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Macrofossils and Carbon Storage over 15,000 years, Sutherland Fen, Black Rock Forest

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Sutherland Fen formed about 12,600 C-14 years ago (15,000 calendar years), the same time as adjacent Sutherland Pond and regional deglaciation. High-resolution (2 cm) analysis of the 3.2 m fen core indicates three major macrofossils zones. The lowest (SUB-1) dated to the late-glacial, is indicative of a shallow pond characterized by *Najas*, *Nuphar*, and *Potamogeton* seeds and containing *Salix* buds, a *Rubus* seed, and *Picea glauca* needles and sterigmata from the surrounding upland. Sedimentation rates are highest in this zone. The overlying zone (SUB-2) beginning at 11,500 years ago (Holocene) indicates a continuing pond environment with aquatics such as *Najas*, *Nuphar*, and *Brasenia*, but *Picea* disappears and *Pinus strobus* dominates the lower section of the zone. Highest charcoal is found at the Holocene boundary. *Pinus strobus* needles and seeds subsequently disappear and are replaced by *Pinus rigida*, *Betula papyrifera*, and emergent wetland plants such as *Decodon*, *Cladium*, and *Cephalanthus*, as well as *Dulichium*, *Eleocharis*, and *Carex*, suggesting a shallowing pond. The very low accumulation rate in the uppermost meter of sediment indicates a fen environment dominated by *Sphagnum*, *Rubus*, *Hypericum*, *Viola*, *Chamaedaphne*, and *Carex*, though *Brasenia* and *Potamogeton* are occasionally present. Charcoal is present again in this uppermost zone. Carbon storage through time will be calculated and compared with other regional fen sites.