

## Short communication

## *Bathysalenia skylari*, a new late Turonian (Late Cretaceous) saleniid echinoid from central Texas, USA

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## ARTICLE INFO

## Article history:

Received 7 April 2014

Accepted in revised form 17 May 2014

Available online 27 June 2014

## Keywords:

Echinodermata

Salenioida

New species

Eagle Ford Group

## ABSTRACT

A new species of saleniid is recorded from the so-called 'Eagle Ford Condensed Zone' with typical elements of the late Turonian *Prionocyclus hyatti* cephalopod Zone, which rests unconformably on the South Bosque Marl (*Collignoniceras woollgari* cephalopod Zone) in the Georgetown area, Williamson County (central Texas). It is easily distinguished from both extinct (late Albian–early Paleocene) and extant congeners by a comparatively low test, wide ambulacral zones with large (near-)horizontal pore pairs, a large peristome with conspicuous gill slits and a highly ornamented apical disc with a relatively small suranal plate. The new species constitutes the first record of the genus *Bathysalenia* from North America.

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### 1. Introduction

Of the new saleniid described here, a suite of thirteen, generally well-preserved albeit slightly crushed, tests is available from the 'Eagle Ford Condensed Zone', south of Georgetown (Williamson County, central Texas). Additional faunal elements collected at this locality include other echinoderms (tests and spines of regular echinoids), scleractinian corals and various species of ammonite, mostly pyritised (see below). Until now, very few echinoid taxa were recorded from the Eagle Ford Group in Williamson and Travis counties; Housh (2007, p. 61) listed only a single hemiasterid, but no regular echinoids (compare Akers and Akers, 1987). The present lot allows the new saleniid to be formally named and compared with extinct and extant congeners.

### 2. Locality and stratigraphy

Due to road and home construction at a location (co-ordinates: 30.584357/–97.655895; see Fig. 1), south of St. John's Cemetery, a fairly large macrofossil assemblage was surface collected between May 2009 and February 2012 from the so-called 'Eagle Ford Condensed Zone' that yields biota typical of the late Turonian *Prionocyclus hyatti* cephalopod Zone. This unit rests unconformably

on the South Bosque Marl in Williamson and Travis counties, central Texas.

Kennedy (1988) and Kennedy and Cobban (1990) noted that the South Bosque Marl (or Member) contained a typically late Turonian ammonite assemblage (*Collignoniceras woollgari* cephalopod Zone), with collignoniceratids, hamitids, baculitids and scaphitids. As outlined by Housh (2007, p. 18), the upper boundary of the South Bosque Marl with the Austin Group (Coniacian–Campanian) is unconformable and commonly marked by a 'condensed zone', of c. 0.6 m in thickness, that yields numerous internal moulds of various biotic groups, inclusive of scleractinian corals and molluscs (Fig. 2). Amongst ammonite taxa listed by Housh (2007, p. 19) for the Round Rock area (Williamson and Travis counties), and those from the 'condensed zone' in particular, the following have also been collected by one of us (JJ): *Prionocyclus hyatti* (Stanton, 1894), *Metaptychoceras annulatum* Kennedy and Cobban, 1990 and *Worthoceras minor* Kennedy and Cobban, 1990 (see Kennedy, 1988; Kennedy and Cobban, 1990). These are typical elements of the *Prionocyclus hyatti* cephalopod Zone, of late Turonian age.

### 3. Systematic palaeontology

*Institutional abbreviations:* NHMM – Natuurhistorisch Museum Maastricht, Maastricht, the Netherlands; TMM NPL – Texas Memorial Museum, Non-Vertebrate Paleontology Lab, Austin, Texas, USA.

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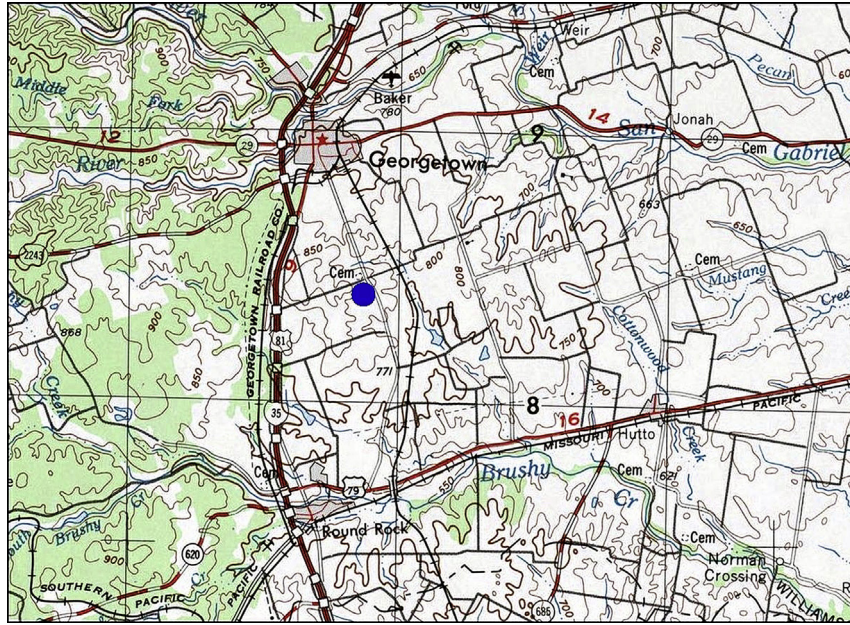


Fig. 1. Map of the Georgetown area, Williamson County (central Texas, USA), with solid dot marking the locality that yielded the new saleniid, southeast of St. John's Cemetery (abbreviated 'Cem') (adapted from the United States Geological Survey Map, Austin-Texas – scale 1:250,000).

Order Calycina Gregory, 1900 (=Salenioida Delage and Hérouard, 1903)

Family Saleniidae L. Agassiz, 1838

Subfamily Saleniinae L. Agassiz, 1838

Tribe Saleniini L. Agassiz, 1838

Genus: *Bathysalenia* Pomel, 1883 (= *Valsalenia* Mortensen, 1934)

Type species. *Salenia goësiiana* [recte *goesiana*] Lovén, 1874, by the subsequent designation of Smith and Wright (1990, p. 134).

Diagnosis. 'Apical disc large and only weakly raised above the corona; plates with pustular ornamentation. Periproct large and offset to posterior right from anterior to posterior axis; periproct larger than suranal plate. Ambulacral plating bigeminate orally and usually throughout. Peristome smaller than apical disc; buccal notches hardly indenting' (Smith and Kroh, 2011).

*Bathysalenia skylari* n. sp.

Figs. 3 and 4.

Types. The holotype is TMM NPL63876 [specimen 4]; paratypes are NHMM 2014 025 [specimen 7] and TMM NPL63877 [specimen 2] (see Table 1).

Additional material. Ten more or less complete tests, as well as two incomplete ones and several fragments, in the J. Jackson Collection (Granger, Texas).

Diagnosis. Small, flattened species saleniid with 4–5 interambulacral plates in a column, between 14 and 19 ambulacral plates in a column; ocular I exsert; ornament of apical disc consisting of elongated pustules, arranged in a linear manner close to margins of genital plates; periproct near-equal to or larger than suranal; (near-)horizontal ambulacral pores, except adorally and close to peristome; ambulacral zones comparatively wide, equaling 54–56% of interambulacral zone ambitally; perradial miliary tubercles few, scattered; interradian miliary tuberculate zone moderately well developed; highly conspicuous buccal notches.

Type locality and type stratum. Georgetown area, Williamson County, central Texas; 'Eagle Ford Condensed Zone' (upper Turonian, *Prionocyclus hyatti* cephalopod Zone).

Derivation of name. In honour of Skylar Jackson, nephew of one of the authors, who has accompanied him on many outdoor adventures.

Description. Test small, ranging in diameter from 4.2 to 8.1 mm (see Table 1), comparatively flat, with ambitus slightly below mid-height (Fig. 3C, D); test height 34–57% of diameter (mean = 47.3%; n = 13). Apical disc large, some 67–79% of test diameter in diameter; sub-pentagonal in outline, without indentations at sutures between

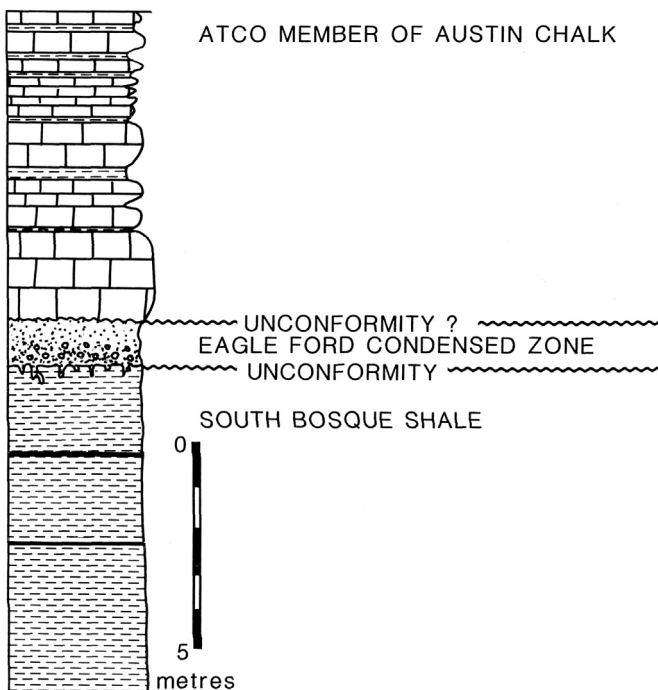


Fig. 2. The stratigraphical position of the 'Eagle Ford Condensed Zone' in the Austin area, central Texas (modified after Kennedy, 1988, fig. 7).

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