30	12.49
Brenda	8.9	263.4	269.3	5.9	2.74	2.06	0.67	29.10	11.81
Brenda	8.9	286.3	292.4	6.1	2.79	2.09	0.68		
MEANS					2.44	0.83	0.61	30.35	12.81
STANDARD DEVIATIONS					0.46	0.16	0.10	7.64	6.46
Lisette	29.8	5.3	7.3	2	1.60	1.20	0.42	28.95	11.93
Lisette	29.8	28.5	33	4.5	2.39	1.80	0.60	18.40	29.54
Lisette	29.8	40.6	46.3	5.7	2.69	2.02	0.66	19.60	26.03
Lisette	29.8	58.7	61.6	2.9	1.92	1.44	0.49	19.15	27.27
Lisette	29.8	73.6	77.4	3.8	2.20	1.65	0.55	11.45	76.28
Lisette	29.8	83.2	85.7	2.5	1.78	1.34	0.46	20.20	24.51
Lisette	29.8	101.2	103.5	2.3	1.71	1.28	0.44	21.45	21.73
Lisette	29.8	119.6	122.4	2.8	1.89	1.42	0.48	23.15	18.66
Lisette	29.8	138.6	142.3	3.7	2.17	1.63	0.55	17.50	32.65
Lisette	29.8	154.2	156.7	2.5	1.78	1.34	0.46	25.40	15.50
Lisette	29.8	177.4	179.7	2.3	1.71	1.28	0.44	23.40	18.26
Lisette	29.8	195.2	199.7	4.5	2.39	1.80	0.60	7.05	201.20
Lisette	29.8	200.6	203.2	2.6	1.82	1.36	0.47	6.10	268.74
Lisette	29.8	206.2	207.4	1.2	1.24	0.93	0.33	27.60	13.13
Lisette	29.8	230.5	233.1	2.6	1.82	1.36	0.47	38.75	6.66
Lisette	29.8	257.2	266.1	8.9	3.37	2.52	0.81	13.10	58.27
Lisette	29.8	270.1	273.2	3.1	1.99	1.49	0.51	24.90	16.13
Lisette	29.8	293.1	295.4	2.3	1.71	1.28	0.44		
MEANS					2.01	0.68	0.51	20.36	50.97
STANDARD DEVIATIONS					0.47	0.16	0.10	7.88	70.18