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The advent of hard part structural support among the Ediacara Biota: Ediacaran harbinger of a Cambrian mode of body construction

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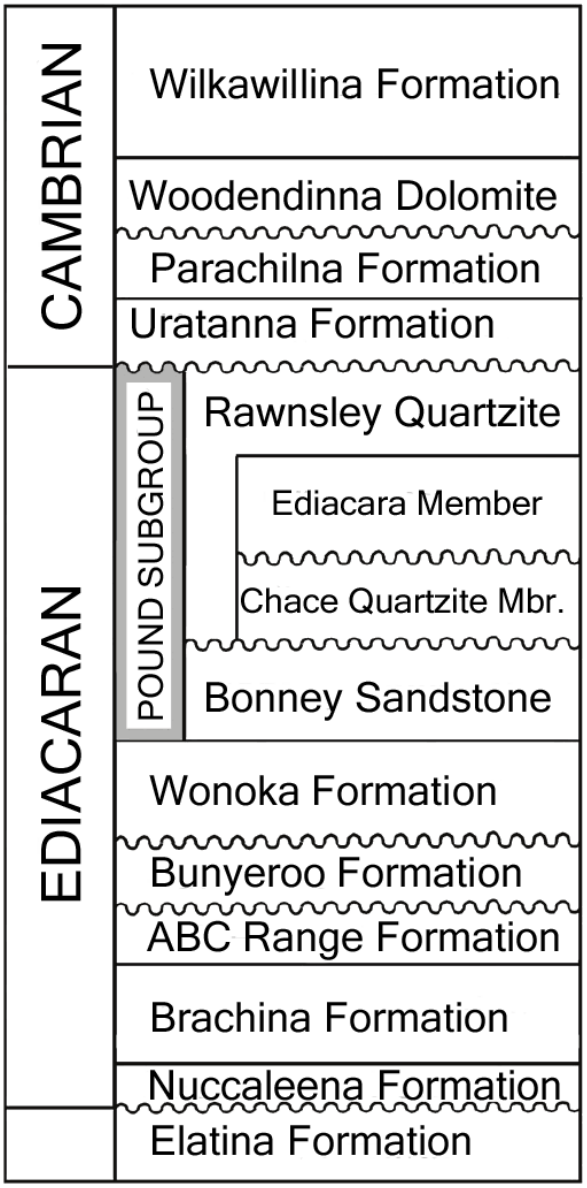

Figure DR1.

Stratigraphy of the Ediacara Member of the Rawnsley Quartzite in the Flinders Ranges, after Gehling and Droser 2009[1].

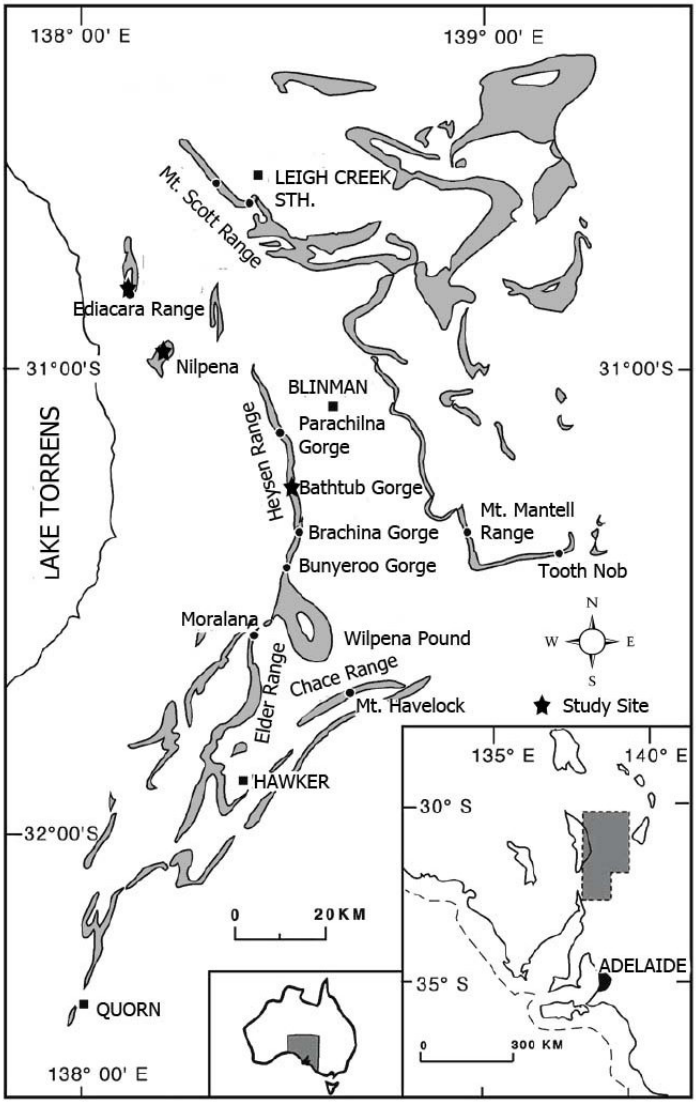

Figure DR2.

Map showing field localities including Nilpena, Bathtub Gorge and the Ediacara Range, after Gehling and Droser, 2009[1].

[1]Gehling, J.G. and Droser, M.L., 2009, Textured organic surfaces associated with the Ediacara biota in South Australia: Earth Science Reviews, v. 96, p. 196-206, doi:10.1016/j.earscirev.2009.03.002.

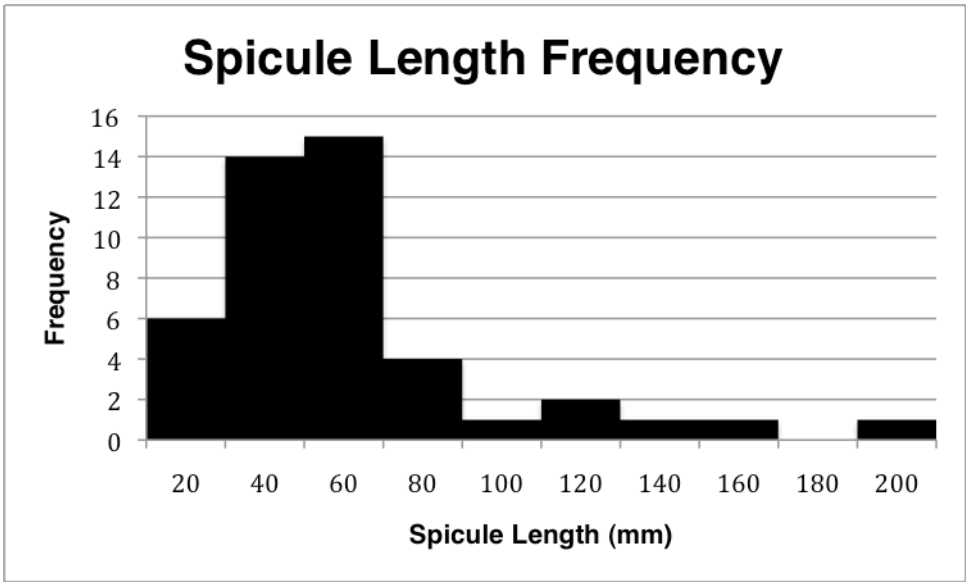

Figure DR3.

Frequency of spicule lengths on bed MMS. Note that many shorter spicules are present with a few long spicules. As many of these spicules are disarticulated, this data (from Table DR3) suggests a large spicule may have broken into smaller pieces during transport.

Table DR1. Data on *Coronacollina* holotype and paratype specimens. Measurements of minimum and maximum diameter of truncated cones, number of spicules and their length and width. Note that these measurements are for individual *Coronacollina* specimens, as shown in Figure 1 and 2.

Specimen Number	**Type Status**	**Body Max. Diameter (mm)**	**Body Min. Diameter (mm)**	**Body Height (mm)**	**Number of Articulated Spicules**	**Spicule Length (mm)**	**Spicule width (mm)**
SAM P43257	Holotype	11	9	1.00	4	75, 70, 25, 20	<1
SAM P43375	Paratype	18.55	2.98	3.00	4	92.70, 28.40, 22.42, 13.36	<1 - 1
SAM P43378	Paratype	9	8	3.00	3	50, 40, 25	<1
SAM P44335	Paratype	3	3	1.00	2	4.5, 3.25	<1

Table DR2. Data on best-preserved *Coronacollina* specimens on bed MMS at Nilpena. Measurements of minimum and maximum diameter of truncated cones.

***Coronacollina acula* specimen coordinates**	**Max. Diam. (mm)**	**Min. Diam. (mm)**
33-62	6.6	5.5
21-88	2.7	2.4
top edge, not logged	3.2	2.7
27-80	5.6	4.4
near 41-76	2.7	2.3
52-79	6	5.5
56-66	3.3	3
54-64	5	4.5
57-70	3.1	2.5
below 54-64	2	1.8
22-97	5.3	5
28-94	5.4	5
44-90	6	5.2
55-106	4.5	3.8
54-117	4.4	4.3
66-122	2.8	2.7
57-128	3.3	2.5
on 50N line	1	0.7
30-132	4.5	4.5
at edge, near 30-132	1.1	0.4
28-127	13.1	N/A
107-201	15.1	13.3
129-150	12	11
131-150	10.6	N/A
101-143	2.7	2.1
99-147	3.5	3.3
95-147	5	4.7
95-140	6.7	5
in fine micropucker	2.2	2.2
81-137	3.4	2.7
71-133	4	3.1
65-150	5.8	4.6
90-184	3.8	3.8
87-187	3.4	2.8
74-170	6	5.3
near 74-170	3.7	3.7
64-163	13.5	12.1
near 64-163	1.7	1.3
near 67-155	3	2.5
81-150	14	10.6
97-159	10.6	9
92-173	9.5	9.3
113-180	8.5	8
on 150W line	2.4	2.1
127-210	4.1	4.1
139-227	7.6	7.5
near edge	4.6	4.6
near 136-214	2.7	2.7
near previous	2	1.9
near previous	1	0.9
at 200W line	12	9.7
near 142-216	2.5	2.1
154-222	3.8	3
near 170-229, left	2.2	1.8
near 170-229, above	2.4	2.4
near 170-229, above	2.7	2.4
152-246	6	6
148-265	9.1	8.1
on 150N line	3.8	3.1
154-281	5.6	4.8
in "leg"	1.5	1.5
156-257	5.5	4.6
below 323-268	4.8	4.8
165-275	13.8	13.2
right of 165-275	2	1.7
179-281	3.9	3.8
177-287	2.4	1.9
182-290	3.5	3.5
185-282	3.4	2.2
149-298	3.2	3.2

Table DR3. Data on *Coronacollina acula* spicules from bed MMS at Nilpena.

***Coronacollina acula* Spicule #**	**Group?**	**Length (mm)**	**Width (mm)**	**Description**
1		70	0.53	straight
2		50	0.83	lenticular sections
3		30	0.8	
4		20	approx 0.55	straight
5		20	0.75	straight
6		150	0.65, 0.50	part straight, part lenticular
7	A	20	0.5	straight
8	B	25	0.85	straight
9	B	30	unclear	straight
10	C	100	0.45	straight
11	A	35	0.30, 0.73	straight
12		50	0.3	straight
13		40	0.3	straight
14	B	105	0.6	straight
15	C	50		straight
16		45	0.4	straight
17		65	0.5	straight
18		105	1.2, 0.74	straight
19		30	0.5	broken and offset?
20		60?	0.3	straight
21		140	0.62	straight, narrow
22		45	0.5	straight
23		55	1	straight
24		60	0.42	straight
25	B	190	0.5, 0.6, 0.9	lenticular section in middle
26		20	0.6	straight
27		50	0.4	straight
28	G	40	0.62, 0.68, 0.74	straight, wide
29		20	0.61	straight
30		65	0.42	straight
31	F	50	0.54, 0.49	straight
32		60	0.8	straight
33		40		straight
34		40		straight
35		20		straight
36		55	approx 0.40	lenticular section at end
37		25	0.29, 0.35, 0.50	lenticular
38		30		lenticular sections
39		30	0.45	straight
40		60	0.96, 0.90	straight, inconsistent width
41		25	0.74, 0.90	straight, inconsistent width
42		50		straight
43		55		straight
44		40		straight
45		70		lenticular

Table DR4. Abundance data comparison for MMS Bed and MM B3.

Surface	**MM B3**	**MMS**
N	217	409
Richness	11	11
Genus/Form		
Aspidella	14	
Conomedusites	1	
Coronacollina acula gen. et sp. nov.		269
Dickinsonia costata	147	1
Dickinsonia lissa	1	
Eoandromeda		17
Frond		6
Funisia		1
"Groove"		1
Intrites	3	
Marywadea	2	
Palaeophragmodictya	3	
Parvancorina	17	10
Spriggina	7	
Stalk		2
"Stitch and Groove"		8
"Strap"		85
Tribrachidium	16	5
"Tubes"	6	