

# **Angiosperm leaves and other plant fossils from the Lower Cantwell Formation, Denali National Park Alaska—Implications for a Late Cretaceous paleoecology and climate in Interior Alaska**

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Landscape and climate associations can be made on the basis of sedimentological and paleoecological information. In the summer of 2006, a series of dinosaur footprints, fossilized leaves and wood, and a variety of invertebrate tracks were discovered in the Sable Mountain and Double Mountain areas in the Lower Cantwell Formation in Denali National Park (Fiorillo et al., 2006). This Campanian/Maastrichtian (Ridgway et al., 1997) formation has the unique quality of being the only non-marine sedimentary unit in Interior Alaska and, as such, harbors valuable information about transient environmental conditions and forms of life for this time.

The recent discoveries of hadrosaur and theropod footprints in the Lower Cantwell Formation (Fiorillo et al., 2006) show that biologic productivity was sufficient to create the habitats that these large creatures required. The appearance of leaves is a sign of the arrival and establishment of deciduous angiosperm shrubs and trees in Interior Alaska. Preliminary results from the study of a limited number of specimens show that the leaves appear to correspond to some of the older Cenomanian specimens described by Spicer (1987), Spicer and Parrish (1990), and Spicer and Herman (2001) from the North Slope and the Yukon-Koyukuk Basin. Accordingly, the Cantwell Formation bears several different kinds of hamamelid platanoid forms some of which show acrodromous venation patterns. These leaves were grown by small trees and shrubs that coexisted with the small-leafed deciduous conifer *Metasequoia*, *equisitites* and ferns.

Climate deteriorated drastically in the Maastrichtian on the North Slope resulting in a floral turnover during which diversity declined and angiosperms disappeared (Spicer and Parrish, 1990). By comparison platanoid-leafed plants continued to thrive in the ancient Cantwell Basin. *Metasequoia* fossils dominate the stream deposits while angiosperm shrubs and trees appear to have grown on more elevated parts of the floodplain. Leaves show no signs for a lesser, more primitive organization of veins and although only a few specimens have been found so far, we may yet conclude that diversity was less adversely affected and that the Late Cretaceous cooling trend recorded from the North Slope was much less pronounced for this part of Alaska.