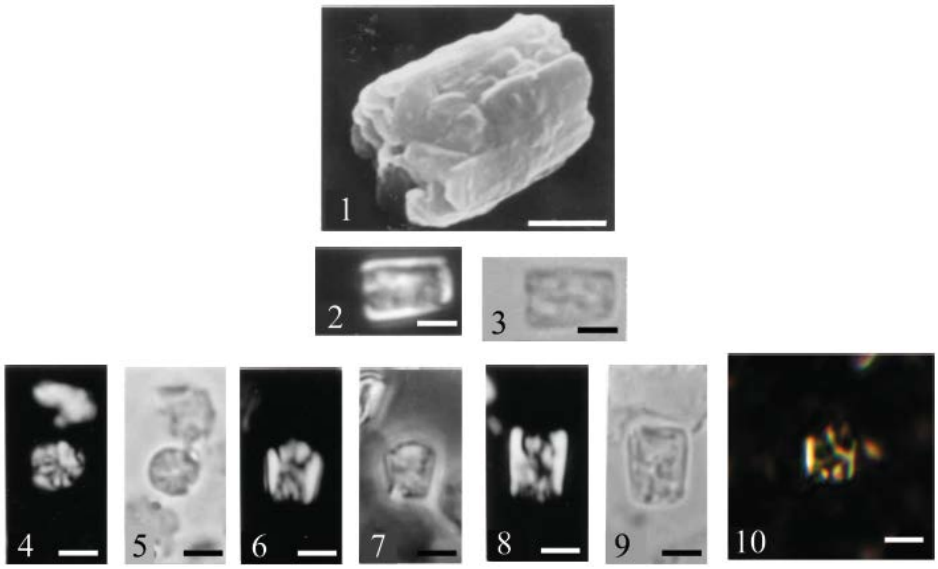
12. Calcivascularis cassidyi Bergen et al. (2013)



Scale bars=2μm

Pl. 1, figs 1–10

Origin of name: Named in honor of Dennis S. Cassidy, former curator of the Antarctic Research Facility, Florida State University.

Diagnosis: Small *Calcivascularis* with a high number of rim elements, sub-parallel walls, and a circular horizontal outline.

Description: Slightly conical to cylindrical nannolith with a circular outline in horizontal cross-section. The thin rim is constructed of approximately 20 vertical (nonimbricate) lath-shaped elements oriented with their breadths tangential to the periphery. A thin basal plate may be present. The central portion if filled by cycles of radial, elongate elements that are stacked in the entire vertical plane of the nannolith. The height to width ratio is variable. Length ranges from 2 to 4.8 μm.

There is distinct birefringence contrast between the rim and central portion in lateral view. The rim displays a first-order white birefringence in both horizontal and vertical orientation. The central portion is faintly birefringent in lateral view. The radial elements display a first-order white birefringence in plan view.

Discussion: *Calcivascularis cassidyi* represents the first documented occurrence (in situ) of the genus outside of the Lower Jurassic. This species is distinguished from *Calcivascularis jansae* Wiegand, 1984; by its small size, continuous central core (in lateral view), and higher number of rim elements. *Conusphaera mexicana* ssp. *minor* Bown and Cooper, 1989; has a similar morphology and size to *Calcivascularis cassidyi*. The two taxa have identical wall constructions but are distinguished by their central

constructions. In lateral view, there is a distinct birefringence contrast between the rim and central portion of *Calcivascularis cassidyi*.

Distribution: *Calcivascularis cassidyi* has a wide geographic distribution and biostratigraphic utility. In northern Portugal, it is sparse in the *Bimammatum* Zone and becomes persistent in the Planula Zone. In Site 534, it occurs consistently from Sections 107-2 to 103-1, where the LO is coincident with that of *Faviconus multicolumnatus*. In southeastern France, isolated specimens were observed in two samples from the upper and lower Bimammatum Zone, but its lowest persistent occurrence was within the lower Kimmeridgian (*Hypselocyclum* Zone). Its extinction is best calibrated in Site 534, as there is a sample gap in the French collections. The HO at the top of the Kimmeridgian is a very reliable marker in eastern Texas (in sequence in all 15 wells examined). The species has also been observed in exploration wells in Mexico and the eastern Canadian margin.

Holotype: Plate 1, figures 1–3.

Type level: upper Kimmeridgian. Core 103, Section 1, 101–104 cm.

Type locality: D.S.D.P. Hole 534, Blake-Bahama Plateau.

Bergen, J.A., Boesiger, T.M., & Pospichal, J.J., 2013. Low-latitude Oxfordian to Early Berriasian nannofossil biostratigraphy and its application to the subsurface of Eastern Texas, *in* U. Hammes and J. Gale, eds., Geology of the Haynesville Gas Shale in East Texas and West Louisiana, U.S.A. *AAPG Memoir* **105:** 69–102.