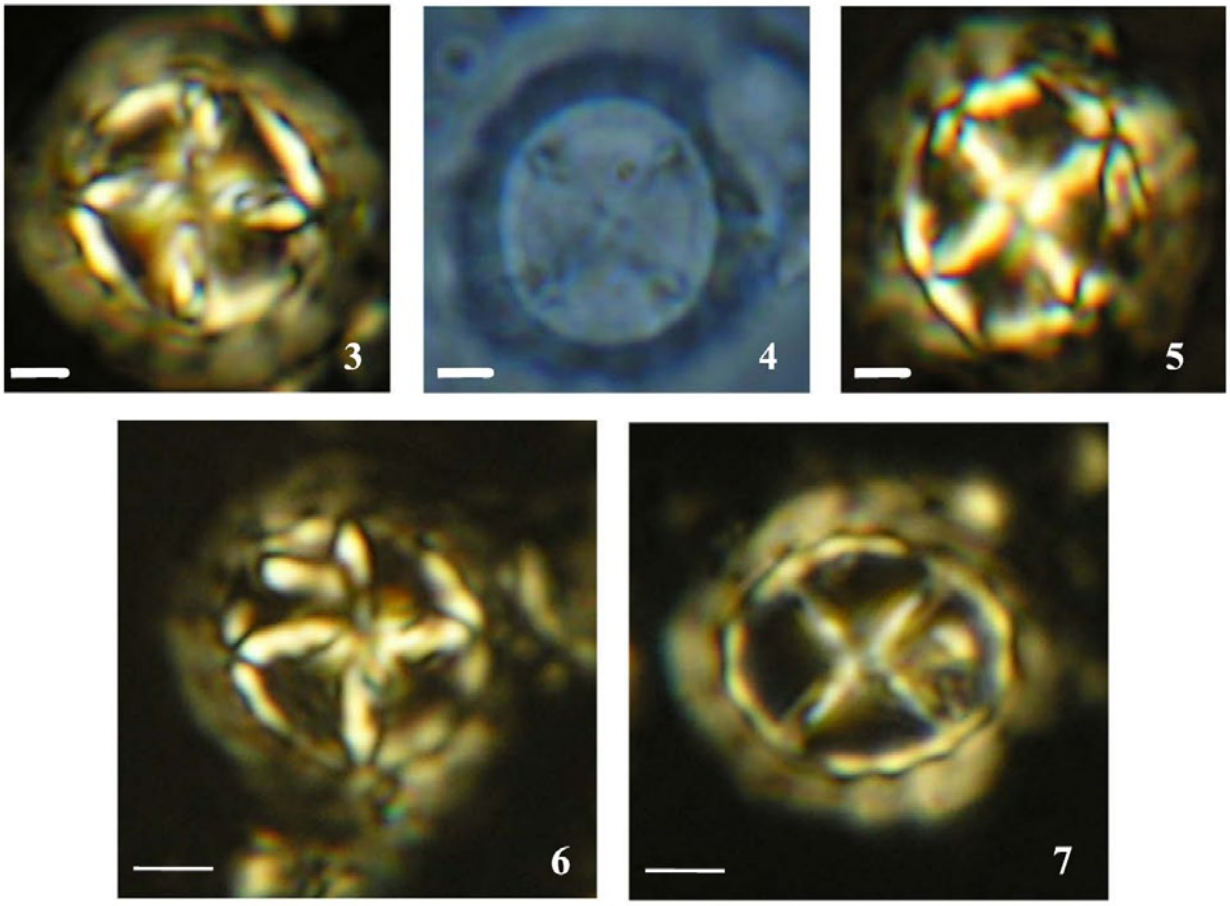
169. Prediscosphaera desiderograndis Blair & Watkins (2009)



Pl. 5, figs 3-7

Prediscosphaera cf. *P. grandis* Burnett, 1998, p. 178–179, Plate 6.6, fig. 26

Description. This placolith is ellipsoidal in form, has a diagonal cross supporting a robust stem, and two outer shields. The distal shield is composed of 16 non-imbricated elements and appears dark in cross-polarized light. The inner shield is very bright in LM and is approximately half the width of the distal shield in diameter. Visible sutures divide the dextral and sinistral cross-bars on the diagonal cross. *Prediscosphaera desiderograndis* averages 9.8 μm in length and 8.8 μm in width.

Material examined. Chalk from Locality 13 (Smoky Hill Chalk Member, Kansas) and the Ten Mile Creek section (Bruceville Marl, Texas)

Etymology. *desidero-*, Latin for desire, long for; *grandis-*, Latin for large, great

Holotype. Plate 5, Figs. 3–4

Holotype size. Length: 10.0 μm; Width: 8.6 μm

Holotype material: Chalk from Locality 13 composite section of the Smoky Hill Member (northwestern Kansas)

Occurrence. *Prediscosphaera desiderograndis* ranges in abundance between 0.2 to 1.3% of the nannofossil assemblage at Locality 13 (Plate 5, Figs. 3–7). This species was also observed in 57 of the 64 Ten Mile Creek slides and 99 of the 142 Locality 13 slides. Its FAD is approximately 7.0 and 2.25 m below the Santonian boundary in the Locality 13 and Ten Mile Creek sections, respectively.

Remarks. *Prediscosphaera desiderograndis* averages 8.8 μm in width and 9.8 μm in length (Table 6). Some specimens reach well over 10 μm in length, similar to the measurement range of *P. grandis* (10–15 μm in length) documented by Perch-Nielsen (1979a). Perch-Nielsen (1985) designated an upper Campanian to Maastrichtian range for *Prediscosphaera grandis*. Burnett (1998) noted the occurrence of *P.* sp. cf. *P. grandis*, a smaller form, in Santonian sediments from Plymouth Bluff, Mississippi.

Size measurements were taken from 30 specimens of *Prediscosphaera grandis* in Maastrichtian sediments from ODP Leg 144 (Plate 4, Figs. 9–10; Plate 5, Figs. 1–2). Average length and width of these specimens was 15.6 μm and 12.8 μm, respectively. Similar measurements were taken for 30 specimens from the Santonian-age Locality 13 section. These averaged 9.8 μm in length and 8.8 μm in width. This marked separation in size supports the division of *P. desiderograndis* from *P. grandis* on size-based criterion.

A more detailed biometric analysis should be performed between *P. grandis, P. desiderograndis*, as well as *P. cretacea* (this species also appears to increase in size from sediments observed here in the Santonian and Maastrichtian) to delineate more exact size parameters. The Santonian form, *P. desiderograndis,* is noted to range between 9–11 μm in length (based on measurements from the Smoky Hill Chalk Member). The Maastrichtian form (from specimens studied here) ranges between 13–19 μm in length making separation of these two species simple.

Blair, S.A. & Watkins, D.K., 2009. High-resolution calcareous nannofossil biostratigraphy for the Coniacian/Santonian Stage boundary, Western Interior Basin. *Cretaceous Research*, **30(2):** 367-384.