
 THE BRYOPHYTE FLORA OF CLINTON COUNTY, OHIO¹
RICHARD DEAN KELLOUGH²*Department of Botany, Miami University, Oxford, Ohio*

Clinton County is an agricultural county in southwestern Ohio from which 13 species of bryophytes were reported prior to this study. The 400 square miles of the county are covered by glacial soil deposited by three Pleistocene ice masses. The county has a variety of microhabitats from which 105 mosses and 9 hepatics are listed. Two of the mosses, *Bryum pendulum* (Hornsch.) Schimp. and *Weissia microstoma* (Hedw.) C. Muell., were previously unknown from Ohio. Several species represent important second finds in the state. Although the bryophyte flora is essentially that of the great lakes states, several tropical and subtropical species are present in the flora.

ANNOTATED LIST OF SPECIES

* previously recorded for Clinton County

† new record for Ohio

Abbreviations preceding the collection numbers indicate the townships, as follows:

A Adams	G Green	M Marion	WA Washington
CH Chester	J Jefferson	U Union	WI Wilson
CL Clark	L Liberty	V Vernon	

¹Part of a thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts in Teaching.

²Present address: 1923 East 8th St., Davis, California.

All specimens cited are deposited in the Miami University Herbarium. Specimens deposited in The Ohio State University Herbarium are designated OS; those from the University of Cincinnati CINC; those from Baldwin Wallace College BW.

Musci

- Atrichum angustatum* (Brid.) B.S.G. A, 302; CL, 42; V, 274. On soil in exposed or unexposed places, usually in damp woods.
- Atrichum macmillani* (Holz.) Frye. A, 285; U, 62. On sandstone.
- **Atrichum undulatum* (Hedw.) Beauv. A, 296, 303; CL, 17, 83; J, 465, 468, 471; U, 23, 113; V, 200A, 203, 239; WA, 67. Green Township, J. S. VanDervoort, 1892 (OS). Very common on soil and humus in woods.
- Polytrichum commune* Hedw. V, 240. On soil in moist woods.
- Polytrichum ohioense* Ren. and Card. V, 187, 192, 228, 259. On damp soil in woods.
- Fissidens bryoides* Hedw. V, 188. On shaded soil.
- Fissidens cristatus* Wils. A, 307, 339. On tree bases.
- Fissidens debilis* Schwaegr. V, 273. On a submerged rock in a running stream in a woods.
- Fissidens obtusifolius* Wils. A, 207; L, 367, 368, 370. On moist limestone and sandstone, occasionally on bark at base of trees.
- Fissidens osmundioides* Hedw. V, 218. On moist shaded soil.
- Fissidens taxifolius* Hedw. A, 338; J, 427, 460, 470, 477; V, 164, 165, 208, 214, 215, 217, 264; WA, 10. Very common on damp shaded soil. According to Robinson (1957) *F. taxifolius* is less common than *F. osmundioides* in southeastern Ohio.
- **Ceratodon purpureus* (Hedw.) Brid. A, 294; J, 442. Reported by Giesy (1957) from University of Cincinnati specimen. Not seen. Number 294 on bare and compact clay soil; 442 on top of a moist and shaded tree stump.
- **Ditrichum pallidum* (Hedw.) Hampe. U, 106; V, 132, 168; WA, 6. Jefferson Township, Margaret Fulford, 1930 (CINC). On bare soil, wood and especially concrete bridge abutments where damp.
- Ditrichum pusillum* (Hedw.) E. G. Britton. A, 337; CH, 397; V, 221. On exposed clay soil.
- **Pleuroidium subulatum* (Hedw.) Lindb. Reported by Giesy (1957) from University of Cincinnati specimen. Not seen.
- Dicranella heteromalla* (Hedw.) Schimp. CL, 21; V, 153. On moist clay bank and on bark at base of tree.
- Dicranella varia* (Hedw.) Schimp. A, 330; J, 481; U, 38; WA, 30. On shady sandy and clay soils. Number 30 confirmed by Dr. Lewis E. Anderson.
- Dicranum condensatum* Hedw. V, 198. On rotting log.
- Dicranum fulvum* Hook. A, 324; V, 231, 278. Found exclusively on bark. Robinson (1957) reports it from southeastern Ohio on shaded rock.
- **Dicranum scoparium* Hedw. Jefferson Township, Margaret Fulford, 1930 (CINC). Growing in a mat around a pin oak tree in a woods near Westboro.
- Dicranum viride* (Sull. & Lesq.) Lindb. A, 290; V, 195. On tree bases and soil around the base of trees.
- **Leucobryum glaucum* (Hedw.) Schimp. Jefferson Township, Margaret Fulford, 1930 (CINC). On the soil in an oak-beech woods.
- Barbula fallax* Hedw. A, 325; CL, 36B. On soil of open areas.
- Barbula unguiculata* Hedw. A, 301, 304; CH, 413; U, 423; V, 124, 131, 134. On rock, particularly concrete bridge abutments, bare soil, and occasionally on bark. Not uncommon.
- Gymnostomum calcareum* Nees & Hornsch. CH, 419; V, 154. On moist calcareous rocks.
- Gymnostomum recurvirostrum* Hedw. U, 35; V, 141; WA, 63. On rock. Found once growing on a stump in a swampy area at the northeastern edge of Lake Cowan.
- Tortella humilis* (Hedw.) Jennings. J, 462; V, 150; WA, 15. On concrete abutments, roots of trees in woods.
- Tortella tortuosa* (Turn.) Limpr. V, 127. On limestone.
- Tortula mucronifolia* Schwaegr. WA, 28. On concrete bridge abutment.

- †*Weissia microstoma* (Hedw.) C. Mull. A, 334. On clay soil. This is the first authenticated specimen from Ohio. (Andrews, 1924).
- Weissia viridula* Hedw. CH, 378; U, 95; V, 140, 161. Usually on bare soil among grasses.
- Grimmia apocarpa* Hedw. U, 98; V, 155. On exposed rock and rotting log.
- Aphanorhegma serratum* (Hook. & Wils.) Sull. U, 71. Found growing over several square feet in our vegetable garden in Wilmington. Probably common.
- Funaria flavicans* Mx. U, 48, 94, 492. On bare soil, gravel driveway, floor of greenhouse.
- Funaria hygrometrica* Hedw. CH, 378; U, 493. Number 378 found on soil with *Weissia viridula*; number 493 on dirt floor of greenhouse.
- **Physcomitrium turbinatum* (Mx.) Brid. CL, 39, 424; V, 76; WI, 360. Jefferson Township, Margaret Fulford, 1930 (CINC). On bare soil, usually in open fields.
- Orthotrichum garrettii* Grout & Flowers. J, 430. On a dry granite boulder used in building the dam at Westboro. Recorded previously only from Franklin County.
- Orthotrichum obtusifolium* Brid. A, 281; J, 450. On bark of trees.
- Orthotrichum ohioense* Sull. & Lesq. A, 309. On tree bark.
- Orthotrichum pumilum* Dicks. A, 88, 288; CH, 398; G, 343. On trees.
- Orthotrichum pusillum* Mitt. A, 333A; J, 433; M, 488. Loose tufts on bark of trees.
- Orthotrichum strangulatum* Schwaegr. A, 321, 326; CH, 400, 408, 412, 415; J, 429, 431, 438, 456; M, 490; U, 16; V, 19, 123, 125, 146, 151, 160, 163, 258; WA, 14, 29. Very common on concrete abutments and limestone and granite rocks.
- Orthotrichum sordidum* Sull. & Lesq. CH, 384. On tree bark. Giesy (1957) cites one specimen from Lesquereux. No data given.
- Aulacomnium heterostichum* (Hedw.) B. S. G. V, 208, 256, 263. On rich soil and humus in woodlands.
- Philonotis fontana* (Hedw.) Brid. V, 72. Found on a tree stump in the swamps at the north-eastern edge of Lake Cowan.
- Bryum argenteum* Hedw. A, 313; CH, 407B; J, 425; U, 24, 93; V, 72; WA, 4, 5. On soil, rocks, in dry situations. Very common along sidewalks, paths, railroad tracks and ash piles.
- Bryum bicolor* Dicks. A, 326; CH, 407A. On sandy soil in moist situations. Once collected with *B. argenteum*. Previously recorded only in Athens County.
- **Bryum caespiticium* Hedw. CL, 43; U, 96, 495; V, 139, 280. Jefferson Township, Margaret Fulford, 1930 (CINC). Usually on soil low in organic matter, occasionally on rock.
- Bryum capillare* Hedw. WA, 64. On tree stump in swampy area at northeastern edge of Lake Cowan.
- Bryum cuspidatum* (B. S. G.) Schimp. A, 305; WA, 5. On soil and rock.
- †*Bryum pendulum* (Hornsch.) Schimp. V, 122. Collected on a limestone rock in the creek bed near Springhill Road, Clarksville. This species has not previously been reported in Ohio. Common farther north and reported to be rather common in Indiana (Welch, 1957).
- **Pohlia nutans* (Hedw.) Lindb. A, 311, 314, 317, 319; J, 443; V, 162, 254, 262; WA, 68. Jefferson Township, Margaret Fulford, 1930 (CINC). On soil, humus, rocks, in various situations.
- Pohlia wahlenbergii* (Web. & Mohr.) Andrews. A, 313. On wet clay bank.
- Rhodobryum roseum* (B. S. G.) Limpr. A, 283. On moist soil. Not common.
- Mnium affine* Bland. CH, 411; CL, 84; U, 57; V, 156, 166, 181, 200A, 276; WI, 359. On soil and rotting logs.
- **Mnium cuspidatum* Hedw. A, 322, 335; CH, 389, 418; CL, 34; J, 444, 463, 466, 467, 469; M, 484; U, 55, 62, 102, 104A, 107; V, 20, 74, 79, 118, 120, 133, 147, 176, 179, 205, 208, 245, 261, 269; WA, 26; WI, 357. Jefferson Township, Margaret Fulford, 1930 (CINC). Very common on rotting logs, on soil and humus in woods. *Lophocolea heterophylla* is often found growing with this species.
- Mnium punctatum* Hedw. A, 305, 312; V, 185; WA, 13. On rocks, logs, soil in moist situations.
- Amblystegium juratzkanum* Schimp. V, 238A, 247. On moist soil.
- Amblystegium serpens* (Hedw.) B. S. G. U, 49, 50, 51; V, 224. On shaded sandstone soil.
- Amblystegium varium* (Hedw.) Lindb. A, 332; CH, 388, 402; J, 474; U, 40; V, 126, 157; WA, 32; WI, 357. On concrete bridge abutments, moist limestone ledges, rotting wood and bark of trees. Common.

- Brachythecium acutum* (Mitt.) Sull. V, 115; WA, 70. On moist soil and humus.
- Brachythecium campestre* B. S. G. U, 58. On shaded soil.
- Brachythecium flagellare* (Hedw.) Jennings. CH, 380, 406; G, 342; V, 144, 171, 174, 208, 277; WI, 353. On soil, rotting logs and rocks near streams. Common.
- Brachythecium flexicaule* Ren. & Card. J, 479. On soil on moist bank.
- Brachythecium oxycladon* (Brid.) Jaeger. & Sauerb. A, 308; CH, 420, 421, 422; CL, 22; U, 112; V, 206. Base of trees, soil.
- Brachythecium rivulare* B.S.G. V, 189. In wet area on soil.
- Brachythecium rutabulum* (Hedw.) B.S.G. A, 91B; CL, 33, 44. On soil, humus and tree stumps.
- Brachythecium salebrosus* (Web. & Mohr.) B.S.G. A, 90; V, 183, 223; WA, 3, 25. Base of trees, soil.
- Campylium chrysophyllum* (Brid.) Bryhn. V, 167, 172. Roots of trees.
- Campylium stellatum* (Hedw.) Lange and C. Jens. CH, 395. On twig from tree.
- Cirriphyllum boscii* (Schwaegr.) Grout. A, 336; J, 482; U, 41; V, 170, 175, 209, 238B, 253. Usually on soil. Common.
- **Climacium americanum* Brid. Green Township, J. S. VanDervoort, 1892 (OS).
- Entodon cladorrhizans* (Hedw.) C. Mull. A, 286B, 340; U, 60; V, 77, 197. Usually on fallen trees, occasionally on soil, in shaded areas.
- Entodon seductrix* (Hedw.) C. Mull. A, 293; CH, 373, 375, 381, 382; J, 435, 455; U, 41, 59, 104B, 109; V, 8, 80, 225; WA, 7; WI, 363. Base of trees, concrete bridge abutments, soil, often in dry situations. Common.
- Eurhynchium hians* (Hedw.) Jaeger & Sauerb. A, 89, 91A, 92, 320; CH, 379, 391; V, 214. On soil.
- Eurhynchium serrulatum* (Hedw.) Kindb. A, 299; CH, 387, 396; CL, 45; U, 53, 111; V, 117, 119, 149, 205, 212, 257, 271; WA, 9, 69. Very common on tree bases, rocks and soil in woods.
- Eurhynchium strigosum* (Hoffm.) B.S.G. A, 329; CH, 414; G, 341; V, 190. On soil and tree bases.
- Heterophyllum halaanianum* (Grev.) Kind. CL, 37. On rotting wood.
- Homalotheciella subcapillata* (Hedw.) Card. V, 129. This specimen was collected on a limestone rock in shaded area.
- Hygroamblystegium irriguum* (Wils.) Loeske. A, 323; CH, 377, 386, 393, 404; U, 105; V, 169, 210, 226, 243. On rocks in streams, on soil at edge of streams and wet areas around trees. Common.
- Hypnum cupressiforme* Hedw. CH, 392, 410; J, 453; V, 78, 81, 229, 248; WI, 352. On soil, bark of dead trees.
- **Hypnum curvifolium* Hedw. Reported (Giesy, 1957) to be in the Baldwin Wallace College Herbarium. Not seen.
- Hypnum imponens* Hedw. V, 200B, 201, 244. On rotting wood.
- Hypnum reptile* Mx. V, 180. On soil in woods.
- Leptolictyum riparium* (Hedw.) Warnst. U, 52; V, 138; WA, 66. On rotten wood, tree stumps, in swamps; one specimen was found on wet limestone drippings.
- Plagiothecium denticulatum* (Hedw.) B.S.G. V, 74. On bark of dead tree with *Mnium cuspidatum*.
- Plagiothecium deplanatum* (Sull.) Grout. A, 295; U, 61. On soil.
- Plagiothecium muellarianum* Schimp. V, 136, 235, 268. On shady wet limestone cliff and shady soil in wooded ravine.
- Plagiothecium turfaceum* (Lindb.) Lindb. V, 177. On wood and humus in shaded moist woods.
- Platygyrium repens* (Brid.) B.S.G. A, 292, 297B; CH, 372, 376, 385; CL, 18; G, 349; U, 108; V, 75, 82, 202, 220, 241; WI, 354, 356. Very common on the bark of trees, logs and stumps.
- Pylaisia selwynii* Kindb. U, 100. Bark of living tree. Probably not uncommon.
- Anomodon attenuatus* (Hedw.) Huben. A, 282, 298, 306, 331; CH, 390, 394, 399; J, 448, 458; U, 99; V, 143, 152, 216, 237; WA, 1; WI, 365. On tree bases, soil and occasionally on rocks in shaded areas. Common.

- Anomodon minor* (Beauv.) Lindb. J, 475; V, 121, 142; WA, 2. Soil, limestone bluffs, tree trunks.
- Anomodon rostratus* (Hedw.) Schimp. V, 114, 133, 196, 199, 255, 279. On soil in wooded areas, logs, base of trees and on rocks in moist situations. Common.
- Leskea gracilescens* Hedw. A, 297A; CH, 416; CL, 46; G, 347; J, 432, 434, 436, 446, 464; U, 54, 97; V, 12, 31, 128, 147, 158, 186, 251; WA, 11; WI, 361, 366. On living trees, especially near the base; occasionally on soil. Very common. Robinson (1957) reports it common in southeastern Ohio on stones and cement culverts.
- Leskea nervosa* (Schwaegr.) Mylin. V, 73; WI, 358. Number 73 was found on the base of a tree; number 358 was growing on a brick in a woods. The only other record of this species for Ohio is from Ottawa County. It is uncommon this far south, and rarely found on stone.
- Leskea obscura* Hedw. A, 315. On bark of living tree, near the base.
- Leskea polycarpa* Hedw. A, 87, 88. On bark of living trees, near base.
- Thuidium delicatulum* (Hedw.) Mitt. CH, 403; V, 204. On soil in woods.
- Thuidium microphyllum* (Hedw.) Best. V, 145. On soil.
- Thuidium minutulum* (Hedw.) B.S.G. V, 182. On rotting wood.
- **Thuidium recognitum* (Hedw.) Lindb. Green Township, J. S. VanDervoort, 1892 (OS).
- Thuidium virginianum* (Brid.) Lindb. A, 289. On shaded soil.
- Leucodon julaceus* (Hedw.) Sull. A, 291. On bark of fallen trees.
- Clasmatodon parvulus* (Hampe) Sull. CH, 417; V, 219. On bark of living trees.

Hepaticae

- Phaeoceros laevis* (L.) Prosk. V, 227. Collected from tracks made by vehicles in moist clay soil. This liverwort has the reputation of being very rare (Steere, 1940). Hall (1958) records it as common in Athens County.
- Calyptogeia trichomanis* (L.) Corda. V, 193. On moist soil growing with *Lophocolea heterophylla*.
- Chiloscyphus pallescens* (Ehrh.) Dumort. V, 194. Growing on wood with *Lophocolea heterophylla*.
- Conocephalum conicum* (L.) Dumort. U, 27; V, 267. Specimen number 267 was found on soil near Austin's woods; number 27 was on the soil in a potted ivy plant. This liverwort is known to be a common greenhouse weed.
- Frullania eboracensis* Gottsche. A, 287, 310, 333B; CH, 402; CL, 36A; J, 449, 472; M, 489; V, 230, 232, 246; WI, 355. Very common on bark of living trees.
- Geocalyx graveolens* (Schrad.) Nees. A, 324; V, 222. On rotting wood.
- Solenostoma pumila* (With.) Steph. V, 266. Wet soil in Austin's woods near Lake Cowan.
- Lophocolea heterophylla* (Schrad.) Dumort. A, 286A, 316, 339; J, 466, 469; V, 170, 173, 174, 213, 233, 252, 272. On rotting logs, tree bases, soil. Very common.
- Porella platyphylloidea* (Schwein.) Lindb. A, 300, 318; CH, 374, 401; J, 454, 461; U, 110; V, 135, 148, 184, 234, 260; WI, 362. Very common on tree bases and moist soil.

ACKNOWLEDGMENTS

I wish to express my sincere appreciation to the Charles F. Kettering Foundation for the loan of necessary optical equipment. Thanks are due to Dr. Harvey A. Miller for his guidance in the preparation of the manuscript. Dr. Lewis E. Anderson confirmed the determination of doubtful specimens.

LITERATURE CITED

- Andrews, A. L. 1924. *Hymenostomum* in North America. *Bryologist* 27: 1-3.
- Giesy, R. M. 1957. Studies in Ohio bryophytes. *Ohio J. Sci.* 57: 290-312.
- Hall, G. 1958. Notes on the hepatic flora of the Athens area. *Ohio J. Sci.* 58: 15-19.
- Robinson, H. 1957. Moss collections from southeastern Ohio. *Ohio J. Sci.* 57: 15-20.
- Steere, W. C. 1940. Liverworts of southern Michigan. Published by the Cranbrook Institute of Science. Bloomfield Hills, Michigan. 97 pp.
- Welch, W. H. 1957. Mosses of Indiana. Bookwalter Company. Indianapolis. 478 pp.