

Additions to the Moss Flora of Kentucky

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MOST OF KENTUCKY has been continuously available to plants since the Paleozoic and has doubtless provided refuge for a number of temperate and tropical floras migrating as a result of geologic and climatic vicissitudes. Accordingly, one might expect to find many relicts from the Tertiary and Pleistocene floras in Kentucky at the present time.

Unfortunately, however, many parts of Kentucky have been scarcely surveyed botanically (Davies, 1953). Records of Kentucky bryophytes are particularly scarce. Fulford and Shacklette's preliminary checklist (1942) of Kentucky mosses includes 183 species, varieties and forms, based on a mere 800 collections. The fact that no collections were known from Jefferson, Oldham, Bullitt or Hardin counties, all in the vicinity of Louisville and in one of the most accessible parts of the state, illustrates the extent to which the moss flora has been investigated.

The mosses in the following list have not been reported previously from Kentucky. Mrs. Virginia S. Bryan, Dr. Geneva Sayre, Dr. Winona H. Welch, and Dr. L. E. Anderson have given critical opinions on some of the determinations.

Fissidens bushii Card. & Thér. On soil, Iroquois Park, Louisville, Jefferson Co., *P. A. Davies et al.* 18, Feb. 7, 1932; on soil, Covered Bridge Boy Scout Camp, Oldham Co., *Crum* 2553, Jan. 1954; on floor of forest, Jefferson Hill, Jefferson Co., *Crum* 2578, March 5, 1954; on soil in pine-juniper woods, about 5 mi. N. E. of Shepherdsville, Bullitt Co., *Crum* 2610, March 7, 1954. Grout (1943) gave the distribution of *F. bushii* as Ontario, Vermont, Pennsylvania, Missouri, North Carolina, and Georgia. Dr. L. E. Anderson has told me that the species is common in southeastern United States.

Pleuridium acuminatum Lindb. On hard-packed soil at edge of path, sunny place of top of knob just north of Tom Wallace Lake, *Crum* 2645, May 9, 1954. No definite statement of the range of *P. acuminatum* is available, perhaps because of a general confusion be-

tween this species and the closely related *P. subulatum* (see Grout, 1936), but it would appear that the species is known from relatively few scattered localities in eastern North America and in California, as well as in Europe.

Bryoxiphium norvegicum (Brid.) Mitt. On siliceous boulder, Red River Gorge, Powell Co., A. J. Sharp 12, June 1947. An interesting review of the distribution of *B. norvegicum* and the possibility that it may be an interglacial relict in northeastern North America was recently published by Löve and Löve (1953).

Eucladium verticillatum (Bridg.) Jur. Ceiling of a cave under a waterfall, near Fords Ferry, Crittenden Co., H. T. Shacklette & G. Een, Apr. 1, 1950. Characteristically found on wet rocks or in the trickle of springs in calcareous areas, in rather few scattered localities in the United States and northern Mexico.

Grimmia apocarpa var. *nigrescens* Mol. On exposed rock, cedar glade, near Cedar Creek, east of Shepherdsville, Bullitt Co., Crum 2529, Dec. 1953; 2566, Feb. 27, 1954. The only American locality cited in Grout's *Moss Flora of North America* is the Gaspé Peninsula of Québec, but Dr. Sayre wrote me that she has seen specimens from Nova Scotia, Maine, Pennsylvania, and Ohio, as well.

Nanomitrium synoicum (James) Lind. On a muddy flat, St. Helen's [now Shively], Jefferson Co., Sims, Quimby, Gibbons & Bishop 2, Oct. 24, 1931. Probably often overlooked because of its minute size and ephemeral habit of growth, *N. synoicum* has also been collected in a few localities in Connecticut, New York, New Jersey, and Florida (Grout, 1935).

Amblystegiella confervoides (Brid.) Loeske. On shaded rocks, Cedar Creek, about 5 mi. E. of Shepherdsville, Bullitt Co., Crum 2515, Dec. 1953; 2560, Feb. 27, 1954; on rock, Covered Bridge Boy Scout Camp, Oldham Co., Crum 2547, Jan. 1954. Grout (1932) said that *A. confervoides* is "infrequent and local" in "New England, southeastern Canada, Ontario, along the Great Lakes and in the Rocky Mts." It is probably often overlooked because of its small size and modest appearance and is perhaps not so uncommon as it appears to be.

Fontinalis biformis Sull. Attached to rocks, submerged in a swift stream, Cedar Creek, Bullitt Co., H. Bishop, May 1, 1941. Previously known from Ohio, Indiana and possibly from Wisconsin (Grout, 1934).

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Two New Species of Typhlocybine Leafhoppers From North America (Homoptera, Cicadellidae)

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WHILE working on the species of the genus *Empoa* in preparation of a revision of the North American species of *Typhlocyba* and its allies (Christian, 1953), the author saw several specimens with a broad median band and a few spots of brown color along the cross-veins, which appeared to be a new species. Because the number of specimens was small it was decided that the description of this species should be delayed until a good series was at hand. Since then a long series of specimens of this species, collected from red oak (*Quercus rubra* L.) by D. F. Bray (Bray and Triplehorn, 1953) has been seen. This series is of particular value since it was collected over a period of time from June 4 to August 21 and contains specimens of both sexes showing all degrees of intensity of coloration through two generations.

Empoa rubricola sp. n.

Diagnosis. Resembling *Empoa casta* (McAtee) in having a brown transverse median band of color and a series of brown spots along the cross-veins, but lacking brown pigment on the scutellum; also resembling *Empoa caryata* Christian but easily distinguished from both of these by the greater width of the median band of color.



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