The ammonite genus *Grandidiericeras* Collignon, 1961 was previously known from two species, based on six described specimens, three of which, referred to *Grandidiericeras grandidierorum* Collignon, 1961, are from the Middle Campanian of Madagascar, and three, referred to *Grandidiericeras nagaoi* Matsumoto & Saito, 1987, from the Coniacian of Japan. A single specimen from the Upper Santonian to Lower Campanian of Lake St Lucia in KwaZulu-Natal represents a new species, *Grandidiericeras corrugatum*.

**Key words:** ammonites, *Grandidiericeras*, Santonian, Campanian, Cretaceous, KwaZulu-Natal, South Africa.

**INTRODUCTION**

The puzosiine genus *Grandidiericeras* Collignon, 1961 was introduced by Collignon in 1961 (pp. 17, 47, pl. 17, fig. 1), [erroneously dated 1960 on p. 47] based on two individuals. The holotype, no. 3915 in the Collections of the Muséum National d’Histoire Naturelle, Paris, has a maximum preserved diameter of 160 mm approximately, and is illustrated here as Fig. 3A–B. Collignon’s second specimen, MNHP 3914, was not figured, but the diameter was given as 134 mm. They are from Collignon’s locality 157, Ankilizato (Belo sur Tsiribihina), Madagascar, and referred by him to the ‘Campanien moyen à *Eupachydiscus levyi* et *Delawarella subdelawarensis*.’ In 1970, Collignon illustrated a fragmentary specimen (p. 19, pl. 614, fig. 2297), consisting of a nucleus and a 120° sector of phragmocone with a maximum preserved whorl height of 45 mm. It is figured here as Fig. 2B. This specimen came from locality 156 of his Ankilizato section, and was referred to his Campanien moyen, ‘Zone à *Subdelawarella subdelawarensis* et *Australiella australis*’ (it should be noted that *Subdelawarensis* is referred to *Delawarella* elsewhere in Collignon’s works, and that *Subdelawarella* is a nomen nudum). The associated fauna from this locality and zone given in Collignon (1970) indicate an equivalence, in KwaZulu-Natal, to Campanian II of Kennedy & Klinger (1975).

Matsumoto & Saito (1987, p. 1, figs 1–4) described three specimens (and mention several other large individuals left in the field) of a second species, *Grandidiericeras nagaoi* from the Coniacian of Japan, the largest of which reaches a diameter of at least 500 mm (Matsumoto & Saito 1987, fig. 2). The present specimen, from the Upper Santonian to Lower Campanian of Lake St Lucia in northern KwaZulu-Natal provides a stratigraphic link between these Coniacian and Middle Campanian species.

**SYSTEMATIC PALEONTOLOGY**

*Suborder* AMMONITINA Hyatt, 1889  
*Superfamily* DESMOCERATOIDEA Zittel, 1895  
*Family* DESMOCERATIDAE Zittel, 1895  
*Subfamily* PUZOSIIINAe Spath, 1922

*Genus* *Grandidiericeras* Collignon, 1961

**Type species**  
*Grandidiericeras grandidororum* Collignon, 1961, p. 47, pl. 17, fig. 1, from the Middle Campanian of Collignon’s locality 157, Ankilizato (Belo sur Tsiribihina), Madagascar.
Grandidiericeras corrugatum sp. nov.  
Figs 1A–B, 2A

Derivation of name

corrugatus (Latin): wrinkled, referring to the ventral ornament.

Type

The holotype is SAM-PCZ022402 from the Upper Santonian to Lower Campanian St Lucia Formation at locality 105 of Kennedy & Klinger (1975, p. 296).

Diagnosis

A Grandidiericeras with well-developed concave, elongate umbilical bullae.

Description

The holotype (Figs 1A–B, 2A) is a fragmentary internal cast of a phragmocone in sparry calcite with an estimated maximum diameter of 130–140 mm, and a maximum preserved whorl height of 50 mm. It retains traces of calcite spar-replaced shell. Coiling is relatively involute, the umbilicus comprising an estimated 25% of the diameter, shallow, with a low, convex wall and narrowly rounded umbilical shoulder. The flanks are flattened, subparallel, with rounded ventrolateral shoulders and a very feebly convex venter. The whorl breadth to height ratio is 0.64, the greatest breadth well below mid-flank. Twenty-eight ribs arise at the umbilical seam, sweep back across the umbilical wall, then forwards across the umbilical shoulder, where they strengthen into a sharp, concave umbilical bulla. Each bulla gives rise to a single rib, straight and feebly prorsiradiate on the inner flank, flexed slightly back and feebly convex at mid-flank, straight on the outer flank, broadening, and passing straight across the venter, where they are at their greatest breadth and strength, flattened and ribbon-like, with steep adapical and adapertural faces, and separated by subequal interspaces. Four interspaces on the outer whorl are slightly deepened into incipient constrictions. The poorly exposed suture is deeply incised and puzosiine.

Discussion

Grandidiericeras corrugatum sp. nov. is distinguished from G. grandidierorum (compare Figs 2A and 2B) by its well-developed umbilical bullae and much coarser ribs, which are reduced to mere striae on the early whorls and on the umbilical shoulder of G. grandidierorum at a diameter equivalent to that of the holotype of G. corrugatum. The figured specimens of Grandidiericeras nagaoi (Matsumoto & Saito 1987, figs 1–4) are much larger, but are immediately distinguished by the lack of bullae, and very weak inner flank ribs, the ribs narrower, finer and more numerous, with more numerous long and short intercalatories on the middle and outer flank.

Occurrence

The St Lucia Formation at locality 105 is exposed in a 2–3 metre cliff and ca. 100 m foreshore exposure that spans the boundary between Santonian III and Campanian I of Kennedy & Klinger (1975); see detailed log in Klinger & Kennedy (1980, fig. 130). The precise level of occurrence of the specimen is not recorded.

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REFERENCES


Fig. 1. *Grandidiericeras corrugatum* sp. nov. The holotype, SAM-PCZ022402, from the Upper Santonian to Lower Campanian St Lucia Formation of locality 105 of Kennedy & Klinger (1975). Figures are ×1.
Fig. 2. A, *Grandidiericeras corrugatum* sp. nov. The holotype, SAM-PCZ022402, from the Upper Santonian to Lower Campanian St Lucia Formation of locality 105 of Kennedy & Klinger (1975). B, *Grandidiericeras grandidierorum* Collignon, 1961. The original of Collignon (1970, p. 19, pl. 614, fig. 2297) from the Middle Campanian Zone à *Delawarella subdelawarensis et Australiella australis* of locality 156 of his Ankilizato (Belo sur Tsiribihina) section. The original is housed in the collections of the Département des Sciences de la Terre of the Université de Bourgogne, Dijon. Figures are x1.
Fig. 3. *Grandidiericeras grandidierorum* Collignon, 1961. The holotype, the original of Collignon (1961, p. 47, pl. 17, fig. 1) no. 3915 in the Collections of the Muséum National d'Histoire Naturelle, Paris. It is from his locality 157, Ankilizato (Belo sur Tsiribihina), Madagascar, and referred to the ‘Campanien moyen à *Eupachydiscus levyi* et *Delawarella subdelawarensis*.’ Figures are ×1.