

Evidence for a Northern Transitional Continental Margin Flora in the Cretaceous (Campanian to Maastrichtian) Matanuska Formation, Talkeetna Mountains, Southcentral Alaska

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The Late Cretaceous Matanuska Formation contains shallow and deep marine sediments and nonmarine sediment derived from the Talkeetna volcanic island arc. The sediment accumulated in the Matanuska Seaway, a tectonically active basin on the southern margin of southcentral Alaska. The Matanuska Seaway was contemporaneous with the Cretaceous Western Interior Seaway (CWIS) of North America. Angiosperm pollen taxa from the CWIS have been used to date units and reconstruct both paleolatitude and paleoclimate (Nichols and Sweet, 1993). Comparison of pollen taxa from the CWIS to assemblages from the Matanuska Formation reveals that outcrops at Mazuma Creek, Granite Creek, Syncline Mountain, and Slide Mountain are Late Maastrichtian, while Hicks Creek outcrops are Campanian. During the Late Maastrichtian, the Matanuska Seaway was located south of 75° N latitude.

The presence of ash layers overlain by low-diversity palynofloras with relatively high proportions of spores indicates the presence of volcanic recovery floras within the Matanuska Formation. Palynofloral composition and diversity of the climax vegetation suggest that the Matanuska paleoflora is a northern, transitional, continental margin flora that shares taxa with Late Cretaceous Pacific Rim floras of the Russian Far East and Japan and continental margin floras of western North America. When combined with coeval assemblages from the Alaska Peninsula, southcentral Alaskan palynofloras of the Late Cretaceous contain the most diverse assemblages of *Aquilapollenites* group taxa known from the North Pacific Rim. The Matanuska Seaway thus represents a coastal dispersal corridor where floras of the North Pacific Rim and western North American mingled.

Within Alaska, the diversity of Late Cretaceous *Aquilapollenites* group taxa increases from north to south. Comparison of the Matanuska Formation palynoflora with assemblages from the interior Lower Cantwell Formation and the Arctic Prince Creek Formation reveals the presence of a north-south paleoecological and paleoclimatic gradient during the Campanian-Maastrichtian. The Matanuska Formation paleoflora suggests that the paleoclimate of southcentral Alaska was warm and humid. Assemblages from the interior Lower Cantwell Formation paleoflora are indicative of a warm, dry paleoclimate, while palynofloras from the Arctic Prince Creek Formation paleoflora record a cooler, more temperate paleoclimate on the North Slope.