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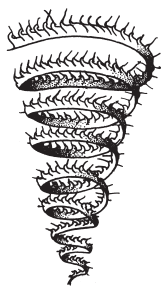
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## *EROMANGATEUTHIS* N. GEN., A NEW GENUS FOR A LATE ALBIAN GLADIUS-BEARING GIANT OCTOBRACHIAN (CEPHALOPODA: COLEOIDEA)

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### ABSTRACT

A comparative analysis shows that the gladius morphology of *Boreopeltis helgolandiae* Engeser & Reitner, 1985 (Aptian), the type species of *Boreopeltis* Engeser & Reitner, 1985, *Boreopeltis sagittata* (Naef, 1921) (Tithonian), and *Boreopeltis smithi* Fuchs & Larson, 2011 (Cenomanian) is fundamentally different from *Boreopeltis soniae* Wade, 1993 (Aptian). I therefore propose *Eromangateuthis* n. gen. in order to accommodate *Eromangateuthis soniae* (Wade, 1993).

Key words: Octobrachia, taxonomy, gladius, lower Cretaceous, Australia.

### INTRODUCTION

Mary Wade (1993, fig. 5–8) introduced the new taxon *Boreopeltis soniae* from the middle upper Albian of Queensland (Australia). The species is based on several squid-like gladii, one of which has a length of about 1.2 m, hence, a mantle length twice as long as that of extant *Enteroctopus dofleini* (Wülker, 1910), the Giant Pacific octopus. Wade (1993) placed the new species into the genus *Boreopeltis* Engeser & Reitner, 1985 owing to supposed similarities. I investigated the type material of *Boreopeltis soniae* in 2005 and immediately recognized striking differences between *Boreopeltis soniae* and the type species, lower Aptian *Boreopeltis helgolandiae* Engeser & Reitner, 1985 and all other known species assigned to the genus *Boreopeltis*, i.e., lower Tithonian *Boreopeltis sagittata* (Naef, 1922) and Cenomanian *Boreopeltis smithi* Fuchs & Larson, 2011. Along with the presentation of the first Late Cretaceous member, *Boreopeltis smithi*, I have already mentioned doubts and excluded *Boreopeltis soniae* from the genus *Boreopeltis* (Fuchs & Larson, 2011, p. 242). The erection of a new genus is a logical consequence and is done herein.

### MATERIAL & METHODS

The type specimens of *Boreopeltis soniae* are housed in the Queensland Museum in Brisbane. During my stay in Australia (2005), I investigated further specimens in the collection of the Kronosaurus Corner, a public museum in Richmond (northwest

Queensland). Terminology and gladius parameters used below follow the *Treatise Online*, Part M, Coleoidea, chapter 9B: The gladius and gladius vestige in fossil Coleoidea (Fuchs, 2016). The diagnosis below matches the diagnoses and the system presented in the *Treatise Online*, Part M, Coleoidea, chapter 23G: Octobrachia (Fuchs, submitted 2019).

### SYSTEMATIC PALEONTOLOGY

Superorder Octobrachia Haeckel, 1866

Suborder Prototeuthina Naef, 1921

Family Plesiotheuthidae Naef, 1921

*Eromangateuthis* nov. gen.

*Type species.*—*Boreopeltis soniae* Wade, 1993.

*Etymology.*—After the so-called Eromanga basin in northeast Australia.

*Diagnosis* (new).—Large-sized plesiotheuthids; gladius slender to moderately wide (gladius width<sub>max</sub> to gladius length 0.15–0.25) with pronounced solid median keel, which tapers anteriorly; median field very slender to slender (opening angle 10–15°, median field width<sub>hypz</sub> to hyperbolar zone length 0.15–0.25); anterior margin distinctly convex, with lateral plate- or channel-like reinforcements; median field area very large (median field area to gladius area 0.85–0.95); lateral fields very slender to slender (lateral fields width<sub>max</sub> to median field width<sub>max</sub> 0.45–0.55); hyperbolar zones very short to short, difficult to determine (hyperbolar zone length to

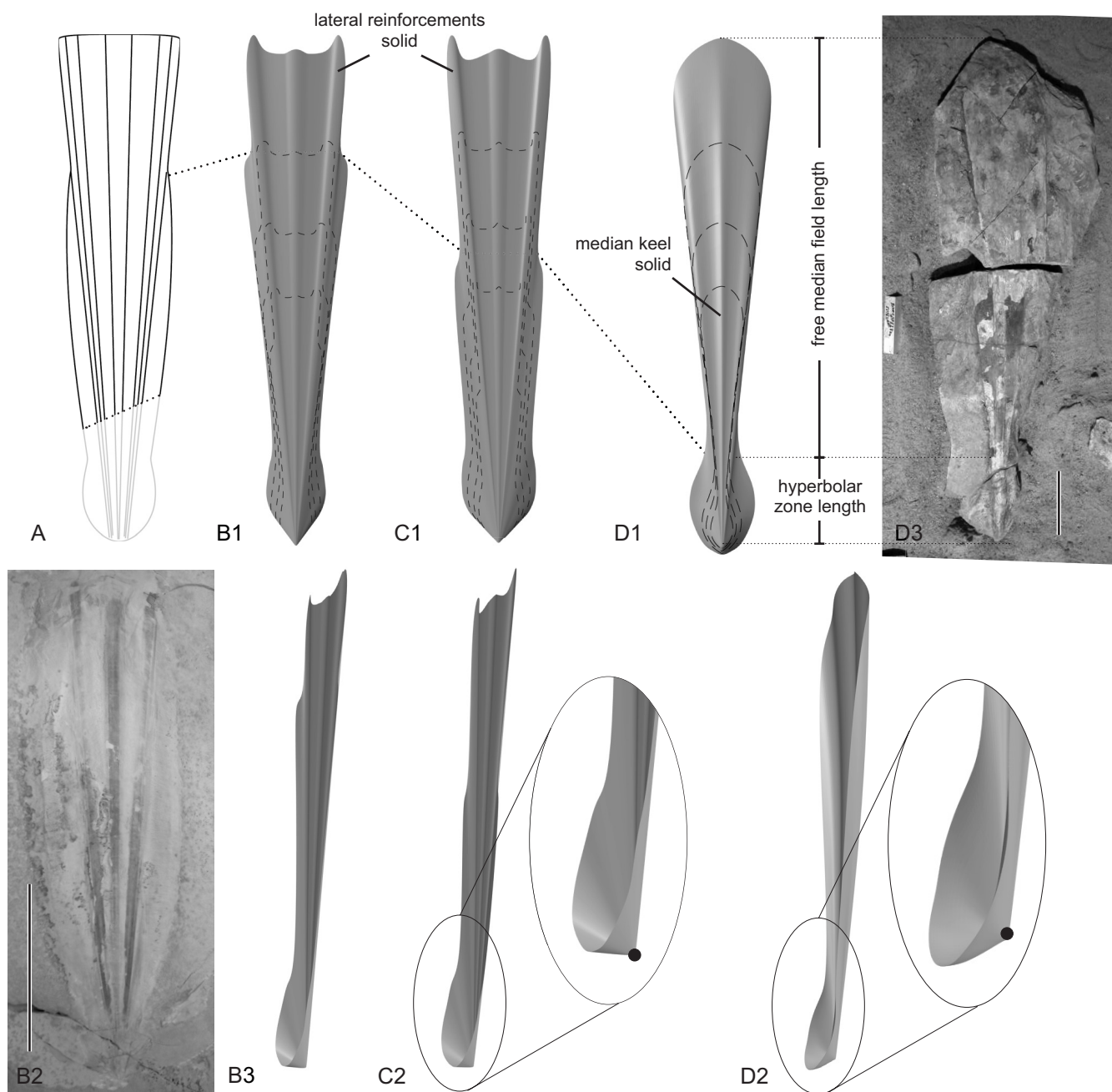


Fig. 1: Comparative gladius morphology of the *Boreopeltis* species complex and *Eromangateuthis soniae*. A, *Boreopeltis helgolandiae* (Aptian; gladius line drawing modified after Engeser & Reitner, 1985); B, *Boreopeltis sagittata* (Tithonian); B1, gladius reconstruction in dorsal view; B2, photograph of specimen BSPG 2011 XLI 332-08; B3, gladius reconstruction in ventrolateral view; C, *Boreopeltis smithi* (Cenomanian); C1, gladius reconstruction in dorsal view; C2, gladius reconstruction in ventrolateral view; D, *Eromangateuthis soniae* n. comb. (Albian); D1, gladius reconstruction in dorsal view; D2, gladius reconstruction in ventrolateral view; D3, photograph of a gladius in the exhibition of the Kronosaurus Korner Museum, Richmond (Queensland, Australia), dorsal view; black dots show position of conus apex; scale bars 10 cm.

median field length 0.15–0.25); conus unusually deep, ventrally oriented (not funnel-like), patella shaped; soft parts unknown.

*Included species.*—Only the type species.

*Stratigraphical and geographical range.*—Lower Cretaceous (upper Albian) of Queensland (East Australia).

*Differential diagnosis* (Fig. 1).—Although Wade (1993) described the gladius morphology of *Boreopeltis soniae* in detail, comparisons with other prototeuthid octobranchians have been neglected. Actu-

ally, *Eromangateuthis soniae* and the *Boreopeltis* species complex have little in common; neither the anterior nor the posterior gladius part show a vague resemblance. A pronounced median keel present in *Eromangateuthis* n. gen. is absent in *Boreopeltis*, where the median line is not solid and only slightly elevated. Conversely, solid lateral reinforcements present on the median field of *Boreopeltis* are absent in *Eromangateuthis* n. gen. The lateral reinforcements in *Boreopeltis* are anteriorly projected; the shape

of the anterior median field margin is therefore fundamentally different from *Eromangateuthis* n. gen., whose anterior margin is evenly rounded. The relative median field width of *Eromangateuthis* n. gen. is close to *Boreopeltis*, but the latter genus is missing the very narrow waist, which is caused by short and rapidly tapering lateral fields and hyperbolar zones. In *Boreopeltis*, the hyperbolar zone is significantly longer (hyperbolar zone length-to-median field length 0.50–0.70). Finally, the conus of *Eromangateuthis* n. gen. is distinct from a funnel-like conus typical for *Boreopeltis* and other plesiotheuthids. The conus of *Eromangateuthis* n. gen. is unusual in being patella-like, similar to muensterelloid teudopseids (Fuchs & others, 2019).

*Eromangateuthis soniae* (Wade, 1993) n. comb.

Figure 1D.1–1D.3

*Type material*.—Holotype (QMF25285), seven paratypes (QMF25775, 15209, 21988, 25284, 25286, 25288, 25289).

*Type locality*.—Marathon near Richmond (Queensland, Australia); southern anabranch of Flinders River (200 m upstream L813).

*Type horizon*.—Allaru Formation, middle upper Albian (see Wade, 1993).

*Studied material*.—Apart from the type material, I have studied specimens QMF25990, 25294, 52687, 39836; a specimen in the collection of the Kronosaurus Korner Museum in Richmond (Queensland, Australia), and a fragmentary conus deposited in Natural History Museum of London (NHMUK C.59211).

*Description*.—*Eromangateuthis soniae* is a plesiotheuthid with a gladius of moderate width (gladius width<sub>max</sub> to gladius length 0.21). The slender median field (opening angle 10–11°, median field width<sub>hypz</sub> to hyperbolar zone length 0.19) exhibits a pronounced solid median keel, which tapers anteriorly. The anterior margin of the median field is distinctly convex. The lateral margins are thickened by longitudinal plate- or channel-like reinforcements. The median field is very large (median field area to gladius area

0.91) compared to the lateral fields, which are slender (lateral fields width<sub>max</sub> to median field width<sub>max</sub> 0.52) and short (hyperbolar zone length to median field length 0.22). The posterior conus is unusually deep, ventrally oriented (not funnel-like), and therefore patella shaped. Soft parts are unknown. For a detailed description of the type material of *Eromangateuthis soniae*, see Wade (1993).

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