

## Paleoecology of the Permian (Wolfcampian) Phylloid Alga *Calcipatera* from an In Situ Occurrence in Kansas, U.S.A.

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### Abstract

In situ occurrences of the calcareous marine phylloid alga *Calcipatera cottonwoodensis* in the Permian Cottonwood Limestone Member (Beattie Limestone) occur in Greenwood County, Kansas, in association with platy algal packstones, which are the phylloid algal facies most commonly described in the literature. The in situ algal facies occurs in the upper 0.45 m of an exposure where it is overlain and underlain by algal packstones composed of transported and broken fragments of *Calcipatera cottonwoodensis*.

*Calcipatera cottonwoodensis* colonized coarse carbonate sands or carbonate mud substrates. During growth, carbonate mud accumulated in the cup-shaped thalli, and death followed when the rate of sedimentation exceeded the rate of algal growth. The three lithologies--substrate, cup-filling, and smothering--are easily recognized on polished surfaces.

Other members of the *Calcipatera cottonwoodensis* benthic community are *Shamovella*, encrusting and boring algae, foraminiferids, fenestrate and ramose bryozoans, brachiopods, bivalves, gastropods, trilobites, ostracodes, and echinoids. This occurrence and biotic association compares well with those described by Toomey (1976) and Wahlman (1988, 2002) from the Permian (Wolfcampian) of West Texas.

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