

Particulazona milnei gen. et sp. n., a new genus and species of chiton from Australia, Northern Territory (Polyplacophora, Lepidochitonidae)

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A new genus of Lepidochitonidae, *Particulazona*, is proposed for a new species, *P. milnei*, from Darwin, N. Australia. The new genus is characterized by features of the valve sculpture and the peculiar dorsal girdle covering.

Key words: Polyplacophora, Lepidochitonidae, *Particulazona milnei* gen. et sp. n., Australia, Northern Territory, Darwin.

Among material identified as *Plaxiphora obscurella* (Souverbie, 1866) in the collection of the South Australian Museum, I found one specimen of an unknown chiton species from Darwin, Northern Territory, here described as *Particulazona milnei* gen. et sp. n.

However rich the chiton fauna of Australia may be, relatively few species have been reported from the Northern Territory. Therefore it was not astounding to recognize a sole, dry specimen from Darwin in the collection of the South Australian Museum (Adelaide) as new to science. According to the label it was collected on mangrove roots in Frances Bay, Darwin, 22.VII.1954 by Mr. M.J. Tilbrook and apparently donated to Mr. K.L. Milne, whose collection of chitons has now been stored in the South Australian Museum. The new species has provisionally been placed in the family Lepidochitonidae (subfamily Lepidochitoninae) on account of its peculiar girdle covering, consisting of minute, crowded, spiculoid calcareous corpuscles. A new genus, *Particulazona*, has been created to receive it.

Family Lepidochitonidae
Subfamily Lepidochitoninae

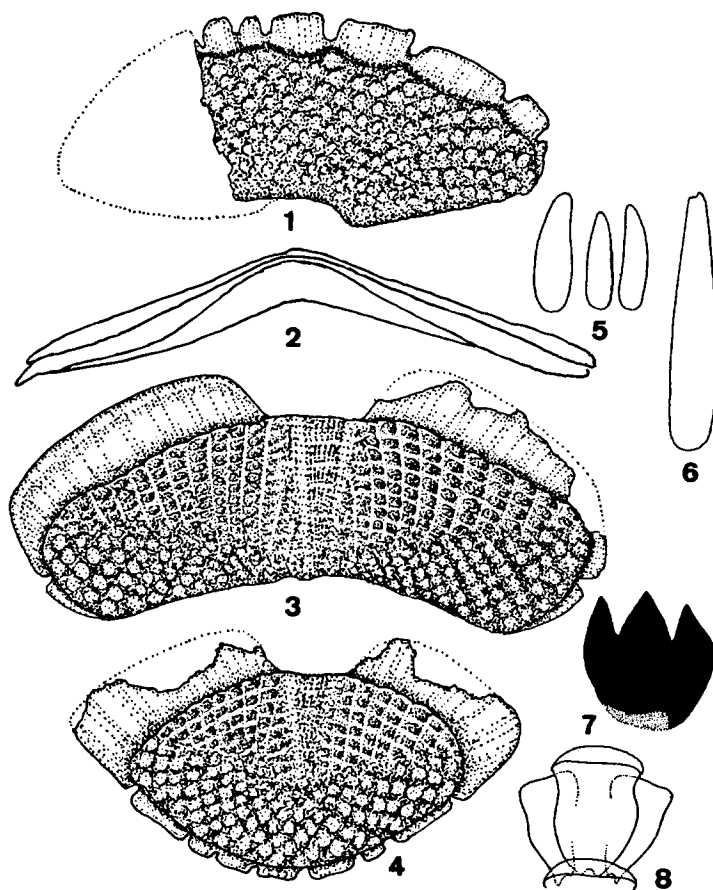
Genus **Particulazona** gen. n.

Diagnosis. — Dorsal side of girdle densely covered with minute, juxtaposed, very short, spicule-like, dark brown, calcareous corpuscles, ventral side finely spiculose. Type species: *P. milnei* sp. n.

Particulazona milnei sp. n., figs. 1-14

Material. — 1 specimen, preserved dry, c. 8 mm long, now disarticulated, valves I-VI medially broken, slides of radula and perinotum, holotype: South Australian Museum, Adelaide.

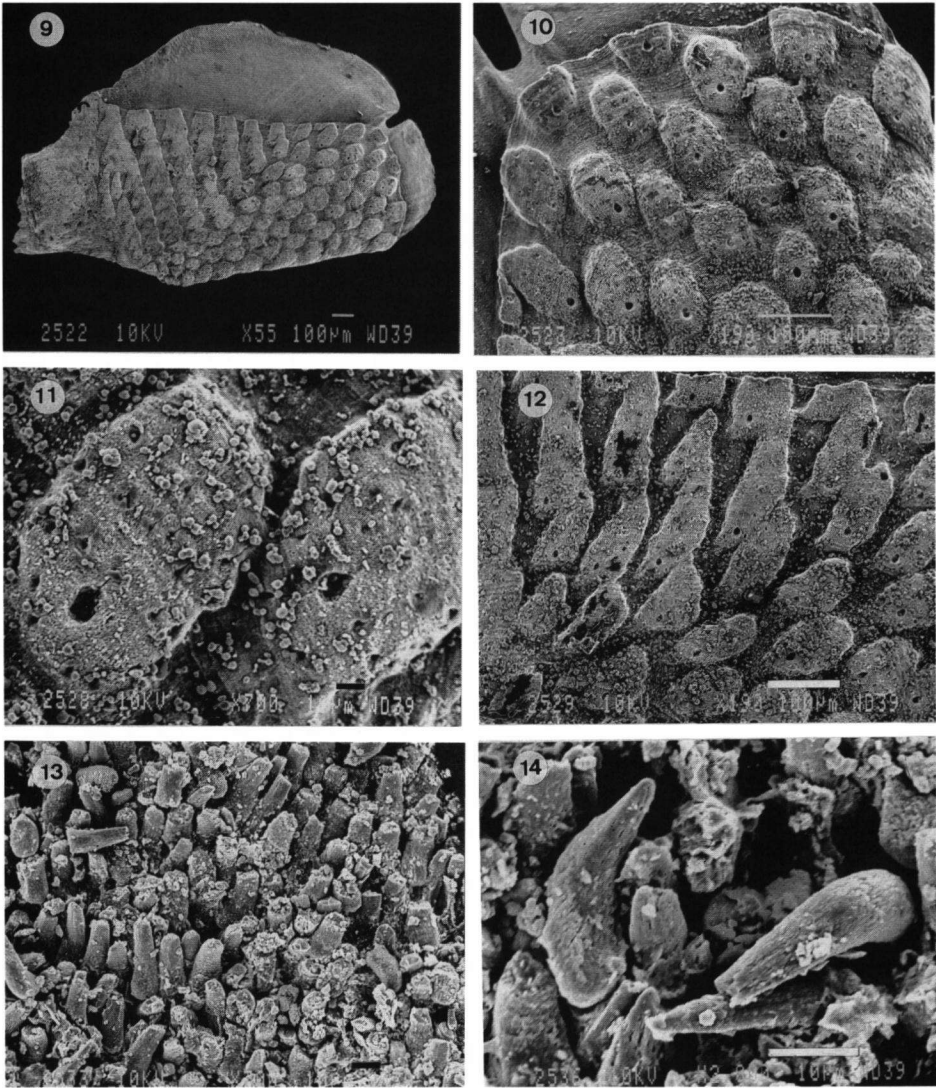
Diagnosis. — Animal small, oval, rather flat, valves carinate, not or very slightly beaked, tegmentum dark brown, lateral areas not raised, clearly indicated by different sculpture: quincuncially arranged, well-raised, oval pustules on end valves and lateral areas, longitudinal rows of spicule-like formations on the pleurae of the central areas.



Figs. 1-8. *Particulazona milnei* gen. et sp. n., holotype. 1, valve I, dorsal view, $\times 25$; 2, camera lucida sketch of valve VII, rostral view, $\times 25$; 3, valve VII, dorsal view, $\times 25$; 4, valve VIII, dorsal view, $\times 25$; 5, ventral girdle spicules, $\times 500$; 6, possible marginal spicule, $\times 500$; 7, dental cap of major lateral radula tooth, $\times 500$; 8, central and first lateral radula teeth, $\times 500$.

Girdle dorsally densely covered with minute juxta-posed, spicule-like, dark brown calcareous corpuscles, ventrally with bluntly pointed, curved, white spicules.

Description. — Animal small, holotype c. 8 mm long, oval, flat (dorsal elevation c. 0.21), side slopes straight to slightly concave towards the dorsal ridge, carinated. Head valve little more than $2/3$ of a circle, front slope straight, anterior margin scalloped, corresponding to the slits of the insertion plates, posterior margin almost straight, roundly notched at the apex. Intermediate valves broadly rectangular, almost parallel-sided, side margins slightly rounded, apices small, somewhat pointed, not projecting, lateral areas not raised, clearly differentiated from central area by different arrange-



Figs. 9-14. *Particulazona milnei* gen. et sp. n., holotype. 9, right half of an intermediate valve; 10, lateral area of an intermediate valve; 11, dorsal pustules on lateral area of intermediate valve; 12, dorsal (and part of lateral) area of intermediate valve; 13, dorsal aspect of girdle; 14, ventral aspect of girdle. (SEM photographs J. Goud).

ment of sculpture: relatively large, flat, oval, elevated pustules in quincux on lateral areas, longitudinal rows of elevated, spicule-like pustules on the pleurae of central areas, 10-12 rows per side, slightly converging anteriorly, the innermost rows short, abruptly interrupted by the boundaries of the jugal area, 10-12 pustules per row near the jugum; jugal area wedge-shaped, longitudinally finely ridged. Colour of tegmentum brown on

lateral areas and pleurae of central areas, lighter on jugal area, with a narrow, wedge-shaped, dark jugal stripe. Tail valve transversely oval, mucro about central, hind slope straight to slightly concave directly under the mucro. Antemucronal area sculptured like central areas, postmucronal area like head valve.

Articulamentum light bluish to dark greyish blue, the apophyses and insertion plates bluish white. Apophyses strongly developed, rectangular to trapezoidal, relatively long and wide, regularly rounded, leaving a rather deep jugal sinus, c. $1/9$ the total width of the valve. Insertion plates rather long on head valve, short on tail valve, dorsally very weakly grooved, smooth-edged. Slit formula $8(+1 \text{ extra})/1/8$, slits rather deep, edges not thickened, slit rays indicated.

Girdle moderately wide, dark brown, dorsally densely covered with well-raised, juxtaposed, spiculoid, calcareous corpuscles, c. $8\text{--}10 \mu\text{m}$ long. Only a few large, white spicules, presumably marginal, $68 \times 12 \mu\text{m}$ have been found. Ventral side of girdle covered with white, bluntly pointed, mostly angularly curved spicules, $28\text{--}32 \mu\text{m}$ long, $8\text{--}10 \mu\text{m}$ thick.

Central tooth of radula little longer than wide, the sides evenly rounded, weakly pinched towards the rounded, rather wide blade, first lateral teeth somewhat shorter, slightly sinuate at the outer margin, distally truncate, no blade, major lateral with a tridentate cap, the cusps of about equal length, sharply pointed.

Although *I. (P.) milnei* at first sight looks like an *Ischnochiton*, it does not fit the diagnosis of that genus. Especially the quincuncially arranged pustules on the end valves and lateral areas, in combination with the peculiar dorsal girdle covering, discriminate it from all known *Ischnochiton* species. The presence of a spiculoid girdle more clearly refers to the family Lepidochitonidae, subfamily Lepidochitoninae, which is the reason why a new genus within that subfamily had to be erected for this taxon.

Etymology. — The generic name *Particulazona* is derived from the Latin words 'zona' (= girdle) and 'particula' (= particle) referring to the girdle covered with small corpuscles. The specific name is given in honour of Mr. K.L. Milne of South Australia, an ardent collector of chitons, who described several Australian species. The present species came from his collection.

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