

SUPPLEMENTARY MATERIAL

Appendix 1

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
1*	47.75	44.95	29.40	41	9.65	8.00	4.60
2	53.30	56.50	31.35	42	20.45	23.25	10.30
3	36.55	37.70	20.00	43	25.00	25.20	11.60
4	42.05	41.15	24.80	44	27.20		15.00
5	37.55	39.00	19.10	45*	32.25		14.70
6	41.45	44.95	27.25	46	40.00	40.00	24.75
7	41.60	44.45	21.40	47	34.90	33.50	21.85
8*	43.55	49.80	21.30	48*	35.15	36.80	20.75
9	35.50	35.80	16.30	49	35.00	41.00	21.60
10	45.30	51.25	27.60	50	30.70	32.35	16.35
11	41.10	49.70	24.60	51	26.25	27.10	14.50
12*	36.15	38.10	20.00	52	24.75	26.40	14.90
13	32.65	36.85	21.15	53	30.00	32.00	
14	40.70	46.70	22.20	54	17.00	20.00	10.50
15	36.40	34.40	18.15	55	44.20	41.30	26.00
16	34.70	34.80	20.25	56	37.00	48.00	20.00
17*	34.90	35.10	18.55	57	34.00	38.00	21.80
18	45.15	52.15	29.45	58	37.80	45.85	
19*	46.70	45.10	24.30	59	38.50	37.45	
20	36.20	45.65	23.50	60	25.00	24.35	
21	31.70	31.85	16.50	61	28.20	26.95	15.20
22	32.65	37.40	19.65	62	12.45	14.05	
23	24.00	25.65	13.20	63	44.00	42.00	24.00
24*	27.00	26.50	15.45	64*	45.70	46.00	22.25
25*	27.30	29.20	12.80	65*	53.30	53.40	33.10
26*	42.45	42.20	23.20	66	40.35		23.70
27*	27.75	25.50	17.30	67	39.55	39.80	
28	37.70	38.40	21.40	68	36.20	34.50	
29	37.85	43.60	20.45	69	37.00	35.55	20.40
30*	41.55	36.00	22.15	70	33.00	39.00	
31*	25.35	26.70	13.40	71*	28.00	33.20	16.35
32	21.00	18.15	11.20	72	39.75	34.75	19.00
33	24.00	23.10	11.40	73	12.05	11.35	5.25
34	15.00	16.20	8.00	74	11.40	10.80	5.65
35	22.75	21.50	11.00	75	10.65	9.00	5.50
36	16.50	18.90	10.40	76	11.15	11.20	5.75
37	16.45	17.10	8.30	77	8.95	7.10	4.00
38	12.25	10.95	5.70	78	14.00	15.00	7.05
39	11.35	12.00	6.10	79	12.00	10.25	5.05
40*	12.50	11.35	5.45	80	7.35	8.00	4.10

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
81	7.75	7.55	4.00	122	30.15	33.00	19.50
82	6.00	6.50	4.10	123	11.60	10.80	
83*	15.45		8.20	124	9.30	9.40	
84	18.35	18.30	9.15	125	20.00	18.20	9.25
85	20.05	22.55	11.85	126	11.30	10.00	5.20
86	16.50	14.55	8.00	127	15.10	14.90	7.35
87	16.70	16.10	8.80	128	16.00	16.80	7.50
88	28.95	27.35	15.00	129	12.65	13.00	
89	35.00	38.25	19.85	130*	32.00	31.20	
90	28.10	26.55	13.55	131	29.00	28.00	15.50
91	24.05	25.00	13.90	132	7.00	7.50	4.50
92	19.30	18.30	9.45	133	13.00	12.40	6.35
93	17.00	15.50	10.25	134	10.65	9.30	6.00
94	26.75	27.90	14.15	135	17.25	15.60	7.45
95	34.00	35.60	16.35	136	24.00	23.70	12.00
96	28.60	27.45	14.00	137	23.00	23.30	
97	23.05	20.70	10.30	138	27.35	25.70	14.55
98	29.20	27.70	14.00	139*	19.00	16.00	
99	26.75	27.20	14.50	140	21.00	18.00	
100*	32.50	32.45	18.80	141*	45.00	54.00	25.00
101	33.25	27.45	15.70	142	40.00		
102	21.85	19.30		143	34.00		
103	12.75	12.95		144	6.65	6.30	
104	25.00	27.75	12.60	145	8.25	7.45	5.00
105*	29.05	28.00	15.20	146	25.00	26.70	13.05
106	21.00	20.15	10.50	147	32.25	33.00	
107	16.00	14.75	7.90	148	21.70	23.00	10.50
108*	45.00	43.75	24.15	149	26.80	26.00	
109	24.80	27.60		150	21.10	23.00	
110	17.80	21.80		151	41.50	38.00	
111	35.00	36.10		152	38.75	34.00	
112	23.00	33.00		153	24.50	28.30	13.00
113	8.35	8.45		154	12.15	12.05	7.50
114	10.80	10.10	5.40	155	13.50	12.80	6.65
115	12.55	12.00	7.75	156	14.10	16.25	6.60
116	7.20	7.00	4.00	157*	9.00	8.25	4.65
117	4.65	3.75	2.65	158	10.05	9.25	5.60
118	21.30	21.25	9.80	159	18.00	19.30	9.10
119	14.00	11.80	7.55	160	6.85	5.90	3.60
120	19.65	24.20	10.15	161	8.45	8.50	4.35
121	28.50	28.55		162	7.75	7.55	3.75

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
163	6.10	5.75	3.35	204	6.35	6.05	3.30
164	5.15	5.25	2.65	205	3.50	3.30	2.05
165	4.90	5.00	2.65	206*	12.50	13.85	6.90
166	5.90	5.60	3.25	207*	18.00	17.45	9.00
167	7.45	7.50	4.00	208	13.65	14.15	7.35
168	9.50	9.65	4.40	209*	13.60	12.85	7.10
169	4.80	4.40	2.60	210	13.10	12.80	7.05
170	6.30	6.10	3.85	211	4.50	4.10	2.30
171	9.80	9.10	5.00	212	16.10	16.60	8.20
172	10.80	10.60	5.00	213	3.55	3.00	2.00
173	15.20	14.00	6.65	214	4.45	3.30	2.30
174	13.65	13.00	7.30	215	9.65	9.40	4.90
175*	15.45	14.00	8.65	216	13.30	13.30	7.00
176	16.00	17.60	7.85	217	19.60	20.60	11.55
177	15.85	14.50	7.25	218	17.25	17.25	9.00
178	10.00	9.75		219	12.90	13.00	6.50
179	18.25	17.05	9.20	220	18.60	18.70	8.30
180	14.65	15.80	7.45	221	14.50	12.00	7.20
181		9.45	6.15	222*	18.65	18.00	9.40
182		10.80	5.85	223*	21.00	21.00	9.50
183	15.60	14.45	7.65	224	14.00	12.20	6.30
184	12.25	11.65	6.75	225	13.15		
185	5.55	5.25	3.40	226	15.50	15.70	7.45
186	6.90	6.60	3.65	227	17.55	17.90	8.45
187	13.65	13.10	7.00	228*	20.30	18.90	9.80
188	6.50	5.60	3.40	229*	23.00	20.80	12.40
189	4.50	4.35	2.85	230	21.00	22.00	9.65
190	9.20	9.70	5.20	231	20.15	20.00	11.80
191	9.00	8.00	4.75	232	15.55	17.30	8.50
192	4.90	4.35	2.40	233	24.10	28.20	13.05
193	6.35	6.65	3.80	234*	27.70	28.00	
194	5.00	4.60	2.75	235	14.00	12.50	7.25
195	9.00	9.35	5.30	236	9.15	9.10	6.20
196	9.05	9.00	4.70	237	11.10	11.00	6.45
197	8.65	8.15	5.00	238	13.50	12.90	7.10
198*	14.00	12.50	6.80	239	12.35	13.00	6.70
199	9.10	8.10	4.50	240	14.20	13.40	7.30
200	11.50	10.75	5.80	241	18.20	17.50	9.80
201	8.10	8.55	4.75	242*	23.50	25.30	13.70
202*	16.00	13.60	7.80	243*	34.55	35.00	18.20
203	4.10	4.15	2.60	244*	23.65	23.00	11.25

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
245	33.50	31.00	16.75	286	38.65	39.00	
246	25.50	24.00	12.05	287	31.50	28.80	20.00
247*	25.00	24.40	11.35	288		32.00	18.35
248	28.40	28.60	15.80	289	30.25	29.15	15.25
249*	33.70		18.50	290	31.00	35.55	16.00
250*	28.00	30.80	15.00	291	31.00	29.30	18.80
251*	21.00	19.50	9.65	292	30.00	30.65	
252	25.10	24.00		293*	36.00	34.10	20.10
253	26.00	26.05	13.55	294		26.00	13.00
254	33.85	34.25		295*	33.00	33.20	15.70
255*	33.00	31.00	19.75	296	20.50	21.30	
256	32.00	34.30		297*	37.00	37.00	19.35
257	25.00	22.70	12.35	298	37.00	34.00	
258	23.00	21.00	11.20	299	32.80	34.05	16.40
259*	23.00			300	30.00	33.00	16.80
260	25.10	24.55	14.00	301*	33.35	31.65	16.60
261	28.00	28.00	15.55	302*	25.10	23.00	13.65
262	28.55		16.70	303	41.00	33.30	21.50
263	30.00			304	34.00	35.00	18.30
264	35.00	34.00		305	27.65	30.30	16.60
265	24.50	25.00	12.20	306*	32.00	34.20	16.00
266	33.00	33.55	17.00	307	31.00	32.00	16.40
267	27.75	28.55	17.00	308	34.00	34.00	17.75
268*	24.00	20.00		309	25.00	22.45	11.80
269*	30.00		15.75	310	30.00	28.10	16.00
270	29.50	28.50	15.00	311	25.00	27.15	12.40
271	22.00	21.40	12.50	312*	22.50	22.00	11.80
272	31.00			313*	25.45	23.45	13.30
273*	28.00	30.00	13.10	314	34.00	34.75	17.60
274*	28.00	25.00	15.00	315	34.00	32.00	16.90
275	33.35		18.50	316		40.00	21.40
276*	35.45	34.00	20.00	317	22.50		11.60
277*	37.35	37.45	20.55	318	23.00	25.50	12.50
278*	43.30	43.10	27.30	319*	26.00	26.05	14.00
279	36.55	38.10	19.60	320	34.50	33.00	17.00
280	31.50	30.30	16.75	321	27.00	29.00	13.70
281*	30.00		13.30	322	34.15	31.30	
282*	26.00	25.35	12.50	323	34.00	35.00	17.50
283	25.00	27.00	13.45	324	18.00	18.00	8.25
284	39.35	45.10	24.55	325*	42.80	41.00	23.05
285*	33.00	36.00	18.75	326	39.00	39.50	25.20

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
327*	31.00	36.00	18.00	368*	27.50	33.00	15.45
328*	31.15	30.00	15.50	369	25.00	27.50	
329	31.05	36.00	22.85	370	28.00	26.00	15.75
330	36.00	31.55	19.80	371	40.00	37.50	19.00
331	35.55	38.10	18.00	372	23.85	28.20	14.40
332*	30.90	30.00	14.00	373	32.00	34.00	17.00
333*	27.60		15.15	374*	28.00	30.00	16.85
334	31.00	30.00	16.30	375*	31.25	36.50	
335*	35.00	40.00	19.00	376*	40.20	42.70	24.40
336	26.00	26.00	13.20	377	30.00	30.80	15.20
337	34.00	34.80	17.55	378		44.00	22.50
338	31.05	32.80	16.50	379*	28.55		13.65
339*	30.00	29.55	14.30	380		33.00	15.15
340	28.00	29.60	14.80	381*	41.50	43.00	24.85
341	35.00		17.15	382	42.00	44.00	21.00
342		39.40	21.55	383		54.00	28.80
343*	36.00	33.55	18.00	384*	46.00	49.00	27.65
344*	30.00	31.60	18.45	385*	40.30	43.00	21.50
345		32.00	16.00	386	28.30	29.00	
346		36.00	18.55	387	48.05	47.00	24.55
347	27.20	29.40	13.60	388	44.00	55.35	27.45
348	33.50	36.15	17.00	389*	48.00	48.00	29.00
349	41.10	41.45	25.90	390	40.45	46.00	29.70
350	33.35	32.10	17.50	391*	53.00	57.00	28.00
351	27.00	26.00	13.50	392	52.00	46.00	30.00
352	35.00		18.00	393		48.00	23.00
353*	30.50		16.45	394	48.00	49.00	31.15
354	34.00		18.35	395	42.00	44.00	22.00
355	34.55	34.00	18.55	396*	62.00	62.20	31.40
356*	35.00		18.00	397	51.00	50.00	29.40
357	34.50	34.00		398		58.00	40.75
358	24.55	27.30	12.75	399	25.00	24.00	
359*	33.00	33.70	16.15	400		48.00	27.45
360*	25.00	25.00	13.50	401*	51.00	52.00	27.00
361*	39.50	39.00	20.80	402*	45.00		
362	39.50	42.00	21.45	403	42.00	44.50	21.00
363	31.05	29.40		404	33.00	36.00	
364	38.00	37.00		405	24.50		12.70
365	36.00			406*	33.25		
366*	23.50	22.00	11.20	407		39.00	18.15
367*	36.00	36.00	18.05	408		9.10	4.70

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
409	9.00	8.50		450	34.00	38.00	19.00
410		5.40	3.15	451	18.00	19.80	10.90
411	20.00	16.00	9.10	452		28.00	13.80
412	14.50		7.00	453	22.00	24.00	11.50
413		5.00	3.20	454*	25.70		12.50
414	10.35	10.80		455		32.00	14.40
415*	38.05	36.45	21.50	456*	24.50		13.20
416	36.20	36.25	18.00	457	20.00		10.25
417		46.00	23.00	458	16.80	18.00	8.50
418	43.50	42.00	21.00	459	27.00	26.00	12.00
419*	36.30	34.00	18.05	460	20.00	21.00	10.10
420	40.00	40.00		461	23.25	25.00	12.25
421	37.00	42.65	19.00	462	29.40	28.45	16.50
422		39.90	23.70	463	21.00	21.10	11.55
423	52.80	69.00	36.00	464	22.70	27.00	
424	50.00	48.00		465*	20.55	20.15	10.50
425	49.50	48.35	25.75	466*	21.50		10.65
426*	30.45		13.80	467*	22.20	21.65	11.10
427	50.00	53.00	27.50	468	30.00	30.50	15.60
428	25.00		13.40	469	18.00	19.20	8.80
429	31.70	35.00	15.00	470*	17.15	21.00	10.00
430	31.60	33.00	15.60	471*	23.80	28.00	12.60
431	44.00	43.00	22.50	472*	20.15	20.00	10.80
432*	30.00			473	16.00	17.00	8.00
433*	27.40		14.00	474*	15.70	17.20	7.20
434	27.00	24.00	13.05	475	17.20	16.30	7.70
435*	41.00	44.00	23.50	476	18.00	18.50	9.05
436	34.60	35.15	19.05	477	18.00		10.80
437	29.70	26.00	14.50	478	12.50	10.80	5.80
438*	35.00	38.00	20.40	479	14.00	13.35	6.50
439*	42.00	43.00	21.45	480	12.10	12.45	6.10
440		28.00	14.00	481	9.00	9.15	5.05
441	38.00	41.00	22.00	482	7.85	7.00	4.00
442*	28.35	29.00	14.45	483	9.80	9.00	5.25
443	43.00	42.00	25.05	484	8.05	7.45	4.00
444	36.00	37.20	21.45	485*	7.45	6.85	4.15
445	25.00	27.50	15.65	486*	15.00	17.00	7.50
446	35.00	34.00	17.00	487	11.00	14.00	
447	35.00	35.55	19.00	488	18.00	17.30	10.00
448	34.00	34.00	23.00	489	19.40	18.90	9.30
449*	36.00	44.50	21.45	490	8.15	7.70	4.60

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
491	13.50	12.20	7.35	532	9.50	9.50	4.65
492	15.80	18.50	7.85	533	10.25	10.20	5.10
493	18.75	18.05	8.30	534	15.00	12.60	7.85
494*	15.25			535*	9.25	8.85	4.65
495	8.60			536	8.45	8.85	4.65
496	12.45	13.00	6.50	537		8.00	4.30
497	4.85	4.85	2.35	538	8.00	8.70	4.15
498	7.05	6.55	3.30	539	10.15	11.50	
499	12.80	10.70	6.50	540	5.85	5.50	3.20
500	9.65	8.60	4.20	541	6.50	5.10	3.20
501*	9.00	8.20	4.10	542	5.85	5.80	3.70
502	3.65	4.10	2.20	543	8.00	6.00	3.55
503	11.00	10.30		544	7.80	7.30	4.35
504	7.60	6.35		545	13.70	12.80	7.25
505		14.00	6.55	546	7.95	8.00	4.45
506	6.00	4.80	3.55	547	12.00		6.00
507			7.45	548	12.55	13.30	7.00
508	7.00	6.50	3.50	549		9.70	4.90
509	11.20	9.80	5.65	550*	8.30	7.55	4.50
510	10.50	9.50	5.30	551		10.50	6.05
511	18.85	18.35	9.15	552	18.50	18.50	9.25
512*	15.85	16.15	7.65	553	16.85	18.50	9.30
513*	16.40		7.50	554	8.50	7.65	3.75
514*	15.70	14.50	9.10	555	18.55	19.00	9.85
515	16.00	16.00	8.00	556*	20.00		10.05
516	18.20	18.50	9.40	557	14.50	12.00	7.05
517	23.00	21.50	12.35	558		15.50	6.85
518	8.65	7.70	4.45	559	12.60	14.00	
519	10.85	10.45	5.05	560	7.65	7.70	3.80
520		10.50	5.25	561		13.30	5.85
521	11.00	10.50	5.10	562	7.70	6.85	4.95
522	7.85	7.20	3.90	563*	10.45	9.35	5.45
523	12.50	11.00	7.00	564*	12.00	11.45	6.10
524	6.35	6.00	3.30	565	16.75	18.15	9.25
525*	8.55	7.70	4.20	566*	21.65	22.00	12.35
526	13.60	14.50	6.80	567	17.00	16.00	8.60
527	19.70	19.50	10.50	568*	17.60	14.80	9.85
528	14.50	13.35	7.50	569		15.00	9.00
529	10.00	9.40	4.55	570*	22.00	22.00	9.25
530	15.50	14.70	9.00	571	20.00	21.50	
531	9.15	10.00	4.20	572		22.50	10.15

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
573	25.00	24.50	12.35	614	39.50	42.70	21.85
574	18.60	17.50	8.50	615	36.10	38.00	20.00
575*	26.35		11.50	616*	48.00	52.50	26.00
576	16.50	16.90	7.35	617*	40.85		20.65
577*	26.00	25.05	13.55	618		41.10	23.00
578	14.25	12.75	7.30	619	43.50	39.45	27.00
579	18.00	20.50	9.45	620	49.05	49.00	27.75
580	22.00	20.50	10.55	621*	47.00		26.00
581	6.35	7.00		622	48.40	45.00	27.00
582	17.50	18.55	8.80	623		47.70	24.00
583	22.00	23.20	11.00	624		45.00	20.65
584	21.00	22.00	10.00	625		56.00	30.50
585	29.50	28.00	15.50	626		57.00	28.70
586*	18.00	17.50	8.65	627	37.00	35.00	17.65
587*	26.00	28.00	13.80	628	15.00	15.40	
588	26.50	25.00	11.40	629*	13.95	13.00	7.70
589	23.50	22.00	11.00	630*	10.40	10.25	6.00
590	27.25	28.00	13.10	631	16.00	15.35	8.20
591	24.00	24.00	12.00	632		24.00	11.80
592		25.00	12.75	633	22.00		
593*	26.00	27.75		634	22.00	22.20	9.30
594	29.00	30.00	13.00	635	10.20	10.75	7.65
595	29.00		16.00	636	10.75	9.70	6.00
596		28.50	13.60	637	8.60	9.00	
597	3.00	3.30	2.00	638	13.00	11.00	6.55
598*	37.15	36.00	18.00	639		12.50	6.20
599*	30.55	27.15	15.60	640	10.75	9.30	5.30
600	31.50	32.00	16.00	641	7.65	7.90	4.00
601	33.00	33.00	16.00	642	6.65	6.15	3.35
602	42.00	41.00	23.00	643	7.00	6.50	
603	36.00	32.85	16.60	644		6.80	3.30
604*	26.50	27.70	14.70	645		42.00	23.05
605*	32.00	31.00	16.40	646	39.00	39.00	19.60
606	33.00	34.00		647		38.00	17.15
607	37.00	36.00	18.25	648		13.20	5.90
608*	48.00	48.00	25.85	649		26.00	12.70
609	30.00	33.20	16.50	650		41.00	21.90
610	14.10	14.10		651		47.00	19.35
611*	38.50	38.60	20.10	652	44.00	42.50	29.50
612*	36.00	35.00	17.90	653	41.00		
613		33.00	21.00	654*	44.00		

Continued

No.	length (mm)	width (mm)	thickness (mm)	No.	length (mm)	width (mm)	thickness (mm)
655	20.00	19.50		696	22.00	23.05	11.35
656*	34.50		20.00	697	18.00	20.10	10.00
657	45.50	43.00	31.50	698	36.00	39.65	18.60
658	53.00			699		31.60	18.65
659		45.00	18.60	700*	43.80	45.50	26.75
660		44.55	21.00	701*	50.60	46.50	26.10
661*	43.55			702*	46.90	48.55	27.90
662	31.10	34.70		703	40.85	41.00	23.20
663	18.00	18.00		704	18.20	18.05	9.70
664	50.00			705	8.00	7.45	4.40
665	24.45	26.00		706	17.45	19.60	10.20
666*	32.00	32.23		707	6.85	6.75	3.45
667		19.50	10.55	708	22.00	21.50	11.80
668	36.00		19.00	709	5.30	5.10	2.80
669	44.00	40.00		710	32.00	31.00	15.95
670	46.20			711	5.25	4.35	3.20
671	44.75	46.10		712*	26.15	24.05	11.75
672	25.50			713	4.65	4.45	2.45
673	27.50	29.50		714	30.00	30.00	
674	37.00			715	9.00	8.00	4.25
675	25.40	26.00		716	9.85	10.70	4.85
676*	38.50	40.00		717	12.10	11.05	
677*	40.00	43.00		718	12.65	12.50	6.60
678	37.00	38.00		719		11.25	6.00
679	46.00	47.00		720	12.00	12.00	6.50
680	35.00			721	9.30	9.50	4.80
681	44.00						
682	51.00	50.00					
683	51.00	47.00					
684	13.25	17.00					
685*	48.00	49.00					
686*	34.00						
687	32.00						
688	44.00	43.00					
689	19.00	20.00					
690	12.00	12.00					
691	3.70	3.00	2.20				
692	20.10	20.00	9.10				
693	10.10	9.45	5.10				
694	22.00	21.55	11.20				
695	22.85	21.00	11.65				

Tab. 1 - Shell measurements of *Weiningia ziyunensis* n. sp. used for the analyses in Fig. 6B-E. Note: (1) The length of ventral valve is used as shell length. (2) To those specimens lacking: (a) length data, they have incomplete anterior or posterior parts of shells; (b) width data, they have incomplete or severely malformed lateral parts of shells; (c) thickness data, they have broken dorsal valves, or they are only ventral valves. (3) Only those specimens having both length and width or length and thickness data are plotted in Fig. 6B. (4) The data of malformed specimens in Fig. 6C, D are marked with *.

Appendix 2

Size class (mm)	Number	Number of malformed specimens	Percentages of malformed individuals in size class (%)
0-5	16	0	0
5-10	83	6	7
10-15	88	9	10
15-20	81	15	19
20-25	83	20	24
25-30	83	32	39
30-35	92	27	29
35-40	60	17	28
40-45	45	17	38
45-50	23	10	43
50-55	11	4	36
60-65	1	1	100
Total	666	158	

Tab.2 - Statistical data of the malformed specimens of *Weiningia ziyunensis* n. sp.

Appendix 3

The survivorship curve of *Weiningia ziyunensis* n. sp. is constructed following the equation and methods proposed by Levinton and Bambach (1970) and Dodd & Stanton (1981) respectively. The equation assumes that growth rates decline logarithmically with age:

$$D = s \ln (T+1)$$

where D is the size (ventral valve length) and T is percent maximum age. s is a constant that determined for any specimen by assuming that the largest individuals is the oldest:

$$s = D (\text{largest specimen}) / \ln (101)$$

At age zero, 100% of the specimens are surviving. At the end of the first class, subtract all the members of that class from the total number of specimens as they did not survive beyond that class. Determine the percentage at the boundary between the first and second classes. Repeat this procedure for each class, adding each time the members of that class to all smaller fossils which did not survive to that age. The equation for calculating points on the survivorship:

$$L_i = 100 (N_t - \sum N_i) / N_t$$

where L_i is the percentage of the population surviving at the end of class i , N_i is the total number of fossils in the population, $\sum N_i$ is the sum of the number of fossils in all classes between 1 and i .

No.	Size class (mm)	Individual	Remaining number ($N_i - \sum N_i$)	Percent surviving ($L_i, \%$)	Max shell length (D, mm)	Percent max age (T, %)
1	0.00-5.00	16	650	97.60	5.00	0.45
2	5.00-10.00	83	567	85.14	10.00	1.11
3	10.00-15.00	88	479	71.92	15.00	2.05
4	15.00-20.00	81	398	59.76	20.00	3.43
5	20.00-25.00	83	315	47.30	25.00	5.43
6	25.00-30.00	83	232	34.83	30.00	8.33
7	30.00-35.00	92	140	21.02	35.00	12.54
8	35.00-40.00	60	80	12.01	40.00	18.64
9	40.00-45.00	45	35	5.26	45.00	27.49
10	45.00-50.00	23	12	1.80	50.00	40.34
11	50.00-55.00	11	1	0.15	53.30	51.85
12	60.00-65.00	1	0	0.00	62.00	100.00
Total (N_i)		666				
s		13.43				

Tab.3 - Statistical data of the survivorship curve of *Weiningia ziyunensis* n. sp.

Appendix 4

The Simpson index of dominance (D) and diversity (1-D) follow the calculations by Hammer & Harper (2006):

$$\text{Simpson index of dominance: } D = \sum (P_i^2)$$

$$\text{Simpson index of diversity: } 1 - D = 1 - \sum (P_i^2)$$

where $P_i = n_i/n$ (the proportion of species i). The dominance index will be close to 1 if there is a single taxon. If all taxa are equally common, the dominance index will reach its minimal value of $1/S$ (Species richness, S).

The Shannon-Wiener index (H') and Pielou's equitability (J) also follow the calculations by Hammer & Harper (2006):

$$H' = -\sum (P_i \ln P_i)$$

where the "ln" is the logarithm to the base of e . The lowest possible value of H' is obtained for the case of a single taxon where $H' = 0$ while the maximum value $H_{\max} = \ln S$. This means that the Shannon-Wiener index is dependent on the relative abundances and the number of taxa. To normalize for species richness, Pielou's equitability (J) is calculated as:

$$J = H'/H_{\max}$$

where the equitability index varies from 0 to 1.

Species richness (S)	Individual	Simpson dominance (D)	Simpson diversity (1-D)	Shannon-Wiener (H')	Pielou's equitability (J)
9	2019	0.46	0.54	0.88	0.40

Tab. 4 - Several diversity indices of brachiopods in the shell bed.

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