Preliminary Report on the Trace Fossils in a Shoreface to Coastal-Plain Transition: Schrader Bluff and Prince Creek Formations at Shivugak Bluff, North Slope, Alaska

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Trace fossils are described from outcrops of Upper Cretaceous shallow-marine strata of the Schrader Bluff Formation and coastal plain strata of the Prince Creek Formation. The outcrop known as Shivugak Bluff is found along the Colville River of northern Alaska and forms the eastern margin of the National Petroleum Reserve. Two sections, 54 and 124 m thick, were measured through the portion of the Schrader Bluff and Prince Creek Formations that interfinger.

Common sedimentary structures in the Schrader Bluff Formation include flaser, wavy, and lenticular bedding, symmetric ripples, herringbone cross-stratification, planar lamination, scour and fill structures, and up to 4 m-wide hummocky cross-stratification. Pelecypods and inoceramids are common, whereas rhizoliths, and rhizocretions are present in some foreshore deposits, indicating longer term subaerial exposure. Animal trace fossils in the Schrader Bluff Formation include *Asterosoma*, *Conichnus*, *Diplocriteron*, *Helminthopsis*, *Macaronichnus*, *Ophiomorpha*, *Palaeophycus*, *Phycosiphon*, *Planolites*, *Rhizocorallium*, *Sagittichnus*, *Schaubcylindrichnus*, *Skolithos*, *Taenidium*, *Teichichnus*, *Zoophycus*, and escape structures. Lower shoreface environments have *Conichnus*, *Ophiomorpha*, *Phycosiphon*, *Taenidium*, *Rhizocorallium*, *Zoophycus*, and rare *Sagittichnus*. Upper shoreface environments have *Conichnus*, *Diplocriteron*, *Helminthopsis*, *Macaronichnus*, *Ophiomorpha*, *Skolithos*, *Schaubcylindrichnus*, and escape structures. Foreshore environments have Schaubcylindrichnus. Estuary, back barrier, and interdistributary bay environments have *Helminthopsis*, *Ophiomorpha*, *Palaeophycus*, *Phycosiphon*, *Rhizocorallium*, *Schaubcylindrichnus*, *Skolithos*, *Taenidium*, and *Teichichnus*.

The Prince Creek Formation contains fluvial sandstones and related finer grained floodplain deposits. Sedimentary structures in sandstones include trough cross-stratification and asymmetric ripple cross-lamination, with both downstream and lateral accretion evident in sandbodies. Most mudstones are massive or contain weakly preserved parallel laminations. Logs, wood, plant fragments, and siderite concretions are common. Amber and pelecypods are rare. The Prince Creek Formation trace fossil assemblage includes dinosaur footprints, *Planolites*, *Naktodemasis*, and rhizoliths. Trace fossils in the Prince Creek Formation are most abundant in floodplain paleosols and swamp deposits; they are least abundant in channels, splays, and lakes. Trace fossil assemblages in the Schrader Bluff and Prince Creek Formations prove extremely useful for (1) delineating between marine, brackish, freshwater, and terrestrial depositional environments; (2) tracking the position of the shifting paleoshoreline; and (3) distinguishing between the marine Schrader Bluff and continental Prince Creek Formations.