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Sphagnum Taxa and Their Distribution in Iowa

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Sphagnum was known previously from eight counties in Iowa based on documented specimens. Undocumented collections were also reported from Buchanan, Cedar, and Johnson Counties. We have added four new species (*S. compactum*, *S. fimbriatum*, *S. squarrosom*, and *S. warnstorffii*) and three

new varieties (*S. subsecundum* var. *subsecundum*, *S. recurvum* var. *amblyphyllum*, and *S. recurvum* var. *recurvum*) to the state flora, and four new stations in three counties (Black Hawk, Iowa, and Marion) where sphagnum was previously unknown. Sphagnum is presently represented in Iowa by documented collections of 13 taxa from 13 stations in 9 counties, mostly in the eastern third of the state.

INDEX DESCRIPTORS: Sphagnum; Bryophytes; Mosses.

The first published report of sphagnum from Iowa appears to have been by Macbride (1888), who mentioned an unidentified species from Johnson County from material provided by an unnamed collector. The same material, with additional collections, seems to have been the basis for the undergraduate thesis of Slotterbec (1888), who reported *S. capillaceum* from Johnson County. These first reports are not documented by herbarium specimens.

Since the late 19th century the number of stations and taxa have increased slowly, mostly from collections in the eastern third of the state. Drexler (1952) listed eight species from 11 stations in seven counties, although two irregularities exist in his paper. He described a station in Johnson County reported to him by Thorne in a personal communication, but he failed to list any species for that county. In contrast, he listed *S. palustre* from Buchanan County, but did not describe any station for it. Fay and Thorne (1953) later added a new station for this species, from a small sphagnum bog in Rochester township, Cedar County. Unfortunately, this station is not documented by any herbarium specimen that we could find.

Grant and Thorne (1955) described what is probably the largest sphagnum bog in Iowa, from Dead Man's Lake, Pilot Knob State Park, Hancock County. They emphasized that this station was over 160 km (100 miles) northwest of the nearest sphagnum location then known. They were somewhat vague concerning the *Sphagnum* species present in the bog because they believed that sterile specimens were difficult to identify with certainty. Four species were reported: *S. magellanicum*, *S. palustre*, *S. recurvum* var. *tenue*, and *S. teres*. They mentioned that additional material with the same collection numbers as that of *S. teres* had been "preliminarily determined" as *S. squarrosom* and *S. cuspidatum*, but added that "Checking of more material is necessary." Conard (1956), in his checklist of the bryophytes of Iowa, omitted the latter two names. Conard also listed, without explanation, "*S. centrale* (as *magellanicum*) 16," the number indicating Hancock County. He may have re-examined the material identified as *S. magellanicum* by Grant and Thorne, but we are not certain of this.

Conard's 1956 compilation is the most recent one. He listed 13 species of *Sphagnum* from eight counties. In the past few years, however, we have become aware of four additional stations in Iowa, three of them providing new county records. In addition, new collections from the Pilot Knob State Park sphagnum bog have verified that additional taxa occur there. Since *Sphagnum* is rare in

the state, it seemed desirable to publish this new information and at the same time re-assess the total known distribution of the genus in Iowa, including re-identification of all Iowa collections by the senior author.

OBSERVATIONS AND DISCUSSION

Four new stations

Sphagnum subsecundum Nees var. *subsecundum*. Black Hawk County (circled letter B in Figure 1). T9ON R14W S19. The plants occur on a sand prairie in a wet swale, among small patches of *Carex stricta*, *Onoclea sensibilis*, and *Thelypteris palustris*, and were collected by Glenn Crum, 30 June, 1974. This location was mentioned in an earlier paper (G. Crum, 1972), but *Sphagnum* was reported by genus only. This is the first time this species has been reported in Iowa.

Sphagnum compactum DC. Iowa County (circled letter E in Figure 1). T80N R9W S2. Moist clay seepage area on a north-facing slope adjacent to a secondary gravel road, at edge of hickory-maple woods. One small patch, about 30 cm in diameter, was found growing in the vicinity of *Polytrichum commune* and *Lycopodium* sp. Collected by Glenn Crum, Nels Lersten, and Jill Knapp, 15 April, 1974. This species is new to the Iowa flora and also the first sphagnum record for this county. We thank Dr. Lois Tiffany, Dept. of Botany and Plant Pathology, Iowa State University, for telling us of the existence of this station.

Sphagnum recurvum P. Beauv. var. *recurvum*. Marion County (circled letter J in Fig. 1). T76N R18W S23. Growing along wet margin of pool in an abandoned strip mine, Pella Mine Area, Pella, in patches on bare ground among scattered small sedges. Collected by Glenn Crum, Nels Lersten, and Jill Knapp, 15 April, 1974. This is the first sphagnum report from Marion County and a new species record for the state.

Sphagnum fimbriatum Wils. ex Hook. Marion County (circled letter K in Fig. 1). On soil, near lake, Wilcox area, an abandoned strip mine. Collected by D. R. Farrar, 27 July, 1974. This is the second collection from this county, and a new species record for Iowa.

Pilot Knob sphagnum bog

Re-examination of earlier collections and of the newer Peck material shows that this area has more *Sphagnum* taxa than thought previously. Table 1 lists *S. centrale*, *S. magellanicum*, *S. recurvum* var. *amblyphyllum*, *S. squarrosom*, *S. teres*, and *S. warnstorffii*, a total of six species. Further study of this unique area in Iowa is desirable.

Voucher specimens of all species reported on in Table 1 have

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A — County; Tier, Range, and Section; name of site

B — Collector(s)

C — Date of collection

D — Name given in the literature or on the packet

A	B	C	D
1. <i>Sphagnum capillifolium</i> var. <i>tenerum</i> (Sull.) Crum			
Clayton T95N R4W S34 Giard Station ¹	H. S. Conard	21Aug50	<i>S. tenerum</i>
T95N R4W S34	R. L. Hulbary	13Oct62	<i>S. capillaceum</i>
Linn T84N R8W S22	R. V. Drexler	6Nov49	<i>S. capillaceum</i>
2. <i>Sphagnum centrale</i> C. Jens			
Benton T R S	L. Reynolds	14Nov48	<i>S. palustre</i>
Hancock T97N R23W S4 Pilot Knob State Park	M. L. Grant	8July54	<i>S. magellanicum</i>
	Bro. Fabius	Aug55	<i>S. centrale</i>
	S. K. Smith	10June64	<i>S. centrale</i>
	C. and J. Peck 221	2Aug73	—
Linn T86N R6W S27 Coggon Pond	H. S. Conard	7Oct39	<i>S. palustre</i>
T86N R6W S27	Conard and Drexler	7Nov42	<i>S. centrale</i>
T86N R6W S27	Schnooberg	4Apr42	<i>S. magellanicum</i>
3. <i>Sphagnum compactum</i> D. C.			
Iowa T80N R9W S2	G. Crum, Lersten, and Knapp	15Apr74	<i>S. compactum</i>
4. <i>Sphagnum fimbriatum</i> Wils. ex Hook.			
Marion T74N R18W S5 Wilcox Wildlife Preserve	D. R. Farrar	27July74	<i>S. fimbriatum</i>
5. <i>Sphagnum magellanicum</i> Brid.			
Linn T86N R6W S27 Coggon Pond	H. S. Conard	17/19Oct48	<i>S. magellanicum</i>
Hancock T97N R23W S4 Pilot Knob State Park	C. and J. Peck	26July73	—
6. <i>Sphagnum palustre</i> L.			
Linn T86N R6W S27 Coggon Pond	H. S. Conard	7Oct39	<i>S. palustre</i>
T86N R6W S27	Conard and Drexler	7Nov42	<i>S. palustre</i>
T86N R6W S27	Conard, Hulbary, and Wiebe	3June48	<i>S. palustre</i>
7. <i>Sphagnum recurvum</i> var. <i>amblyphyllum</i> (Russ.) Warnst.			
Hancock T97N R23Q S4 Pilot Knob State Park	C. and J. Peck	2Aug73	—
8. <i>Sphagnum recurvum</i> P. Beauv. var. <i>recurvum</i>			
Marion T76N R18W S23 Pella Mine Area	G. Crum, Lersten, and Knapp	15Apr74	<i>S. recurvum</i>
9. <i>Sphagnum russowii</i> Warnst.			
Muscatine T R S One mile west of Lake View School No. 2.	H. S. Conard	12Sept40	<i>S. capillaceum</i>
Warren T R S One mile west of Ford	H. S. Conard	2Apr32	<i>S. girgensohnii</i> and <i>S. tenerum</i>
10. <i>Sphagnum squarrosum</i> Crome			

Hancock T97N R23W S4 Pilot Knob State Park	C. and J. Peck	July, Aug73	—
11. <i>Sphagnum subsecundum</i> Nees var. <i>subsecundum</i>			
Black Hawk T90N R14W S19 Sand Prairie	G. H. Crum	30June74	<i>S. subsecundum</i>
Linn T86N R6W S27 Coggon Bog	H. S. Conard	7Oct39	<i>S. rufescens</i>
T86N R6W S27 T R S	Conard, Hulbary, and Wiebe	3June48	<i>S. subsecundum</i>
Rock Island Railroad tracks north of Cedar Rapids	G. L. Smith	24May62	<i>S. subsecundum</i>
12. <i>Sphagnum teres</i> (Schimp.) Ångstr.			
Hancock T97N R23W S4 Pilot Knob State Park	Grant and Thorne	8July54	<i>S. squarrosom</i>
T97N R23W S4	Bro. Fabius	Aug55	<i>S. teres</i>
T97N R23W S4	R. L. Hulbary	6Aug62	<i>S. teres</i>
Linn T82N R8W S	R. V. Drexler	19Sept48	<i>S. teres</i>
Muscatine T R S	R. L. Thorne	27Sept52	<i>S. teres</i>
13. <i>Sphagnum warnstorffii</i> Russ.			
Hancock T97N R23W S4 Pilot Knob State Park	C. and J. Peck	2Aug73	—

¹The habitat may have been destroyed by road construction.

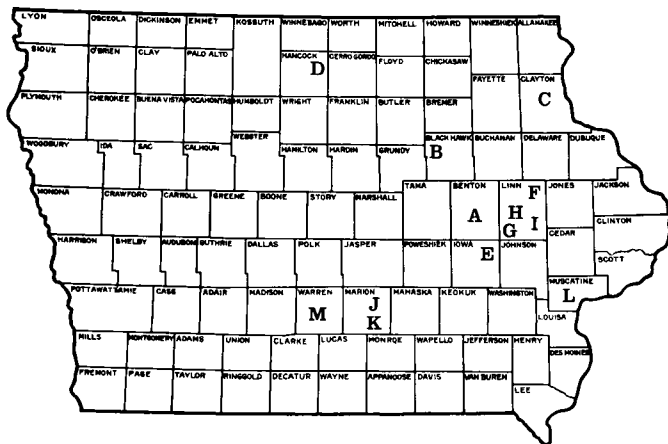


Figure 1. Distribution of *Sphagnum* in Iowa based on documented collections. Each letter represents one site, at which the following taxa have been collected:

- A. *S. centrale*
- B. *S. subsecundum* var. *subsecundum*
- C. *S. capillifolium* var. *tenerum*
- D. *S. centrale*, *S. magellanicum*, *S. recurvum* var. *amblyphyllum*, *S. squarrosom*, *S. teres*, *S. warnstorffii*
- E. *S. compactum*
- F. *S. centrale*, *S. magellanicum*, *S. palustre*, *S. subsecundum* var. *subsecundum*
- G. *S. capillifolium* var. *tenerum*
- H. *S. teres*

- I. *S. subsecundum* var. *subsecundum*
- J. *S. recurvum* var. *recurvum*
- K. *S. fimbriatum*
- L. *S. russowii*, *S. teres*
- M. *S. russowii*

been deposited in the University of Michigan Herbarium (UM) and the University of Iowa Herbarium. With the addition of these new taxa and stations, the known distribution of sphagnum, based on documented collections, is expanded to 13 taxa from 13 stations in 9 counties. This is summarized in Figure 1 and Table 1. In addition, there are undocumented reports of *Sphagnum* from Buchanan County (Drexler, 1952), Cedar County (Fay and Thorne, 1953), and Johnson County (Macbride, 1888; Slotterbec, 1888; Drexler, 1952). An unusual undocumented record is that of Vinje and Vinje (1955), who found fragments of an unidentified *Sphagnum* sp. on a gravity slide exposed at ground level at the Davenport airport (Scott County). The slide has since been lost and no attempt at identification was possible.

A glance at the distribution of sphagnum stations in Iowa shows that about two-thirds of them are in the Cedar River valley or along adjacent uplands. This concentration may indicate some favorable habitat factors in this area, which would be worth further study. On the other hand, it may simply reflect the accumulated activity of bryologists who were conveniently located near this river.

It seems quite likely that additional taxa and stations remain to be found. Old strip mine areas particularly should be examined thoroughly because their frequent ponds and favorable pH should provide good conditions for the expansion of the range of sphagnum in Iowa.

Because sphagnum is rare and scattered in the state, additional records are likely to result from chance collections. We would appreciate receiving these for identification to further our knowledge of the genus in Iowa. Please send any material to Dr. N. R. Lersten at Iowa State University.

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