

Table S1. Criteria for assigning taphonomic grades to the large benthic foraminifer *Baculogypsina sphaerulata*, the most abundant sediment type at Raine Island Reef, northern GBR, Australia.

		TAPHONOMIC GRADE		
Arbitrary grade		0	1	2
Descriptor		Pristine	Moderately abraded	Severely abraded
Overall preservation state		Excellent preservation with no or minimal alteration	Moderate preservation with some alteration	Poor preservation with significant alteration
Physical processes	Abrasion	Unabraded or scarcely abraded with surface architecture intact	Chipped or rounded edges and partial removal of ornamentation e.g spines and/or some surface architecture	Rounded fragments with complete removal of ornamentation and significant smoothing of surface architecture
	Disarticulation/fragmentation	Fully articulated (all spines intact)	Whole test but partially disarticulated and remaining spines rounded. Some peripheral fragmentation	Whole or fragmented test reduced in size and completely disarticulated (no spines)
	Fine-scale alteration	No fine scale alteration	Slight alteration such as small fractures and some minor erosion	Extensive alteration such as pitting, erosion and fractures
Biochemical processes	Microboring	No evidence of microboring	If present affecting <10% surface area	If present affecting $\geq 10\%$ surface area
	Dissolution	Unaltered surface	Early stages of dissolution characterised by etching of the test wall	Extensive dissolution characterised by partial to complete removal of outer test wall exposing septa and pillars

No evidence in any specimens of

- Micritic biofilms
- Encrustation
- Cementation
- Recrystallisation

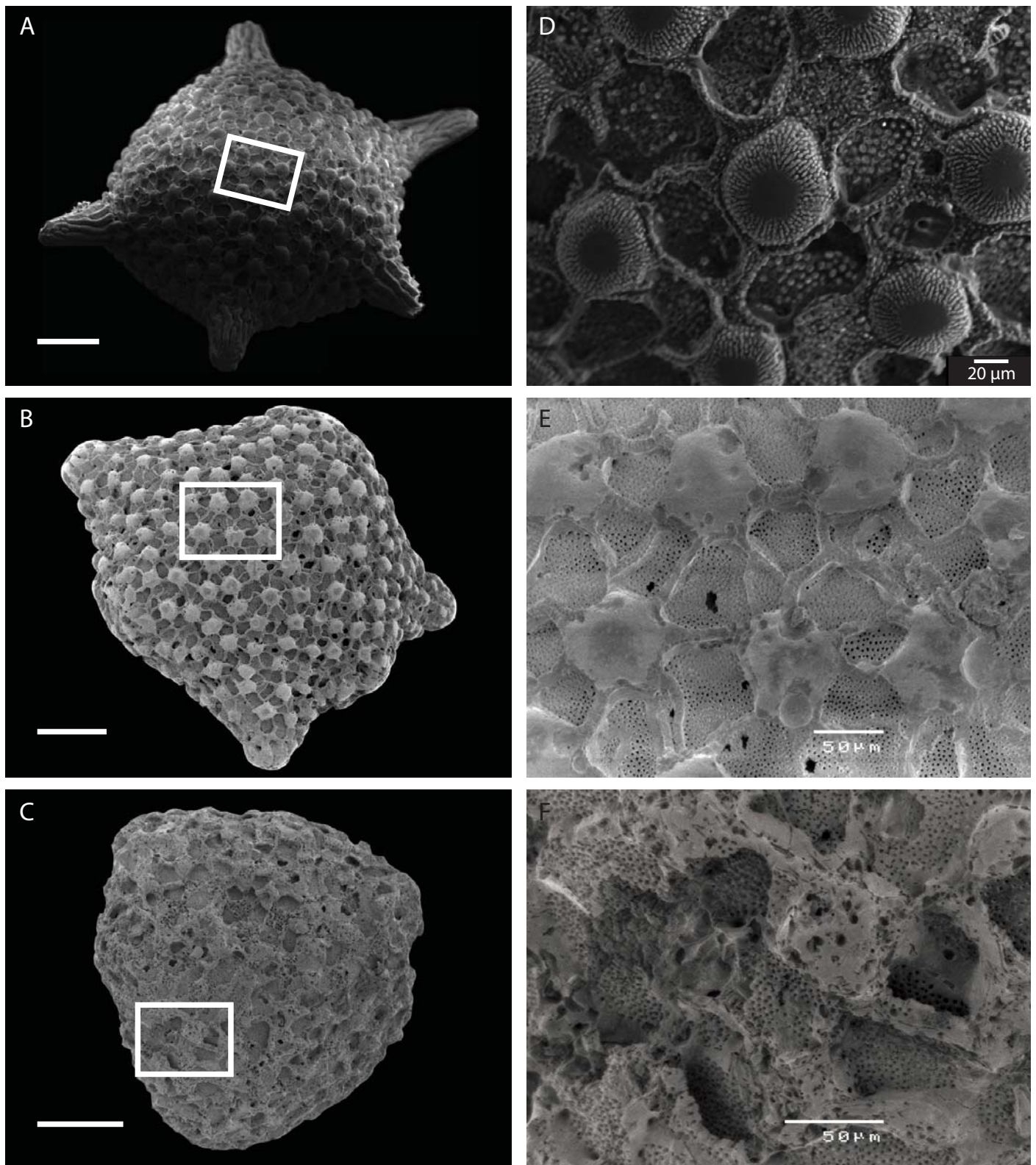


Figure S1. - SEM imagery of the three taphonomic grades (overall condition) of *Baculogypsina sphaerulata* (high-Mg calcite LBF) used in this study. A 250μm scale bar pertains to images **A-C**, enlargements **D-F** have independent scale bars and their approximate locations are indicated on images **A-C** (white boxes). **A** = whole test, a pristine specimen collected from the algal turf zone, living at time of collection and showing unaltered surface texture and intact canicular spines (full articulation); **B** = Whole test, a partly abraded specimen collected from the central coral zone and showing moderate levels of surface alteration. Fragmentation includes partial disarticulation (loss of spines), while remaining spines are rounded; **C** = Whole test, a corroded and significantly abraded specimen collected from the cay beach showing considerable surface alteration, complete removal of spines and a marked rounding and reduction in size of the main test. Specimen shows partial removal of the outer test wall and large areas of surface smoothing; **D** = Enlargement window (430x magnification) showing unaltered fine-scale surface architecture; **E** = Enlargement window (350x magnification) showing obvious abrasion (pitting) and smoothing of surface architecture; **F** = Enlargement window (500x magnification) showing significant surface alteration including pitting, erosion, fractures and microboring.