

BRIEF NOTE

Additions to the Flora of Cedar Bog, Champaign County, Ohio¹

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ABSTRACT. Surveys of vascular plants in Cedar Bog State Memorial were conducted from 1990 through 1992 as part of a larger ecological study by the Ohio Department of Natural Resources. Cedar Bog is a fen, or alkaline bog, containing unusual habitats conducive to the growth of numerous plant taxa considered rare in Ohio. Investigations of the flora of this area began in the late 19th century and have continued intermittently to the present, making Cedar Bog one of the most thoroughly studied natural areas in Ohio. Thirty-eight species new to Cedar Bog were discovered, as well as two species thought to have been extirpated from Cedar Bog.

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INTRODUCTION

Cedar Bog State Memorial, under the curatorship of the Ohio Historical Society, is a 172.8 ha preserve located in central Champaign County, OH. Unique in Ohio because of the presence of white cedar (*Thuja occidentalis*), this alkaline peatland, or fen, harbors a diverse flora. Several distinct plant communities occur within the preserve, including fen meadows, swamp forest shrub zones, open fields, and coniferous (white cedar) forest. Many rare plants occur here (Cusick 1989), and as of this writing 38 species listed as endangered, threatened, or potentially threatened (DNAP 1992) have been documented as extant (McCormac and Windus 1993).

Studies of the vegetation of Cedar Bog date to the mid-1800's, beginning with collections made by W. J. Biddlecombe, John Samples, B. Jane Spence, William S. Sullivant, and Milo G. Williams (Frederick 1974). The first list of plants in the Cedar Bog area was published in 1895 (Kellerman and Wilcox). It is impossible to determine whether these early specimens and reports came from within the boundaries of present-day Cedar Bog, as it was much larger when that report was made.

An exhaustive account of the flora of modern-day Cedar Bog was published in 1974 (Frederick), which listed 546 plant taxa. Surveys conducted in 1985 and 1986 by Allison W. Cusick of the Ohio Department of Natural Resources added several new plant species, and clarified many aspects of the flora of Cedar Bog.

This survey has had three main focuses: 1) to locate and document the presence of state-listed rare plants; 2) to determine any changes in plant communities; and 3) to identify and document plant taxa previously unreported from Cedar Bog. The first two objectives will be presented in a later, more comprehensive paper to be published after conclusion of fieldwork in 1994.

MATERIALS AND METHODS

From spring of 1990 through fall of 1992 nine trips were made to Cedar Bog for the purpose of collecting and surveying vegetation. Surveys of Cedar Bog were conducted by randomly sampling each habitat in different seasons. A special effort was made to visit the area at times when little previous fieldwork had apparently been conducted, such as

in April and November. Also, members of families not well represented in the literature of Cedar Bog were sought, particularly taxa in the Cyperaceae and Poaceae. Voucher specimens were made for all species included in this report, with the exception of *Sium suave*, which was not collected due to its rarity. These specimens have been deposited in the following herbaria: Kent State University (KE), Miami University (MU) Ohio State University (OS), and the University of Michigan (MICH) (Holmgren et al. 1990).

RESULTS AND DISCUSSION

Thirty-eight species of plants previously unreported from Cedar Bog have been located during this survey, in addition to two species considered by Frederick (1974) to be extirpated. These plants are listed below, with a brief description of habitat and abundance, disposition of specimen, and the author's collection number. Nomenclature follows Fernald (1950). (* Non-native species.)

- Botrychium dissectum* Spreng. (lace-frond grape-fern): Occasional and scattered in dry, open field (#4908, OS).
**Capsella bursa-pastoris* (L.) Medikus (shepherd's purse): Rare, a few plants on a fallen log by Cedar Run, and occasional along footpaths (#4603, OS).
Carex amphibola Steudel: Locally common in moist deciduous woods in vicinity of Cedar Run (#2369, MU).
Carex annectens (Bickn.) Bickn. var. *xanthocarpa* (Bickn.) Wieg. (yellow-fruited sedge): Rare and local in moist areas in field east of fen (#3599, MICH).
Carex blanda Dewey: Uncommon and scattered in field east of fen (#3600, MICH).
Carex convoluta Mack.: Common in wet deciduous woods (#2363, MU). Frederick (1974) lists *Carex rosea* Schk. as being "observed once." These species are easily confused and sometimes considered conspecific.
Carex cristatella Britton: Locally common in moist, low areas of field east of fen (#4056, MU).
Carex frankii Kunth: Occasional in moist, low areas of field east of fen (#4053, MU).
Carex granularis Muhl.: Occasional and scattered in mesic deciduous woods (#2366, MU).
Carex hirtifolia Mack.: Occasional and scattered in mesic deciduous woods (#2367, MU).
Carex hystericina Muhl.: Locally common in wet soil of shrub zones in and around fen meadows (#2361, MU).
Carex laevivaginata (Kuk) Mack.: Rare and local in wet depressions in deciduous woods along Cedar Run (#2355,

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MU).

Carex laxiculmis Schwein.: Fairly common but scattered throughout deciduous woods (#2370, MU).

Carex molesta Mack.: Rare and local in moist, low areas of field east of fen (#3597, MICH, MU).

Carex sparganioides Muhl.: Rare and scattered in mesic deciduous woods (#4620, OS).

Carex stricta Lam. (tussock sedge): Locally abundant in wet soil along edges of fen meadow (#2362, MU).

Carex suberecta (Olney) Britton (prairie straw sedge): Rare and local in moist, low areas of field east of fen (#3596, MU, OS).

Carex tetanica Schk.: Occasional and scattered throughout open fen meadow (#2358, MU).

Carex vulpinoidea Michx.: Fairly common in moist, low areas of field east of fen (#3598, MU).

Carex woodii Dewey: Listed as extirpated by Frederick (1974). Uncommon and local on hummocks in deciduous woods (#2117, MU, OS).

Cerastium arvense L. (field-chickweed): Locally common in drier, more open areas of deciduous woods (#4626, OS).

Conyza canadensis (L.) Cronq. (horseweed): Rare and local in fen meadow, on drier hummocks recently cleared of white cedar (#4945, OS).

Cyperus bipartitus Torr.: (*C. rivularis*): Listed as extirpated by Frederick (1974). Rare and local in wet organic soil of fen meadow, in an area recently heavily disturbed by foot traffic (#4956, OS).

Eleocharis elliptica Kunth (yellow-seeded spike-rush): Rare and local, one small colony in fen meadow (#4928, OS).

Eragrostis capillaris (L.) Nees. (lace-grass): Rare and local in fen meadow, on drier hummocks recently cleared of white cedar (#4939, OS).

**Festuca elatior* L. (tall fescue): Uncommon and local in drier, more open areas of deciduous woods (#3601, MU).

Festuca subverticillata (Pers.) E. Alexeev. (nodding fescue): Locally common in drier, more open areas of deciduous woods (#4611, MICH).

Fraxinus tomentosa Michx. f. (pumpkin ash): A minor component of the deciduous swamp woods. At least 15 large trees observed (#5051, KE, MU).

**Ipomoea hederacea* Jacq. (ivy-leaved morning-glory): Rare and local, sparingly established in fencerow along Township Road 91 (#3319, KE).

Leersia oryzoides (L.) Swartz (rice cut-grass): Occasional in damp, sunny openings in deciduous woods (#4054, MU).

Panicum lanuginosum Ell. var. *implicatum* (Scribn.) Fern. (panic-grass): Occasional and scattered on hummocks in white cedar woods (#4058, MICH).

**Poa pratensis* L. (Kentucky-bluegrass): Locally common in drier, more open areas of deciduous woods (#2356, MU).

**Poa trivialis* L. (rough bluegrass): Uncommon and local on hummocks in white cedar woods (#3602, MICH).

Scirpus cyperinus (L.) Kunth. (wool-grass): Locally common in moist, sunny openings in deciduous woods on western edge of preserve (#4048, MU).

Scirpus pendulus Muhl.: Locally common in moist, sunny openings in deciduous woods on western edge of preserve (#3595, MU).

**Setaria faberi* R. Herm. (nodding foxtail-grass): Rare and local in fen meadow, on drier hummocks recently cleared of white cedar (#4942, OS).

Sium suave Walter (water-parsnip): Rare and local, two plants seen in deciduous swamp woods along edge of

white cedar grove. No collection made because of its apparent rarity.

Solidago gigantea Aiton (smooth goldenrod): Fairly common in openings in moist shrub thickets along north side of Township Road 91 (#4023, MU).

Sphenopholis intermedia Rydb. (wedgrass): Occasional in drier, more open areas of the deciduous woods (#3603, MU).

**Stellaria media* (L.) Villars (common chickweed): Occasional in drier, more open areas of the deciduous woods (#4635, OS).

Several factors may account for these species being unreported from Cedar Bog, despite the fact it has been well botanized in the past. Most of these new species are sedges (Cyperaceae) or grasses (Poaceae), many of which are inconspicuous and easily overlooked in the field. Some plants, such as *Fraxinus tomentosa* (pumpkin ash) are large and conspicuous, but closely resemble other common species and thus go undetected. Other species may have been missed because they truly are very rare at Cedar Bog, examples being *Carex suberecta* and *Eleocharis elliptica*.

Recent environmental changes probably have enabled additional plant taxa to colonize Cedar Bog. The death and disappearance of mature *Ulmus americana* (American elm) trees have opened some areas of the canopy in the deciduous forest. The resultant increase in sunlight and subsequent drying of the forest floor has favored invasion by plants such as *Poa pratensis* and *Stellaria media*. Other non-native species, such as *Setaria faberi* have increased greatly throughout Ohio in recent years (Braun 1967), and are now showing up in Cedar Bog. Accidental stimulation of dormant seedbanks apparently caused at least one species to germinate and grow. *Cyperus bipartitus* was found in an area of the fen meadow where soil was heavily disturbed by foot traffic associated with clearing of white cedar as part of a newly implemented management program.

Even a well-studied area such as Cedar Bog still has undiscovered elements of flora. Future survey work at Cedar Bog should yield additional finds.

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