

NOTES ON THE ALGAL FLORA OF ILLINOIS, III. ADDITIONS TO THE CHLOROPHYCEAE¹

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ABSTRACT

This paper lists several species of chlorophycean algae previously unreported or infrequently reported as occurring in Illinois. A total of 125 species and varieties are enumerated, of which 27 are new records for the State. Included are first records for species of the genera *Dunaliella*, *Chlorogonium*, *Platymonas*, *Pteromonas*, *Dysmorphococcus*, *Asterococcus*, *Stylosphaeridium*, *Elakatothrix*, *Geminella*, *Pseudendoclonium*, *Westella*, *Planktosphaerium*, *Eremosphaera*, and *Spirotaenia*.

INTRODUCTION

In the past ten years, papers by Dillard and Mohlenbrock (1962), Dillard *et al.* (1963), Mohlenbrock and Dillard (1963), Weik and Mohlenbrock (1963), Ricker *et al.* (1964), Wunderlin and Wunderlin (1968), and Stotler (1968) have added a number of taxa to the algal flora of Illinois as previously summarized by Britton (1944) and Tiffany and Britton (1952). Two of these papers (Dillard *et al.*, 1965, and Weik and Mohlenbrock, 1963) are the first two in the series of which this paper is III.

As a contribution to a continuing effort to expand knowledge of the algal flora of Illinois, the present report lists, in annotated form, the chlorophycean algae identified in collections made by the authors and students at Southern Illinois University, Carbondale. Included are reports for fourteen genera previously unrecorded from Illinois. Locations of collection sites referred to in the annotated list are given in a preliminary section.

COLLECTION LOCALES

- Country Club Lake—Jackson County Country Club, Rt. 13 west of Carbondale. Jackson County.
Desoto Sewage Lagoon—Sewage lagoon, Desoto, Rt. 51 north of Carbondale. Jackson County.
Horseshoe Lake—Alexander County.
IPC Reservoir—Illinois Power Company reservoir, Baldwin. Randolph County.
Jackson Ditch—Drainage ditch, 1 mile northeast of Ridgway. Gallatin County.
Jonesboro Pond—Roadside pond on Rt. 127, 1½ miles south of Jonesboro. Union County.
Kerr Stream—Stream, base of Kerr Bluff, 2½ miles northeast of Cobden. Union County.
Lake Harrisburg—Saline County.
Lake Murphysboro—Jackson County.
Lester Pond—Strip-mine pond, Rt. 37 north of Marion. Williamson County.
Little Grassy Lake—Williamson County.
Madison Pond—Roadside pond, 3 miles west of Colp. Williamson County.
Mermet Lake—Massac County.
Midland Inn Pond—Roadside pond north of the Midland Inn, old Rt. 13 between Carbondale and Murphysboro. Jackson County.
Otter Pond—LaRue-Pine Hills Ecological Area. Union County.
Poole Pond—Roadside pond on Rt. 13, 1 mile east of intersection of Rts. 13 and 142. Gallatin County.
Rt. 13 Ditch—Roadside ditch, Rt. 13, 5 miles west of Harrisburg. Saline County.
Sahara Lake—Lake on north side of Rt. 13, ½ mile west of Harco Road intersection. Saline County.
Saline Spring—"Old Spring", ¼ mile west of Rt. 1 bridge crossing of Saline River, 2½ miles southeast of Equality. Gallatin County.
SIU Campus Lake—Lake on the campus of Southern Illinois University, Carbondale. Jackson County.

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SIU Sheep Center Pond—Pond east of the Sheep Center, Southern Illinois University Farms, Carbondale. Jackson County.

Wildwood Sewage Lagoon—Sewage lagoon, Wildwood Trailer Park on Giant City Road. Jackson County.

ANNOTATED CHECKLIST

Nomenclature in this list follows that of Prescott (1962), Huber-Pestalozzi (1961), W. & G. S. West (1904-12), and W. & G. S. West and Carter (1923). Entries preceded by a double asterisk represent new generic reports for the State; those preceded by a single asterisk represent new reports of lesser rank. Others represent taxa infrequently reported as occurring in Illinois. In each citation, the county in which the collection was made is indicated in upper case.

CHLOROPHYCEAE

VOLVOCALES

- ***Dunaliella salina* (Dunal) Teodoresco. GALLATIN: Saline Spring. March, 1971.
 **Chlamydomonas angulosa* Dillwyn. JACKSON: Midland Inn Pond. May, 1971.
C. globosa Snow. JACKSON: Country Club Lake, March-May, 1967; SIU Campus Lake, May, 1968. MASSAC: Mermet Lake, April-May, 1968. WILLIAMSON: Lester Pond, May, 1968.
 **C. nasuta* Korshikov. JACKSON: Wildwood Sewage Lagoon, May, 1971.
 **C. pseudopertyi* Pascher. JACKSON: Wildwood Sewage Lagoon, May, 1971.
C. snowii Printz. MASSAC: Mermet Lake, April-May, 1971.
Carteria multifilis (Fresenius) Dillwyn. WILLIAMSON: Lester Pond, May, 1968.
 ***Chlorogonium elongatum* Dangeard. JACKSON: Wildwood Sewage Lagoon, May, 1971.
 ***Platymonas subcordiformis* (Wille) Hazen. GALLATIN: Saline Spring, March, 1971.
Phacotus lenticularis (Ehrenberg) Stein. JACKSON: Midland Inn Pond, May, 1971; SIU Sheep Center Pond, June, 1971.
 ***Pteromonas aculeata* Lemmermann. JACKSON: DeSoto Sewage Lagoon, May, 1971.
 ***Dysmorphococcus variabilis* Takeda. JACKSON: SIU Sheep Center Pond, June, 1971.
Gonium pectorale Mueller. MASSAC: Mermet Lake, April, 1968. WILLIAMSON: Lester Pond, May, 1968.
Pandorina morum Bory. JACKSON: Country Club Lake, May, 1967; SIU Sheep Center Pond, June, 1971; Midland Inn Pond, June, 1971.
Pleodorina californica Shaw. JACKSON: SIU Sheep Center Pond, June, 1971.
Volvox aureus Ehrenberg. JACKSON: SIU Sheep Center Pond, June, 1971.
V. globator Linnaeus. MASSAC: Mermet Lake, April, 1968.

TETRASPORALES

- Sphaerocystis schroeteri* Chodat. JACKSON: SIU Campus Lake, April-May, 1968. RAN-DOLPH: IPC Reservoir, June, 1971.
Gloeocystis ampla Kuetzing. JACKSON: Lake Murphysboro, April, 1969; Midland Inn Pond, May, 1971.
 ***Asterococcus superbus* (Cienkowski) Scherffel. WILLIAMSON: Little Grassy Lake, June, 1971.
Tetraspora gelatinosa (Vaucher) Desvaux. UNION: Otter Pond, May, 1971.
T. lubrica (Roth) Agardh. JACKSON: Lake Murphysboro, April, 1969. WILLIAMSON: Lester Pond, April, 1968.
Apiocystis braumiana Naegeli. UNION: Kerr Stream, April, 1971.
 ***Stylosphaeridium stipitatum* (Bachmann) Geitler & Gimesi. WILLIAMSON: Madison Pond, June, 1971.
 ***Elakatothrix viridis* (Snow) Printz. JACKSON: SIU Sheep Center Pond, June, 1971.

ULOTRICHALES

- ***Geminella minor* (Naegeli) Heering. JACKSON: SIU Sheep Center Pond, June, 1971.
 **Radiofilum conjunctivum* Schmidle. JACKSON: SIU Sheep Center Pond, June, 1971. WILLIAMSON: Madison Pond, June, 1971.

MICROSPORALES

- Microspora quadrata* Hazen. WILLIAMSON: Lester Pond, May, 1968.

CYLINDROCAPSALES

- **Cylindrocapsa conferta* West. GALLATIN: Poole Pond, May, 1971. JACKSON: SIU Sheep Center Pond, June, 1971.

CHAETOPHORALES

- Chaetophora incrassata* (Hudson) Hazen. ALEXANDER: Horseshoe Lake, May, 1971.

- Aphanochaete repens* Braun. JACKSON: Lake Murphysboro, April, 1969; SIU Campus Lake, May, 1971. RANDOLPH: IPC Reservoir, June, 1971. WILLIAMSON: Lester Pond, May, 1968; Little Grassy Lake, June, 1971.
- Coleochaete irregularis* Pringsheim. RANDOLPH: IPC Reservoir, June, 1971.
- C. orbicularis* Pringsheim. JACKSON: SIU Campus Lake, May, 1971; Lake Murphysboro, May, 1971.
- C. scutata* Brebisson. JACKSON: SIU Sheep Center Pond, June, 1971. WILLIAMSON: Madison Pond, June, 1971.
- Chaetosphaeridium globosum* (Nordstedt) Klebahn. JACKSON: SIU Sheep Center Pond, June, 1971.
- ***Pseudendoclonium basiliense* Vischer. JACKSON: SIU Sheep Center Pond, June, 1971.

CLADOPHORALES

- Cladophora glomerata* (Linnaeus) Kuetzing. JACKSON: SIU Campus Lake, April-May, 1968. WILLIAMSON: Lester Pond, May, 1968.
- Rhizoclonium hieroglyphicum* (Agardh) Kuetzing. JACKSON: Midland Inn Pond, May, 1971; Lake Murphysboro, June, 1971.

CHLOROCOCCALES

- Chlorococcum humicola* (Naegeli) Rabenhorst. JACKSON: SIU Sheep Center Pond, June, 1971.
- Golenkinia radiata* Chodat. JACKSON: SIU Campus Lake, May, 1971; DeSoto Sewage Lagoon, May, 1971. RANDOLPH: IPC Reservoir, June, 1971. UNION: Otter Pond, May, 1971; Jonesboro Pond, May, 1971.
- Characium pringsheimii* Braun. JACKSON: Midland Inn Pond, May, 1971.
- Pediastrum boryanum* (Turpin) Meneghini. JACKSON: Lake Murphysboro, April, 1969. UNION: Otter Pond, May, 1971.
- P. duplex* Meyen. JACKSON: SIU Sheep Center Pond, June, 1971; Lake Murphysboro, May, 1971.
- **P. obtusum* Lucks. JACKSON: Lake Murphysboro, May, 1971.
- P. simplex* (Meyen) Lemmermann. JACKSON: SIU Campus Lake, May, 1968; SIU Sheep Center Pond, June, 1971. RANDOLPH: IPC Reservoir, June, 1971.
- P. tetras* (Ehrenberg) Ralfs. JACKSON: SIU Campus Lake, May, 1968; Lake Murphysboro, May, 1971. RANDOLPH: IPC Reservoir, June, 1971.
- Sorastrum spinulosum* Naegeli. RANDOLPH: IPC Reservoir, June, 1971.
- Coelastrum microporum* Naegeli. JACKSON: Midland Inn Pond, May, 1971.
- C. reticulatum* (Dangeard) Senn. JACKSON: Lake Murphysboro, April, 1969.
- C. sphaericum* Naegeli. WILLIAMSON: Lester Pond, May, 1968.
- Botryococcus braunii* Kuetzing. JACKSON: SIU Sheep Center Pond, June, 1971. WILLIAMSON: Madison Pond, May, 1971.
- ***Westella botryoides* (West) Wildemann. SALINE: Lake Harrisburg, June, 1971. WILLIAMSON: Madison Pond, May, 1971.
- Dictyosphaerium ehrenbergianum* Naegeli. RANDOLPH: IPC Reservoir, June, 1971. UNION: Jonesboro Pond, May, 1971.
- **D. planctonicum* Tiffany & Ahlstrom. WILLIAMSON: Madison Pond, June, 1971.
- ***Planktosphaeria gelatinosa* G. M. Smith. RANDOLPH: IPC Reservoir, June, 1971. WILLIAMSON: Madison Pond, June, 1971.
- ***Eremosphaera viridis* DeBary. JACKSON: SIU Sheep Center Pond, May, 1971.
- Treubaria crassispina* G. M. Smith. JACKSON: SIU Campus Lake, May, 1968.
- Oocystis crassa* Wittrock. JACKSON: Midland Inn Pond, May, 1971. UNION: Otter Pond, May, 1971.
- O. solitaria* Wittrock. ALEXANDER: Horseshoe Lake, May, 1971.
- Gloeoetaenium loitlesbergerianum* Hansgirg. JACKSON: SIU Sheep Center Pond, June, 1971.
- Dimorphococcus lunatus* Braun. JACKSON: SIU Sheep Center Pond, June, 1971.
- Ankistrodesmus falcatus* (Corda) Ralfs. JACKSON: SIU Sheep Center Pond, June, 1971.
- Closteriopsis longissima* Lemmermann. JACKSON: SIU Campus Lake, May, 1968; SIU Sheep Center Pond, June, 1971.
- Selenastrum bibracianum* Reinsch. UNION: Otter Pond, May, 1971. WILLIAMSON: Lester Pond, May, 1968.
- **S. westii* G. M. Smith. ALEXANDER: Horseshoe Lake, May, 1971.
- **Tetraedron caudatum* (Corda) Hansgirg. ALEXANDER: Horseshoe Lake, May, 1971.
- T. limneticum* Borge. JACKSON: SIU Sheep Center Pond, May, 1971.
- T. minimum* (Braun) Hansgirg. JACKSON: SIU Sheep Center Pond, June, 1971.
- T. multicum* (Braun) Hansgirg. JACKSON: SIU Sheep Center Pond, June, 1971.
- T. regulare* Kuetzing. ALEXANDER: Horseshoe Lake, May, 1971. RANDOLPH: IPC Reservoir, June, 1971.
- Scenedesmus abundans* (Kirchner) Chodat. ALEXANDER: Horseshoe Lake, May, 1971. WILLIAMSON: Lester Pond, May, 1968.

- S. acuminatus* (Lagerheim) Chodat. UNION: Jonesboro Pond, May, 1971. WILLIAMSON: Lester Pond, May, 1968.
- S. bijuga* (Turpin) Lagerheim. JACKSON: Lake Murphysboro, May, 1968; Midland Inn Pond, May, 1971. UNION: Otter Pond, May, 1971.
- S. denticulatus* Lagerheim. ALEXANDER: Horseshoe Lake, May, 1971.
- S. obliquus* (Turpin) Kuetzing. WILLIAMSON: Lester Pond, May, 1968.
- S. opoliensis* Richter. ALEXANDER: Horseshoe Lake, May, 1971. JACKSON: Lake Murphysboro, April, 1969. UNION: Otter Pond, May, 1971. WILLIAMSON: Lester Pond, May, 1968.
- S. quadricaudus* (Turpin) Brebisson. JACKSON: Lake Murphysboro, April, 1969. UNION: Otter Pond, May, 1971.
- Actinastrum hantzschii* Lagerheim var. *fluvatile* Schroeder. JACKSON: Wildwood Sewage Lagoon, May, 1971. UNION: Jonesboro Pond, May, 1971.
- Crucigenia reclangularis* (Naegeli) Gay. JACKSON: SIU Sheep Center Pond, May, 1971.
- Micractinium pusillum* Fresenius. JACKSON: DeSoto Sewage Lagoon, May, 1971; Wildwood Sewage Lagoon, May, 1971. UNION: Jonesboro Pond, May, 1971. WILLIAMSON: Lester Pond, May, 1968.

ZYGNEATALES

- Spirogyra ellipsospora* Transeau. UNION: Otter Pond, May, 1971.
- **S. semiornata* Jao. JACKSON: SIU Campus Lake, May, 1971.
- Zygnema insigne* (Hassall) Kuetzing. GALLATIN: Jackson Ditch, May, 1971.
- Z. pectinatum* (Vaucher) Agardh. UNION: Otter Pond, May, 1971.
- Gonatozygon brebissonii* DeBary. JACKSON: SIU Campus Lake, May, 1968.
- Netrium digitus* (Ehrenberg) Itzigsohn & Rothe. JACKSON: SIU Campus Lake, April, 1970.
- ***Spirotaenia condensata* Brebisson. WILLIAMSON: Madison Pond, May, 1971.
- Closterium acerosum* (Schränk) Ehrenberg. MASSAC: Mermet Lake, May, 1968. SALINE: Rt. 13 Ditch, May, 1971. UNION: Otter Pond, May, 1971.
- C. diana* Ehrenberg. UNION: Jonesboro Pond, May, 1971.
- C. didymotocum* Corda. JACKSON: Country Club Lake, May, 1968.
- C. gracile* Brebisson. JACKSON: SIU Campus Lake, May, 1968. RANDOLPH: IPC Reservoir, June, 1971.
- C. juncidum* Ralfs. JACKSON: SIU Campus Lake, May, 1970.
- C. lanceolatum* Kuetzing. JACKSON: Country Club Lake, March-May, 1968. WILLIAMSON: Lester Pond, May, 1968.
- C. leibleinii* Kuetzing. JACKSON: Lake Murphysboro, April, 1969; Midland Inn Pond, May, 1971. WILLIAMSON: Lester Pond, May, 1968.
- C. moniliferum* (Bory) Ehrenberg. JACKSON: SIU Campus Lake, May, 1968. MASSAC: Mermet Lake, May, 1968.
- C. rostratum* Ehrenberg. JACKSON: Country Club Lake, March-May, 1967.
- C. venus* Kuetzing. JACKSON: SIU Campus Lake, May, 1968; Lake Murphysboro, May, 1970. RANDOLPH: IPC Reservoir, June, 1971.
- Penium margaritaceum* (Ehrenberg) Brebisson. JACKSON: Lake Murphysboro, May, 1968.
- Pleurotaenium trabecula* (Ehrenberg) Naegeli. JACKSON: Country Club Lake, March, 1967. UNION: Otter Pond, May, 1971. WILLIAMSON: Little Grassy Lake, June, 1971.
- **Euastrum insulare* (Wittrock) Roy. JACKSON: Midland Inn Pond, May, 1971.
- Cosmarium botrytis* Meneghini. ALEXANDER: Horseshoe Lake, May, 1971. JACKSON: Lake Murphysboro, June, 1971.
- C. circulare* Reinsch. JACKSON: Midland Inn Pond, June, 1971. UNION: Otter Pond, May, 1971.
- C. granatum* Brebisson. JACKSON: Lake Murphysboro, May, 1971. RANDOLPH: IPC Reservoir, June, 1971.
- C. nitidulum* DeNotaris. SALINE: Rt. 13 Ditch, May, 1971. UNION: Jonesboro Pond, May, 1971.
- C. porrectum* Nordstedt. JACKSON: Midland Inn Pond, May, 1971. UNION: Otter Pond, May, 1971.
- C. punctulatum* Brebisson. JACKSON: Midland Inn Pond, June, 1971. UNION: Otter Pond, May, 1971.
- C. rectangulare* Grunow. JACKSON: Lake Murphysboro, May, 1968. SALINE: Rt. 13 Ditch, May, 1971.
- C. sexangulare* Lundell. UNION: Otter Pond, May, 1971.
- C. triplicatum* Wölle. JACKSON: Lake Murphysboro, May, 1968.
- **Cosmocladium pusillum* Hilsen. SALINE: Sahara Lake, July, 1971.
- Micrasterias americana* (Ehrenberg) Ralfs. JACKSON: Lake Murphysboro, April, 1969.
- M. apiculata* (Ehrenberg) Meneghini. JACKSON: Midland Inn Pond, May, 1971.
- M. radiata* Hassall. JACKSON: SIU Campus Lake, June, 1971. SALINE: Sahara Lake, July, 1971.

- M. truncata* (Corda) Brebisson. JACKSON: Lake Murphysboro, May, 1968; Midland Inn Pond, June, 1971. SALINE: Sahara Lake, July, 1971.
- Staurastrum alternans* Brebisson. UNION: Otter Pond, May, 1971. WILLIAMSON: Lester Pond, May, 1971.
- S. gracile* Ralfs. UNION: Otter Pond, May, 1971. RANDOLPH: IPC Reservoir, June, 1971.
- S. hexacerum* (Ehrenberg) Wittrock. JACKSON: Midland Inn Pond, June, 1971.
- S. margaritaceum* (Ehrenberg) Meneghini. JACKSON: Midland Inn Pond, May, 1971. UNION: Jonesboro Pond, May, 1971.
- **S. orbiculare* Ralfs. ALEXANDER: Horseshoe Lake, May, 1971.
- S. punctulatum* Brebisson. JACKSON: Midland Inn Pond, May, 1971. RANDOLPH: IPC Reservoir, June, 1971. SALINE: Rt. 13 Ditch, June, 1971.
- Arthrodesmus convergens* Ehrenberg. UNION: Otter Pond, May, 1971. WILLIAMSON: Madison Pond, June, 1971.
- Hyalothecha mucosa* (Mertens) Ehrenberg. UNION: Otter Pond, May, 1971.
- Desmidiium aptogonum* Brebisson. JACKSON: Lake Murphysboro, May, 1971.
- D. grevillei* DeBary. ALEXANDER: Horseshoe Lake, May, 1971.
- D. swartzii* Agardh. JACKSON: Lake Murphysboro, May, 1971.

LITERATURE CITED

- Britton, M. E. 1944. A catalog of Illinois algae. Northwestern University Studies Biol. Sci. Med. 2. 177 p. Evanston, Illinois.
- Dillard, G. E., and R. H. Mohlenbrock. 1962. The Desmidiaceae of Madison Pond, Williamson County, Illinois. Amer. Midl. Nat. 67: 204-207.
- Dillard, G. E., K. L. Weik, and R. H. Mohlenbrock. 1963. Notes on the algal flora of Illinois, I. Amer. Midl. Nat. 69: 127-135.
- Huber-Pestalozzi, G. 1961. Das Phytoplankton des Süsswassers, Teil V: Chlorophyceae—Volvocales. Schweizerbart'sche, Stuttgart, Germany. 744 p.
- Mohlenbrock, R. H., and G. E. Dillard. 1963. A revision of the genus *Peroniella* (Chrysophyta). Trans. Amer. Microsc. Soc. 82: 329-335.
- Prescott, G. W. 1962. Algae of the western Great Lakes area. Wm. C. Brown, Dubuque, Iowa. 977 p.
- Ricker, J. G., A. K. Mester, and K. L. Weik. 1964. Notes on the algal flora of Knox County, Illinois. Trans. Illinois Acad. Sci. 57: 177-179.
- Stotler, R. E. 1968. The Characeae of Illinois. Amer. Midl. Nat. 79: 225-239.
- Tiffany, L. H., and M. E. Britton. 1952. The algae of Illinois. University of Chicago Press. 407 p.
- Weik, K. L., and R. H. Mohlenbrock. 1963. Notes on the algal flora of Illinois, II. The genus *Trachelomonas* Ehrenberg of the Pine Hills, Union County, Illinois. Trans. Amer. Microsc. Soc. 82: 381-390.
- West, W., and G. S. West. 1904. A monograph of the British Desmidiaceae. Volume I. The Ray Society, London. 224 p.
- 1905. A monograph of the British Desmidiaceae. Volume II. The Ray Society, London. 204 p.
- 1908. A monograph of the British Desmidiaceae. Volume III. The Ray Society, London. 274 p.
- 1912. A monograph of the British Desmidiaceae. Volume IV. The Ray Society, London. 191 p.
- West, W., G. S. West, and N. Carter. 1923. A monograph of the British Desmidiaceae. Volume V. The Ray Society, London. 300 p.
- Wunderlin, T. F., and R. P. Wunderlin. 1968. A preliminary survey of the algal flora of Horseshoe Lake, Alexander County, Illinois. Amer. Midl. Nat. 79: 534-539.