Growth, Character Development, Relationships, and Life Habits of *Belosaepia ungula* Gabb (Coleoida) in the Middle Eocene of the North American Gulf Coast

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ABSTRACT

Belosaepiid coleoids, an uncommon but distinctive component of Atlantic Eocene biotas, are present in many Gulf Coast Eocene deposits. The youngest and largest Gulf Coast species, *Belosaepia ungula* Gabb, is available in varied preservational states and common enough to provide a growth series (including hatchlings) that serves as a growth exemplar for Eocene coleoids. *B. ungula* produces an endoskeleton with major growth changes as skeletal guard tissue is added to the phragmocone during early growth and acquires distinctive features of elongate posterior prong, rugose dorsal callus, and ventral corona, all with characteristic microstructure. However, late stage growth involves dissolution of the guard and distinctive characters are modified or lost. Smooth surface endoskeletons are late stage variants of rugose ones. The heavily calcified portions of skeleton account for only 20-25% of the length. The complete endoskeleton includes a noded proostracum probably covering most of the body. Belosaepiids have a D-shaped siphuncle formed of enlarged septal necks. *B. ungula* has minute chamberlets in part of the phragmocone. Early formed guard tissue is formed of dense laminae, while late stage tissue grows out as plumes. The prong has a median plane of weakness, but is solid. *B. ungula* has many characters in common with sepiids, but in exaggerated or reduced form. The endoskeleton is more arched and narrower than sepiid cuttlebones, suggesting a deeper body form than sepiids. It probably had a demersal life habit and lived for 2-4 years, as indicated by growth lamination and banding in the prong.

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