

# Upland Aspen/Birch and Black Spruce Stands and Their Litter and Soil Properties in Interior Alaska

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**Abstract.** This study characterizes upland forest stands in interior Alaska and compares and contrasts their organic and soil properties. Stand data are presented for tree and sapling species in three aspen/birch and four black spruce stands. Litter layers had greater mass and were more acidic beneath black spruce than beneath aspen/birch. Litter beneath aspen/birch contained higher concentrations of C, N, P, Ca, Mg, Mn, and Zn than did black spruce organic layers. Organic layer K and Fe concentrations were similar beneath the two stand groups. Total organic layer N, P, and Zn mass were similar in the two stand groups, more Ca, Mg, and Mn were present beneath hardwoods, and more K was present beneath black spruce. Extractable soil P decreased rapidly with increasing profile depth beneath aspen/birch stands, but increased with depth to a maximum at or below 15-30 cm beneath black spruce. More exchangeable bases were present near the soil surface beneath hardwoods than beneath coniferous communities. Soils beneath the two stand groups could not be consistently separated by differences in pH, percent C, percent N, or C/N ratio. Percentage soil carbon at all depths and in all stands was closely correlated with %N ( $r = 0.97$ ) and CEC ( $r = 0.98$ ). *Forest Sci.* 22:33-44.

**Additional key words.** *Populus tremuloides*, *Betula papyrifera*, *Picea mariana*, forest floor, soil chemistry.