

## A SURVEY OF ILLINOIS GASTEROMYCETES

Alan D. Parker  
University of Illinois  
Urbana, Illinois

Abstract: A survey of the occurrence of Illinois gasteromycetes was made, using both previous literature and recent collections. A total of 59 species occur in the state, 54 of which are recorded in the literature. Recent collections of 25 species are included, 5 of which are new records for Illinois.

### INTRODUCTION

From a survey of the available literature, knowledge of the occurrence of gasteromycete fungi in Illinois appears to be limited and incomplete. This study was undertaken to bring together previously published records of Illinois gasteromycetes, and to report recent collections of several species which appear to be rarely recorded in Illinois or in the northeastern United States. Recent collections of several common species have also been included. The following list should provide some indication of the diversity in the gasteromycete flora of Illinois.

### LITERATURE ON ILLINOIS GASTEROMYCETES

The only work dealing specifically with Illinois gasteromycetes is Moffatt's (1923) paper on the gasteromycetes of the Chicago region, in which 39 species are given. Moffatt followed the classification of Lloyd. He did not restrict his collecting to Illinois, and in a few instances it is impossible to determine the geographic locations of collections because no specific areas were cited. Four other treatments of Illinois fungi contain records of gasteromycetes. Johnson (1952) listed four species from west-central counties, McDougall (1917, 1922) briefly mentioned five species in his papers dealing with Illinois mushrooms, and the Illinois Foray of the Mycological Society of America (Cooke, 1969) provided collection records of 11 gasteromycetes.

References to Illinois gasteromycetes can also be found in several works encompassing larger geographic areas. Morgan (1885, 1892) treated Bovistella radicata (Mont.) Pat. and Geastrum striatum DC. from the state, while Coker and Couch (1928) examined and cited 11 species collected in Illinois by McDougall. In his monographs of various gasteromycete genera and families, Lloyd (1902a, 1902b, 1903, 1905, 1906a, 1906b, 1906c) referred to 16 Illinois species. There are undoubtedly other Illinois reports scattered in Lloyd's letters; these, however, were not examined. In more recent monographs, Guzman (1970) examined 6 Illinois Scleroderma species in his study of that genus, Ponce de Leon (1972), in his treatment of Vascellum, cited 2 species from Illinois, and Kreisel (1967) referred to Bovista plumbea Pers. from the state. Graham (1944) and Johnson (1929) referred to Illinois in their distribution data on several gasteromycetes; it appears, however, that they obtained their information indirectly through other references. For this reason their papers have not been used. Most authorities who have cited Illinois gasteromycetes indicated where the herbarium material of each exists. These specimens have not been examined in preparing this paper.

#### SPECIES LIST

All of the species referred to above are contained in the following list, along with the authors reporting them. Authors have been abbreviated as follows: Coker and Couch-(CC), Cooke-(C), Guzman-(G), Johnson-(J), Kreisel-(K), Lloyd-(L), McDougall-(MD), Moffatt-(M), Morgan-(MO), and Ponce de Leon-(P). When more than one work by an author is cited, the date of the specific article follows the abbreviation. Classification of taxa above species follows that of Zeller (1949), while Kambly and Lee (1936) and Smith (1951) were used for species nomenclature in most cases. Guzman (1970) was followed for Scleroderma, and Ponce de Leon (1968) for Geastrum. Where confusion may arise concerning names employed by previous authors reporting Illinois species, synonyms have been included. Collection data are given for species reported only in this paper, and material of most has been deposited in the University of Illinois Herbarium. Species preceded by an asterisk are thought to be reported for the first time from Illinois.

#### Phallales

##### Phallaceae

Dictyophora duplicata (Bosc) E. Fisch. - (M).

Mutinus caninus (Pers.) Fr. - (M), (C).

Mutinus elegans (Mont.) E. Fisch. - (J). Champaign,  
Champaign Co., 19 Sept. 1975, Cox.

Phallus impudicus Pers. - (M), (MD, 1922), (CC). Cham-  
paign Co., 11 Nov. 1972, Parker.

#### Clathraceae

\*Simblum sphaerocephalum Schlect. - Urbana, Champaign Co.,  
9 Oct. 1973, Parker.

#### Lycoperdales

##### Arachniaceae

\*Arachnion album Schw. - University of Illinois campus,  
Champaign Co., 12 Aug. 1972, Cox; 22 Aug. 1975,  
Anderson and Parker. Lake Sara, Effingham Co., 1 Sept.  
1975, Parker.

##### Lycoperdaceae

Bovista pila Berk. and Curt. - (M).

Bovista plumbea Pers. - (M), (L, 1902b), (K). Cham-  
paign Co., 5 Apr. 1975, Parker.

Bovistella radicata (Mont.) Pat. - (M), (MD, 1892).

Calvatia bovista (L.) Macbride - (M). From Moffatt's  
description, it appears that he is referring to the  
synonymous Calvatia gigantea (Pers.) Lloyd.

Calvatia craniiformis (Schw.) Fr. - (M), (CC). Lake  
Sara, Effingham Co., 15 Oct. 1972, Parker. Garden  
of the Gods, Hardin Co., 14 Oct. 1972, Parker. Coles  
Co., 21 Mar. 1970, Parker.

Calvatia cyathiformis (Bosc) Morg. - (M), (MD, 1917),  
(C). Kickapoo State Park, Vermilion Co., 3 Oct. 1971,  
Parker. Champaign, Champaign Co., 5 Sept. 1975,  
Parker.

Calvatia fragilis (Vitt.) Morg. - (CC).

Calvatia gigantea (Pers.) Lloyd - (MD, 1917).

Calvatia rubo-flava (Cragin) Morg. - (M), (J), (CC).  
Fox Ridge State Park, Coles Co., 15 Aug. 1967, Parker.

Calvatia saccata (Fr.) Lloyd - (M).

Lycoperdon atropurpureum Vitt. - (L, 1905).

Lycoperdon cepaeforme Bull. - (M), (L, 1905).

Lycoperdon curtisii Berk. (= Vascellum curtisii (Berk.) Kreisel) - (P, 1970), (M), (L, 1905), (J). Champaign, Champaign Co., 8 Sept. 1975, Parker. Douglas Co., 19 Oct. 1971, Parker.

Lycoperdon fuscum Bonorden - (L, 1905).

Lycoperdon marginatum Vitt. - (M), (L, 1905). Kickapoo State Park, Vermilion Co., 3 Oct. 1971, Parker. Kennebec County Park, Vermilion Co., 14 June 1975, Parker. Allerton Park, Piatt Co., 22 July 1975, Parker. My specimens of this species may be assignable to Vascellum cruciatum (Rostk.) P. Ponce.

Lycoperdon molle Pers. - (M).

Lycoperdon oblongisporum Berk. and Curt. - (C).

Lycoperdon pedicellatum Pk. - Lloyd (1906a) reported this species under the name Bovistella pedicellata (Pk.) Lloyd.

Lycoperdon perlatum Pers. - (M), (MD, 1922), (L, 1905), (C), (CC).

Lycoperdon pulcherrimum Berk. and Curt. - (M), (L, 1905), (CC).

Lycoperdon pusillum Pers. - (M).

Lycoperdon pyriforme Pers. - (M), (L, 1905), (CC).

Lycoperdon rimulatum Peck ex Trelease - (J).

Lycoperdon turneri E. and E. - (L, 1905).

Lycoperdon umbrinum Pers. - (L, 1905), (C).

Vascellum cruciatum (Rostk.) P. Ponce - (P, 1970).

\*Disciseda candida (Schw.) Lloyd - University of Illinois campus Champaign Co., 15 Aug. 1972, Cox. Lake Sara, Effingham Co., 1 Sept. 1975, Parker. It is of interest to note that both times this fungus was collected, Arachnion album Schw. was growing nearby. Morgan reported this observation in 1892.

#### Mycenastraceae

Mycenastrum corium (Guers.) Desv. - (M), (L, 1902b).  
Mattoon, Coles Co., 20 Oct. 1969, Lackey, Eastern  
Illinois University Herbarium.

Geastraceae

Geastrum coronatum Pers. (= Geaster limbatus Fr.) - (M).

Geastrum floriforme (Vitt.) Cunn. (= Geaster delicatus  
Morg.) - (M).

Geastrum indicum (Klotz.) Rauschert (= Geaster triplex  
Jungh.) - (M), (CC).

Geastrum pectinatum Pers. (= Geastrum striatum DC.,  
Geastrum schmidelii Vitt.) - (MO, 1885), (M).

Geastrum rufescens Pers. - (M).

Geastrum saccatum (Fr.) Fischer - (M), (L, 1902a).

Sclerodermatales

Sclerodermataceae

Scleroderma areolatum Ehrenb. - (G). Fox Ridge State  
Park, Coles Co., 24 Aug., 1971, Parker. Allerton Park,  
Piatt Co., 22 July, 1975, Parker. Lake of the Woods,  
Champaign Co., 12 Aug., 1975, Parker.

Scleroderma cepa Pers. (= Scleroderma flavidum E. and E.)-  
(M), (G).

Scleroderma citrinum Pers. (= Scleroderma aurantium  
Pers.) - (M), (C), (G). Kickapoo State Park, Vermil-  
ion Co., 17 July, 1975, Parker. This large collection  
of over 75 basidiocarps was found growing in soil be-  
neath several trees of Quercus imbricaria Michx. Ma-  
ture specimens of Boletus parasiticus (Bull.) Fr. were  
found parasitizing four of the fructifications.

Scleroderma michiganense (Guzman) Guzman - (G).

Scleroderma polyrhizum Pers. (= Scleroderma geaster Fr.) -  
(G). Champaign, Champaign Co., 21 Oct. 1974, Parker.  
Red Hill State Park, Lawrence Co., 26 Feb. 1971, Parker.

Scleroderma verrucosum Pers. (= Scleroderma tenerum B. and  
C.) - (M), (G), (C).

Pisolithaceae

\*Pisolithus tinctorius (Pers.) Coker and Couch - Effingham Co., Sept. 1970, Cox. Kickapoo State Park, Vermilion Co., 3 Sept. 1972, Schanzle. Allerton Park, Piatt Co., 22 Sept. 1974, Parker. Coles Co., 29 June 1969, Mertz, Eastern Illinois University Herbarium. The time of basidiocarp appearance for the Effingham collection may be worth noting. A woods of primarily Quercus spp. was cleared and plowed in the spring of 1970, and fructifications of P. tinctorius appeared in furrows of that field the following September. It could be speculated that the disturbance of the woodland habitat stimulated the fruiting of this species.

#### Astraeaceae

Astraeus hygrometricus (Pers.) Morg. - (M), (L, 1902a). Wilkerson Farm Sand Prairie, Mason Co., 5 Aug. 1972, Parker. Occurs in great abundance at this location.

#### Tulostomataceae

Tulostoma campestre Morg. - (M), (L, 1906b). Dee's gravel pits, Lawrence Co., June 1967, Dec. 1971, 4 Sept. 1972, Parker. Refer to discussion below under T. simulans Lloyd.

Tulostoma mammosum Fr. var. - (M). According to Moffatt, he submitted specimens of this plant to Lloyd, and Lloyd replied that it did not have a name at that time. Lloyd (1906b) apparently later named the fungus Tulostoma simulans Lloyd, but did not refer to Moffatt's collection. However, he did state on page 27 that 2 unnamed collections from Moffatt were in his herbarium.

Tulostoma poculatum White - (M).

Tulostoma simulans Lloyd - Kennebec County Park, Vermilion Co., 1 Mar. 1975, Anderson and Parker. Dee's gravel pits, Lawrence Co., June 1967, Dec. 1971, 4 Sept. 1972, Parker. This species and T. campestre occur in large mixed populations at the Lawrence Co. site. The 1967 collection of more than 200 specimens was composed of approximately 80% T. simulans, while the 1971 collection (over 400 fruiting bodies) was approximately 40% T. simulans, and the 1972 collection (over 200 fruiting bodies) was about 30% T. simulans.

Tulostoma tuberculatum White - (L, 1906b).

Tulostoma verrucosum Morg. - (M).

Nidulariales

Nidulariaceae

\*Nidularia pulvinata (Schw.) Fr. - 4 July 1967, Lawrence Co., Parker.

Cyathus olla Pers. - (M).

Cyathus stercoreus (Schw.) de Toni - (M), (CC). 21 May 1971, Edgar Co., Parker. Developed on horse manure.

Cyathus striatus Pers. - (M), (C). Coles Co., 25 July 1967, Parker. Lawrence Co., 13 Aug. 1967, Parker. Allerton Park, Piatt Co., 5 Sept. 1972, Parker.

Crucibulum leve (DC.) Kambly - (L, 1906c), (M), (C), (CC). Lawrence Co., 19 Aug. 1967, Parker. Allerton Park, Piatt Co., 22 July 1975, Parker.

Podaxales

Secotiaceae

Secotium agaricoides (Czern.) Holl6s (= Endoptychum agaricoides Czern.) - (MD), (M), (L, 1903).

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