

### Bryophytes of Kansas: Wilderness Park

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Wilderness Park is located at the north edge of Crawford County, Kansas in the NE1/4 of Section 7 of Range 25 East of Township 30 South. The park consists of 41 hectares and is bordered to the east by Cow Creek, the north by McKay Street, the west by a city sewage treatment lagoon, and to the south by private land. The park was established in 1999 for hiking, biking, and nature study.

The area, as well as much of southeast Kansas, was strip mined for coal in the early 1900s and abandoned in the early 1940s. The park has not been radically disturbed since this time. The pits are oriented in a north/south direction with very steep sides, some more than 10 meters of nearly vertical drop. Trails have been established both in low areas and along the tops of artificial ridges (The top soil layers taken off the pits and deposited next to them.) In addition to the strip mines that are found in the park, there are also some bottomland forest, a small low quality prairie, and riparian habitat.

After more than 50 years of essentially no disturbance, the plants that have revegetated the park consists of both a mixture of native and non-native species. The authors have collected more than 300 taxa of vascular plants from the park. A significant area of the park is covered by *Lonicera japonica* Thunb., *Symphoricarpos orbiculatus* Moench, and *Toxicodendron radicans* (L.) O. Ktze. The most common trees include *Quercus palustris* Muench., *Ulmus rubra* Muhl., *Celtis occidentalis* L., and *Cornus drummondii* C. A. Mey.

Few bryological studies have targeted strip mines. Sanford and Timme (1999) reported a total of 71 species of mosses in 43 genera and 22 families, and 8 species of liverworts in 5 genera and 5 families from six separate strip mines totaling 586 ha in Crawford and Cherokee counties. Carvey, et al. (1977) reported 28 species of mosses in 20 genera and 15 families from coal spoils in southern Iowa. Engelmann and Weak (1985) reported 17 species of mosses in 14 genera and 11 families, and 5 species of liverworts in 4 genera and 4 families from strip mined areas in Mingo County, West Virginia.

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The Wilderness Park study resulted in 24 species of mosses representing 19 genera and 15 families. The only liverwort represented in the park is *Frullania inflata* Gott. (Jubulaceae), a common species throughout Kansas. The most frequently encountered and "weedy" species of mosses include *Brachythecium oxycladon* (Brid.) Jaeg. & Sauerb., *Entodon seductrix* (Hedw.) C. Müll., *Plagiomnium cuspidatum* (Hedw.) T. Kop., *Atrichum angustatum* (Brid.) B. S. G., and *Weissia controversa* Hedw. *Rhizomnium punctatum* (Hedw.) T. Kop. is reported for the first time in Kansas. Redfearn (1983) indicates the species is common throughout the Interior Highlands.

The closest location in Missouri is Newton County (Redfearn 2001), approximately 50 km southeast of Wilderness Park. It was collected once within the park from a well decorticated log in bottomland woods. The collection of *Entodon cladorrhizans* (Hedw.) C. Müll. represents only a third locality for the species, having been reported from a single county in northwest Kansas and a single county in the east-central part of the state. Crawford County is only the seventh county from which *Leptobryum pyriforme* (B. S. G.) Wils. has been collected. This species is known from a few counties in northwest Kansas and a few counties in the central part of the state. No known records occur for southeast Kansas.

Below is a list of species arranged alphabetically by family, genus and species. An asterisk before a species name indicates a new Crawford County record. Following the species name is the collection number (All collections are of the first author [LAP]), followed by the species' frequency of encounter, based on collections and field observations, and their habitat within the park. Nomenclature follows Redfearn (2001) for the mosses and Schuster (1992) for the liverwort.

## MOSSES

### AMBLYSTEGIACEAE

<i>Amblystegium serpens</i> (Hedw.) B. S. G.	163	Infrequent on soil.
<i>A. tenax</i> (Hedw.) C. Jens.	153	Common on soil and rocks.
* <i>A. varium</i> (Hew.) Lindb.	148	Common on soil.
* <i>Campylium chrysophyllum</i> (Brid.) J. Lange	168	Frequent on soil.

### ANOMODONTACEAE

* <i>Anomodon minor</i> (Hedw.) Fuernr.	145	Infrequent tree bases.
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### BRACHYTHECIACEAE

<i>Brachythecium acuminatum</i> (Hedw.) Aust.	152	Infrequent base of trees.
<i>B. laetum</i> (Brid.) B. S. G.	155	Common on soil and logs.
<i>Steereclelus serrulatus</i> (Hedw.) Robins.	358	Frequent on soil.

## BRYACEAE

- |   |     |                                   |
|---|-----|-----------------------------------|
| <i>Bryum argenteum</i> Hedw.                      | 356 | Common disturbed soil.            |
| <i>B. pseudotriquetrum</i> (Hedw.) Gaertn. et al. | 165 | Common on soil.                   |
| * <i>Leptobryum pyriforme</i> (Hedw.) Wils.       | 142 | One collection from base of tree. |

## DICRANACEAE

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|---|-----|---------------------------------|
| <i>Dicranella heteromalla</i> (Hedw.) Schimp. | 157 | Infrequent on soil near stream. |
|---|-----|---------------------------------|

## DITRICHACEAE

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|---|-----|-----------------|
| <i>Ditrichum pallidum</i> (Hedw.) Hampe | 146 | Common on soil. |
|---|-----|-----------------|

## ENTODONTACEAE

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|---|-----|---|
| * <i>Entodon cladorrhizans</i> (Hedw.) C. Müll. | 357 | Single collection on tree trunk.            |
| <i>E. seductrix</i> (Hedw.) C. Müll             | 154 | Common soil, rocks, logs and base of trees. |

## FISSIDENTACEAE

- |                                   |     |                 |
|-----------------------------------|-----|-----------------|
| <i>Fissidens taxifolius</i> Hedw. | 158 | Common on soil. |
|-----------------------------------|-----|-----------------|

## HYPNACEAE

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|---|-----|--|
| <i>Homomallium adnatum</i> (Hedw.) Loeske | 159 | Infrequent on limestone and base of trees. |
|---|-----|--|

## LESKEACEAE

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|----------------------------------|-----|--------------------------------|
| <i>Leskea gracilescens</i> Hedw. | 167 | Common on trees and limestone. |
|----------------------------------|-----|--------------------------------|

## MNIACEAE

- |  |     |  |
|--|-----|--|
| <i>Plagiomnium cuspidatum</i> (Hedw.) T. Kop.  | 162 | Common on soil.                                |
| ** <i>Rhizomnium punctatum</i> (Hedw.) T. Kop. | 164 | Single collection on soil near pit with water. |

## ORTHOTRICHACEAE

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|------------------------------------|-----|------------------|
| <i>Orthotrichum pusillum</i> Mitt. | 353 | Common on trees. |
|------------------------------------|-----|------------------|

## POLYTRICHACEAE

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|--|-----|-----------------|
| <i>Atrichum angustatum</i> (Brid.) Bruch & Schimp. in B. S. G. | 160 | Common on soil. |
|--|-----|-----------------|

## POTTIACEAE

- |   |     |                                    |
|---|-----|------------------------------------|
| <i>Syntrichia pagorum</i> (Milde) Amann | 354 | Single collection from tree trunk. |
| <i>Weissia controversa</i> Hedw.        | 355 | Common on soil.                    |

Of the five species representing new county records, three are generally considered to be common in eastern Kansas. A review of the county dot maps in *A Synopsis of Kansas Mosses* (Churchill 1985) indicates a real lack of collecting in the state. The western half of the state is especially poorly collected. Continued studies are needed throughout Kansas to further understand the diversity and distribution of bryophytes in the state.

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