Transactions of the Illinois Academy of Science
(1989), Volume 82, 3 and 4, pp. 133-136

THE BRYOPHYTES OF KICKAPOO STATE PARK, VERMILION COUNTY, ILLINOIS

Kevin J. Lyman
Botany Department
Eastern Illinois University
Charleston, IL 61920

ABSTRACT

A total of 46 bryophytes, including 42 mosses and 4 liverworts, were collected in Kickapoo State Park, Vermilion County, Illinois. Of these, 19 are reported for Vermilion County for the first time. The abundance of each species is reported.

INTRODUCTION

Kickapoo State Park is located in the Wabash Border Division in east-central Illinois, 6 miles west of Danville, (T19N & T20N, R12W) in Vermilion County (Schwegman, 1973). The park was founded in 1939 when 1,290 acres (522 ha) of abandoned, strip-mined land were purchased from the United Electric Coal Company. Additional purchases and land trades brought the total acreage to 2,843 (1150.6 ha). Extensive underground and strip mining occurred over a vast majority of the area before the State of Illinois acquired the land. The park now offers a variety of bryophyte habitats, ranging from dry, steep hillsides, to low, moist depressions. Included within the park are twenty-two ponds as well as the Middle Fork of the Vermilion River. Although no bryological studies in Kickapoo State Park had been undertaken prior to this study, a list of mosses from Vermilion County was prepared by Grant and Hague (1931). Hague and Drexler (1938) later reported 29 liverworts and 2 hornworts from 18 counties in Illinois, including Vermilion County, while McCleary and Redfearn (1979) mentioned 35 species of mosses from Vermilion County.

Only three reports have been found regarding bryophytes associated with strip mining in Illinois. Brewer and Triner (1956) reported bryophytes as uncommon on spoils in Perry County, Illinois, while Rastorfer (1981) found 33 bryophytes at a

reclaimed surface mine at Goose Lake State Park, Grundy County, Illinois. Rastorfer's study compared the relative abundance of species on constructed mine spoils (reclaimed) to those on abandoned mine spoils. He found that *Ceratodon purpureus* (Hedw.) Brid. and *Funaria hygrometrica* Hedw. were the predominant bryophyte invaders on reclaimed mine soils. Rastorfer also mentioned that mosses occurred in areas affected by the 1975-1978 reclamation effort only after the establishment of vascular plants. Chimney (1984) later reported *Ricciocarpus natans* (L.) Corda for the first time in a coal strip mine impoundment in Knox County, Illinois.

Bryophytes were collected from selected habitats at Kickapoo State Park during summer, 1987 and spring, 1988. Identifications were confirmed by Dr. Charles B. Arzeni and the specimens deposited in the Ernest L. Stover Herbarium, Eastern Illinois University (EIU). Nomenclature follows that of Crum and Anderson (1981) or Crum (1983) for the mosses and Conard (1979) for the liverworts and hornwort. The location, habitat, and abundance of each specimen was recorded at the time of collection. The abundance of each species was noted and categorized as common, occasional, infrequent, and rare.

Listed below are the species encountered along with their habitat and abundance at Kickapoo State Park, Vermilion County, Illinois. The numbers listed after each species are the collection numbers of the author unless otherwise noted. An asterisk (*) denotes the first report for Vermilion County, Illinois.

MOSSES:

**Amblystegium riparium* (Hedw.) BSG. Rare; on soil bank next to Long Pond. KJL 3.

Amblystegium serpens (Hedw.) BSG Common; especially along the bank of the runoff stream from Long Pond. KJL 31.

**Amblystegium serpens* (Hedw.) BSG. var. *juratzkanum* (Schimp.) Rau & Herv. Rare; on twigs at ravine bottom north of the cemetery. KJL 95.

Amblystegium tenax (Hedw.) BSG. Rare; on sandstone rock in stream running into Clear Pond on east side. KJL 48, 49, 50, 51.

**Amblystegium trichopodium* (Schultz) Hartm. Rare; in water near concrete bridge west of the east entrance near Clear Pond. KJL 89.

Amblystegium varium (Hedw.) Lindb. Common; on soil along wooded trails. KJL 57.

**Anomodon attenuatus* (Hedw.) Hub. Common; at the base of trees; occasionally on soil. KJL 29, 45, 46, 65, 84, 85.

Anomodon minor (Hedw.) Furnr. Rare; at the base of a tree on the east bank of the Middle Fork River near the canoe exit point. KJL 24.

Anomodon rostratus (Hedw.) Schimp. Occasional; on tree bases near Redear Campsite and on soil on the bank of the Long Pond runoff. KJL 16, 30, 93.

Atrichum angustatum (Brid.) BSG. Common; on trail edges and ridge bottoms. KJL 26, 36, 59, 61, 72, 92.

Aulacomnium heterostichum (Hedw.) BSG. Infrequent; on north facing slopes south of Clear Pond and north of the Cemetery. KJL 86, 94.

Barbula unguiculata Hedw. Infrequent; found on disturbed areas frequented by fishermen and along trails in open areas. KJL 1, 88.

Bartramia pomiformis Hedw. Rare; found on steep slope north of the cemetery (a large population). KJL 97.

Brachythecium acuminatum (Hedw.) Aust. Occasional; at the base of trees and on rotten logs. KJL 9, 58.

Brachythecium oxycladon (Brid.) Jaeg. & Sauerb. Common; very abundant on exposed soils. KJL 2, 17, 82.

°*Brachythecium rivulare* BSG. Rare; found in seep area south of Clear Pond on slope. KJL 83.

Brachythecium salebrosum (Web. & Mohr) BSG. Common; throughout the park in shaded disturbed areas along trails. KJL 32, 55, 66.

Bryhnia graminicolor (Brid.) Grout. Infrequent; on steep bank south of Clear Pond along trail. KJL 81.

°*Bryoandersonia illicebra* (Hedw.) Robins. Occasional; between road and river ridge; each population was relatively large. KJL 10.

°*Campylium chrysophyllum* (Brid.) J. Lange. Occasional; west of Long Pond at the base of trees. KJL 60, 69, 80.

°*Campylium hispidulum* (Brid.) Mitt. Common; on soil and occasionally at tree bases. KJL 19, 71.

Ceratodon purpureus (Hedw.) Brid. Rare; on soil of disturbed areas. KJL 54.

°*Desmatodon obtusifolius* (Schwaegr.) Schimp. Rare; found on top of a concrete bridge wall just west of the east entrance of the park near Clear Pond. KJL 63.

Dicranella heteromalla (Hedw.) Schimp. Common; east of Clear Pond on the soil at the base of trees as well as along wooded trail. KJL 35, 43.

°*Encalypta ciliata* Hedw. Rare; found in disturbed area along High Pond Trail. KJL 70.

Entodon seductrix (Hedw.) C.M. Common; on dead and living trees and on concrete base near mine shaft no. 6, as well as on soil. KJL 7, 18, 20, 42.

Eurhynchium hians (Hedw.) Sande-Lac. Rare; on soil by stream flowing from large field by visitors station just south of the bridge, and at the south end of Clear Pond at water's edge. KJL 28, 44.

°*Fissidens taxifolius* Hedw. Common; found in the more heavily wooded areas of the western portion of the park. KJL 8, 33, 34, 62.

Grimmia apocarpa Hedw. Rare; on concrete bases near mine shaft number 6. KJL 100.

Hypnum lindbergii Mitt. Rare; on soil west of Long Pond road and south of the spillway in a recently cleared area. KJL 79.

Leskea gracilescens Hedw. Common; on hardwood trees. KJL 5, 6, 56, 64.

°*Mnium affine* Bland.: Schwaergr. var. *ciliare* C.M. Rare; found on top of a steep bank above stream flowing into Clear Pond on the east side. KJL 39.

°*Mnium affine* Bland.: Funck var. *rugicum* (Laur.) BSG. Rare; on ravine side between road and Long Pond. KJL 73.

Mnium cuspidatum Hedw. Common; throughout the park in heavily wooded areas on soil and decayed logs. KJL 4, 11, 41, 52, 75.

°*Orthotrichum pusillum* Mitt. Common; on larger and older trees, especially on *Populus deltoides*. KJL 12, 21, 25, 37, 78.

°*Orthotrichum strangulatum* P. Beauv. Rare; found once on exposed limestone rock north of the Cypress picnic area. KJL 91.

Physcomitrium pyriforme (Hedw.) Hampe. Common; abundant along road north of the camp ground and Long Pond. KJL 90.

Platygyrium repens (Brid.) BSG. Common; usually on fallen logs and on old trees. KJL 14, 40, 98.

Pohlia nutans (Hedw.) Lindb. Rare; along runoff from Long Pond. KJL 38.

Rhynchostegium serrulatum (Hedw.) Jaeg. and Sauerb. Occasional; moist soil in wooded areas and on rotten logs. KJL 22, 76.

**Thuidium recognitum* (Hedw.) Lindb. Common; found abundantly between the park road and the large ridge east of the river. KJL 15, 67.

**Weissia controversa* Hedw. Infrequent; on soil pile on High Pond Trail and at ravine bottom north of the cemetery. KJL 68b, 96.

LIVERWORTS AND HORNWORTS

Conocephalum conicum (L.) Lindb. Rare; on sandstone at Rock Cut Road. KJL 99.

**Frullania eboracensis* Gott. Occasional; on hardwood trees. KJL 13.

Lophocolea heterophylla (Schrad.) Dum. Infrequent; on very rotten logs in heavily wooded areas. KJL 23, 27, 68a, 74, 77.

**Notothylus orbicularis* (Schwein.) Sull. Rare; on exposed soil bank at the east edge of High Pond. (K. Puharich & S. Jenkins 12).

ACKNOWLEDGMENTS

I would like to send out my sincere gratitude to Dr. Charles B. Arzeni for his help in confirming my identifications. Also many thanks go to Dr. John E. Ebinger and Dr. Andrew S. Methven for reviewing this manuscript. This research was done originally as a thesis for partial fulfillment of a Master of Science Degree at Eastern Illinois University.

LITERATURE CITED

Brewer, R. and E.D. Triner. 1956. Vegetational features of some strip mined land in Perry County, Illinois. Trans. Ill. St. Acad. Sci. 48:73-84.

Chimney, M.J. 1984. First report of *Ricciocarpus natans* (L.) Corda (Marchantiales:Ricciaceae) from a strip mine impoundment. Trans. Ill. St. Acad. Sci. 77:43-44.

Conard, H.S. (revised by P.L. Redfearn, Jr.) 1979. How to know the mosses and liverworts. 2nd ed. Wm. C. Brown Co. Publ., Dubuque, Iowa. xi + 301 p.

Crum, H.A. 1983. Mosses of the Great Lakes forest. 3rd ed. University of Michigan, Ann Arbor. 417 pages.

Crum, H.A. and L.E. Anderson. 1981. Mosses of Eastern North America. 2 Vol. Columbia Univ. Press, New York. 1328 p.

Grant, F.R. and S.M. Hague. 1931. A list of mosses from Vermilion County, Illinois. Trans. Ill. St. Acad. Sci. 24(2):122-123.

Hague, S.M. and R.V. Drexler. 1938. Recent collections of Illinois liverworts. Trans. Ill. St. Acad. Sci. 31:113-114.

McCleary, J.A. and P.L. Redfearn, Jr. 1979. Checklist of the mosses of Illinois. Trans. Ill. St. Acad. Sci. 72(2)25-51.

Rastorfer, J.R. 1981. Comparison and distribution patterns of bryophytes at a reclaimed surface mine in Grundy County, Illinois, with a list of vascular plants. Argonne National Laboratory / Land Reclamation Program — 16, Argonne, Illinois. 75p.

Schwegman, J.E. 1973. Comprehensive plan for the Illinois Nature Preserves System. Part 2: The natural divisions of Illinois. Illinois Nature Preserves Commission, Springfield, IL. 32p.