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## Additions to the Moss Flora of Iowa

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## Additions to the Moss Flora of Iowa

GARY L. SMITH<sup>1</sup>

*Abstract.* *Buxbaumia aphylla* Hedw. and *Climacium kindbergii* (R. & C.) Grout are reported for the first time from Iowa.

### BUXBAUMIA APHYLLA

*Buxbaumia aphylla* Hedw. is one of the most unique and interesting of mosses. The mature plant consists of a roughened seta with rhizoids at its base surmounted by an oblique, asymmetric capsule of peculiar form (Figure 1). The gametophyte generation is a protonema, which may or may not persist as the sporophyte develops. A few poorly-formed leaves surround the sex organs.

The species is probably not so rare as its infrequent collection would indicate. It has been found in great numbers over a considerable area. It appears to be distributed widely but locally throughout the world. It is known in Europe, Asia, and Japan as well as in North America, where it ranges across the continent.

In late April, 1961, while collecting on the wooded bluffs overlooking the Mississippi River near McGregor, Iowa, I found eleven sporophytes of *B. aphylla* on a steep, shaded, north-facing

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Figure 1. Mature sporophyte of *Buxbaumia aphylla* Hedw. in situ (The plant is approximately 10 mm high)

slope. This collection (Smith 253) is the first report of the genus from Iowa. The locality lies within Pike's Peak State Park, Sec. 35, T95 N, R3 W. Material from this collection is deposited in the Conard Bryophyte Herbarium of the State University of Iowa.

The five sporophytes collected ranged in height from 10-12mm, and were typical for the species. Most of the plants occurred in small areas which were completely barren, except for a species of the lichen *Cladonia*. The capsules showed no orientation with respect to the slope as has often been described in this species. No living protonema was present.

On a second visit to the area in April, 1963, I found 33 sporo-

phytes, all but one of which had been broken or eaten off at the base of the capsule. This suggests that the status of *Buxbaumia* as a member of the moss flora of Iowa is by no means assured.

#### CLIMACIUM KINDBERGII

*Climacium kindbergii* (R. & C.) Grout is most abundant in the southeastern United States, but tends to parallel the distribution of *C. americanum* Brid. throughout the eastern half of the country. The range of the species was extended to Iowa, with its discovery in a wet depression on Williams' Prairie, a small tract of moist virgin prairie near Oxford in extreme western Johnson County. The vascular flora of the locality is listed and discussed by Sorensen (1), who made the first collection of *C. kindbergii* in April, 1962 (Sorensen 706). All three North American species of *Climacium* are now known to occur in Iowa.

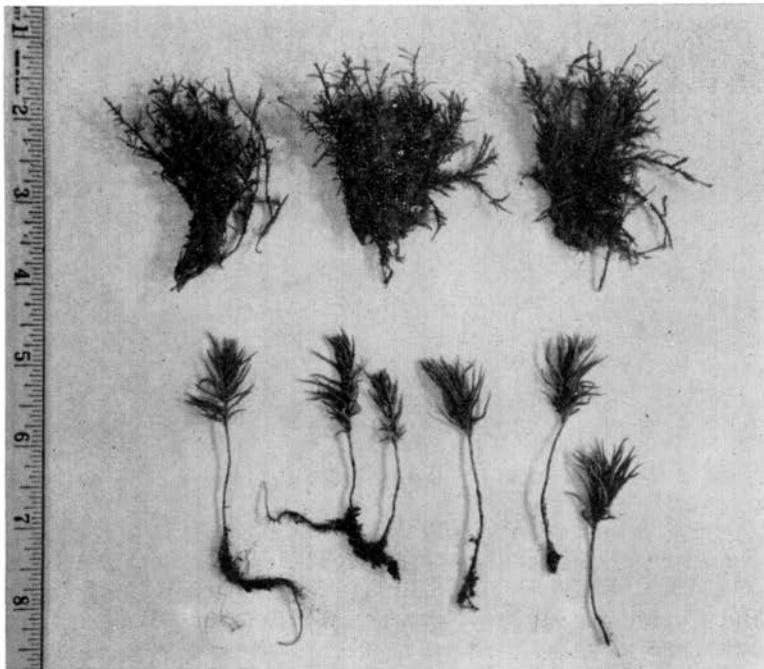


Figure 2. Contrast in growth form between *Climacium kindbergii* (R. & C.) Grout (above) and *C. americanum* Brid. (below) (Scale in inches)

Plants of *C. kindbergii* are typically dark olive-green to almost black in color. The short branches and compact habit of growth tend to obscure the tree-like appearance so characteristic of the other species of the genus (Figure 2). *C. kindbergii* differs from the more familiar *C. americanum* chiefly in the very short leaf



Figure 3. Leaf cells of *Climacium kindbergii* (340X)

cells of the former species, usually not more than twice as long as broad (Figure 3).

*C. kindbergii* was originally described by Renauld and Cardot as *C. americanum kindbergii* but was elevated to the rank of species by Grout. It is certainly closely related to *C. americanum*, since forms of that species with short leaf cells occasionally occur, and plants of *C. kindbergii* in the extreme southeastern U.S. sometimes assume the loose dendroid habit of growth. It seems best, because of its distinctive habit and areolation, to continue to recognize *C. kindbergii* as a species in its own right until closer study can more correctly determine its true taxonomic status and the nature of its relationship to *C. americanum*.

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