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# *Anomodon minor* (Musci: Leskeaceae) in North America

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Abstract. Anomodon minor *(Hedw.) Furnr. is reported from a disjunct locality in northeastern Alberta, Canada. Its occurrence in eastern North America, with disjunct populations in the southwestern United States and Mexico, is mapped.*

One of us recently collected *Anomodon minor* in northeastern Alberta along the Clearwater River floodplain at 56°42'N, 110°08'W (*Lee,* June 30, 1983—ALTA, CANM, UBC). The species occurs there on sheltered cliff faces of the Middle Devonian Methy formation outcrops, which are hard, buff-colored, porous dolomites. The general vegetation of the area is dominated by scrubby, open *Populus tremuloides* Michx. with *Betula papyrifera* Marsh., *Pinus banksiana* Lamb. and *Picea glauca* (Moench) Voss intermixed in the canopy. Understory vegetation is highly variable within short distances, reflecting the rugged topography. Moist sheltered draws have 100% plant cover dominated by *Linnaea borealis* var. *americana* (Forbes) Rehd., *Mitella nuda* L., *Ledum groenlandicum* Oeder and by feather mosses, particularly *Hylocomium splendens* (Hedw.) B.S.G. The drier, exposed summits of the outcrops have only 30% plant cover dominated by *Juniperus communis* L., *Elymus innovatus* Beal, *Ditrichum flexicaule* (Schwaegr.) Hampe and *Pleurozium schreberi* (Brid.) Mitt. Bryophytes commonly found on the cliff faces and crevices include *Hypnum cupressiforme* Hedw., *Encalypta procera* Bruch, *Thuidium abietinum* (Hedw.) B.S.G., *Rhytidium rugosum* (Hedw.) Kindb., *Ditrichum flexicaule* (Schwaegr.) Hampe and *Tortella tortuosa* (Hedw.) Limpr. The collection made on June 30, 1983, was a mixture of *A. minor* and *Neckera pennata* Hedw.

The distribution of *A. minor* in North America (Fig. 1) includes the deciduous forest region of eastern North America, where it occurs over a more or less continuous range from northern Florida, Louisiana and eastern Texas north to southern Ontario, New Brunswick and Quebec. It appears to be most common in the midwestern states as far west as the prairie—*Quercus* savannah ecotone in eastern Kansas and the Dakotas. It is disjunct in the American southwest where it occurs in southeastern Arizona, western Texas, and epiphytically on riparian *Populus* trunks in New Mexico. In Mexico and in Alberta it has been found only on calcareous rock substrates.

The North American distribution of this species can be, in part, comfortably rationalized in relation to Pleistocene glaciation by suggesting that *A. minor* weathered the glaciation south of the maximum extent in the east, with minimal migration northward upon retreat of Wisconsinan ice. The southwestern United States, Guatemalan and Mexican occurrences are, perhaps, relict in nature, relating back to pre-Miocene invasions of eastern forest elements (Magill 1976). However, the addition of *A. minor* in glaciated northeastern Alberta, an area located

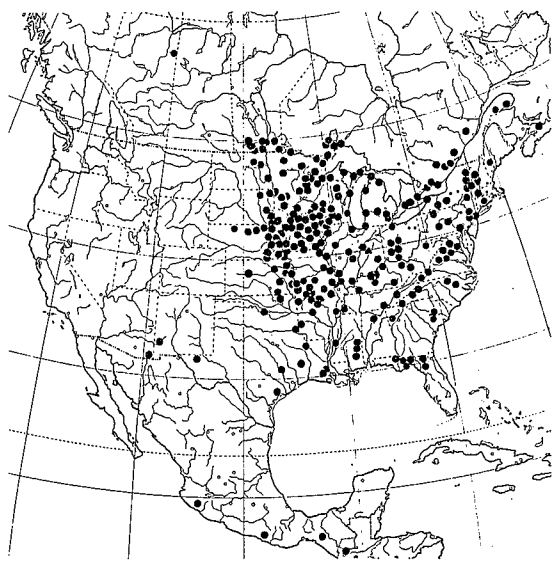

FIGURE 1. The North American distribution of *Anomodon minor,* based on specimens in ALTA, CANM, IA, MICH, NY, TENN and UBC.

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600 km from the ice-free corridor of western Alberta and more than 1000 km from ice-free Beringia—neither areas where the species has been collected—and 1300 km from its nearest populations to the southeast in Manitoba, leaves its refugial status in that area in some doubt. With further field work, it may be collected in the Alaskan-Yukon unglaciated area, especially since it is known from southern Siberia. The occurrence of *A. minor* in northeastern Alberta presents a situation where at least this portion of its range must be explained by relatively recent dispersal; determination of whether this dispersal was from Beringia or from eastern North America awaits further collections and study, especially a populational analysis of the eastern Asian subsp. *integerrimus* (Mitt.) Iwat. and the North American subsp. *minor.*

This analysis is important, as the Guatemalan populations (described by Bartram as the var. *inaequalifolius*) were reported by Iwatsuki (1963) to be very similar to eastern Asian populations, not to the eastern North American ones. Further study of the status of the subsp. *integerrimus* and the taxonomic position of the southwestern United States and Albertan populations could have significant phytogeographic results.

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**Magill, R. E. 1976.** Mosses of Big Bend National Park, Texas. THE BRYOLOGIST 79: 269–295.