

Notes on Indiana Liverworts—IV. A Report of Recent Collections¹

KENNETH A. WAGNER, Florida State University

Two collecting trips into Indiana, one in August 1950, the other in September, 1951, have resulted in the discovery of new stations for several species. Among these species are *Frullania asagrayana* and *Plectocolea crenulata*, which are new state records. The latter had been reported for Indiana (Underwood, 3) but that report, as the present writer has shown (Wagner, 5) was based on *P. crenuliformis*, which, as the name might suggest, much resembles *P. crenulata*.

The 1950 trip, although it covered several counties, was significant only at one station, a small creek that crossed U. S. 460 about 24 miles east of Mariah Hill. Sandstone outcropping at this station produces a habitat similar to that of Fern in Putnam county and Turkey Run in Parke county. The majority of species found at this site are relatively rare or at least uncommon as compared with those found on limestone or clay areas. Of the ten species reported here from Crawford county, three, if we include *Fossombronina foveolata*, are known only from that county; two from one other county; and three from two other counties in Indiana. The average number of Indiana counties recorded for the limestone, soil and bark species reported here is twenty-four.

A discussion of the synonymy of *Porella platyphylla* (L.) Lindb. (Wagner, 6) states that the reduction of *P. platyphyloidea* to synonymy would necessitate adding seven counties to the list of those from which *P. platyphylla* is known. At the time this paper (Wagner, 6) was sent to the editors, the writer was not aware that a paper submitted the previous year was not to be published. Because of this, three of the seven county records, Brown, Jay and Union, did not appear until the following year (Wagner, 7).

The collection of *Fossombronina foveolata* reported here from Crawford county is the first Indiana specimen seen by the writer. Ammons (1) lists Indiana in the range of *F. foveolata* but does not indicate the source of the record. Frye and Clark (2), however, do not include Indiana. Underwood (4), shortly after leaving DePauw University, published his studies on the entire genus as it was known in North America at that time. According to Underwood, *F. foveolata* had been found in British Columbia, Ontario, Maine, New Jersey and Delaware. Since then it has been found in most of the New England states, in Michigan and Wisconsin, and throughout the southern United States.

The following citations list only new county and state records. One set of specimens is kept in the writer's collection; a duplicate set may be found in the herbarium of DePauw University, Greencastle, Indiana.

¹Contribution No. 48, Botanical Laboratory, Florida State University.

All of the collections listed for Crawford county were made on sandstone or thin soil over sandstone along a small stream which crossed U. S. 460 at a point about 24 miles east of Mariah Hill.

Anthoceros laevis L. Madison Co.: on soil, Mounds State Park, Sept. 4, 1951, Wagner 2501. This is the farthest eastward the species has been found in Indiana.

Calypogeia sullivanii Aust. Crawford Co.: Aug. 28, 1950, Wagner 2502, 2533. Previously known in Indiana only from LaPorte county which borders on Lake Michigan. Its discovery in Crawford county, which lies along the Ohio River, is a considerable intra-state range extension. *Calypogeia trichomanis* (L.) Corda, considerably more frequent in Indiana and known from Crawford county, was not found in any of the collections made in August, 1950.

Cephalozia bicuspidata (L.) Dum. Crawford Co.: Aug. 28, 1950, Wagner 2503. Previously known in Indiana only from Parke and Ripley counties.

C. connivens (Dicks.) Lindb. Crawford Co.: Aug. 28, 1950, Wagner 2533.

Cephalozia elasmata (Jack) Schiffn. Madison Co.: Mounds State Park, on rotten wood, Sept. 4, 1951, Wagner 2504. Formerly known in Indiana only from LaPorte county.

C. hampeana (Nees) Schiffn. Crawford Co.: Aug. 28, 1950, Wagner 2538 in part.

Fossombronia foveolata Lindb. Crawford Co.: Aug. 28, 1950, Wagner 2507 in part.

Frullania asagrayana Mont. Crawford Co.: Aug. 28, 1950, Wagner 2509, 2510. This new state record brings the number of Indiana species in the genus to six. *Frullania* now has more species reported for the state than any other genus of liverworts.

F. eborascensis Gott. Clay Co.: on elm bark, Shakamak State Park, Sept. 6, 1951, Wagner 2511; Green Co.: Shakamak State Park, Sept. 6, 1951, Wagner 2512; Hancock Co.: along route 9, three miles south of Greenfield, Sept. 4, 1951, Wagner 2513; Sullivan Co.: Shakamak State Park, Sept. 6, 1951, Wagner 2515, 2516.

F. squarrosa (R. Bl. & Nees) Dum. Madison Co.: Mounds State Park, Sept. 4, 1951, Wagner 2517.

Leucolejeunea clypeata (Schw.) Evans. Crawford Co.: Aug. 28, 1950, Wagner 2518. Previously reported from two counties.

Lophocolea cuspidata (Nees) Limpr. Madison Co.: on rotten wood, Mounds State Park, Sept. 4, 1951, Wagner 2519, 2520; Sullivan Co.: Shakamak State Park, Aug. 6, 1951, Wagner 2522.

L. heterophylla (Schrad.) Nees. Clay Co.: on bark, Shakamak State Park, Sept. 6, 1951, Wagner 2523; Green Co.: Shakamak State Park, Sept. 6, 1951, Wagner 2526, 2527; Sullivan Co.: Shakamak State Park, Sept. 6, 1951, Wagner 2531.

L. minor Nees. Sullivan Co.: Shakamak State Park, Sept. 6, 1951, Wagner 2532. Not previously collected in Indiana south of Putnam county.

Plectocolea crenulata (Sm.) Evans. Crawford Co.: Aug. 28, 1950, Wagner 2534. The first authentic report for the state.

P. hyalina (Lyell) Mitten. Crawford Co.: Aug. 28, 1950, Wagner 2536.

Porella platyphylla (L.) Lindb. Green Co.: Shakamak State Park, Sept. 6, 1951, Wagner 2537.

Radula obconica Sull. Crawford Co.: Aug. 28, 1950, Wagner 2538. Reported also from Parke and Putnam counties.

Reboulia hemisphaerica (L.) Raddi. Madison Co.: Mounds State Park, Sept. 4, 1951, Wagner 2539.

Literature Cited

1. AMMONS, NELLE. 1940. A manual of the Liverworts of West Virginia. Am. Midl. Nat. **23**:3-164.
2. FRYE, T. C. and L. CLARK. 1937. Hepaticae of North America. Univ. of Washington Pub. in Biology **6**:1-162.
3. UNDERWOOD, L. M. 1894. Report of the Bot. Div. of the Indiana State Biological Survey. Proc. Indiana Acad. Sci. **3**:64-65.
4. ———— 1896. Notes on our Hepaticae—IV. The Genus *Fossombronia*. Bot. Gaz. **21**:67-71.
5. WAGNER, K. A. 1947. A consideration of some reports of Indiana Liverworts. Proc. Indiana Acad. Sci. **56**:92-94.
6. ———— 1949. Notes on Indiana Liverworts—II. *Porella* in Indiana. Proc. Indiana Acad. Sci. **58**:78-80.
7. ———— 1950. Notes on Indiana Liverworts—III. Some new county and state records. Proc. Indiana Acad. Sci. **59**:112-114.