

**Paleobiology and paleoecology of the early Turonian (Late
Cretaceous) ammonite *Pseudaspidoceras flexuosum***

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ABSTRACT

During the early Turonian, *Pseudaspidoceras flexuosum* was a common ammonite in low and intermediate latitudes. At Vallecillo section, northeastern Mexico, 160 specimens were recovered from the section, allowing for quantitative analysis. The combination of quantitative data with sedimentology and geochemistry allow for erection of a differentiated model for the mode of life of *P. flexuosum*. This model provides insight into the paleobiology and paleoecology of this ammonite, and ammonites in general. The Vallecillo section contains the longest record of this species worldwide. Changes in abundance and diameter of this ammonite appear to be related to changes of oxygen content in the water column. *P. flexuosum* dwelled in the well-oxygenated upper surface water and formed part of the open marine pelagic ecosystem; a demersal mode of life is excluded here. Dimorphism is expressed in size and less in ornamentation, but both dimorphs bear long spines, first recorded for this species. The spines were likely used for stabilization in the water column and protection against suction-feeding fishes and comparable predators, but not against pycnodont sharks. A sensory function is also plausible for the last one to three pairs of spines. This differentiated model of the mode of life of *P. flexuosum* contrasts with the paleoecology reconstructed for other ammonites. Ammonites covered a wide range of ecological niches, and their complex paleoecology will only be solved with more species-based analyses.