

ECOLOGY OF ASCOMYCETES OF THE CHICAGO REGION

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ABSTRACT

In so diversified an area as the Chicago region where widely varying physical factors are operating, much of ecological interest may be found. It is doubtful whether fungi play a major role in the dynamic changes which constantly occur, yet the slight soil changes caused by fungi may be of great importance in opening the way for other forces to operate. Fairy rings of the commercial mushroom (*Pasolliota campestris*) often circumscribe a brown grassy area in a field of very green grass, especially on golf courses. It is also true that leaf mold in the forest is often bound together by a network of mycelium, the enzymatic action of which is rapidly transforming such vegetable compounds into others of simpler chemical composition. In turn this new material penetrates more readily into the soil and forms a food medium for multitudinous species of soil organisms.

The occurrence of Pezizaceae, Morchellaceae, and Helvellaceae is of considerable interest from the standpoint of time. In general vernal fungi are small species, but the species of *Peziza*, *Morchella*, and *Gyromitra*, all of which are vernal, are as large as the autumnal species which belong to the genus *Helvella*.

In the spring the soil is relatively cold even in open fields and open areas in the forest, and much colder in the more shaded, leaf covered soil of the deeper parts of the forest. The blanket of leaves in the depth of the forest prevents an early rise in temperature. Here fungi are absent but fungi may be looked for in open areas where the leaf covering is thin or absent. This leaf covered habitat, which is too cold for fungi during spring, is densely populated with autumnal species, for the leaves retain the heat and moisture, both of which are necessary for the development of fungi.

Among the vernal species of fungi may be listed the following for the Chicago region: On the ground in open woods during May in the Indiana Dunes State Park may be found: *Peziza sylvestris* Boud., *P. badia* Pers., *P. acetabulum* L., *P. onotica* Pers., and *P. aurantia* Pers. On partly buried sticks, or on very moist logs in the Glenview forest preserve may be found during April, *Peziza coccinea* Jacq.; in the same habitat during June, *P. floccosa* Schw., and *P. occidentalis* Schw. *Peziza rutilans* Fr. is found among mosses in woods of hydrarch succession (elm to beech) April 30. *P. domiciliana* Corde. occurs on soil in basements. *P. venosa* Pers. occurs on the ground under beech trees both at Smith and at Chester-ton, Indiana, during early May. It is reported by Seaver as occurring from New York to Ohio. *P. repanda* Pers. may occur on decayed logs in beech woods, on soil in greenhouses, or on soil in rich woods.

In bogs on decaying logs occurs *Patella scutellata* (L.) Morgan, and on the ground *Patella umbrorum* (Fr) Seaver during May.

Peziza vesiculosa Bull. is our most common dung-inhabiting cup fungus. *P. violacea* Pers. occurs on burned over ground in the dunes during May.

About May first *Gyromitra esculenta* Fr. occurs on the ground in pine woods. About the same time on flood-plains and in moist woods adjacent to swamps occurs *G. brunnea* Underw. Both were found near the east end of the Indiana Dunes State park.

Morchella is well represented in this region; *M. crassipes* Pers. has been found under Hawthorn trees in the Deer grove forest preserve. In grassy places *M. esculenta* Pers. and *M. deliciosa* Fr. occur during May. *M. conica* Pers. and *M. hybrida* (Sow) Pers. occur in open woods in the dunes state park. *M. angusticeps* Pk. grows in the pine woods of the same locality. All belong to the month of May. *Verpa conica* Mull. appears occasionally in May along the swamp edge of the park. During autumn and occasionally in early spring in the poorly drained, moist flat woods at Thornton may be found *Helvella atra* Oed., and *H. cripa* may be found in September in the pines of the state park.

Other ascomycetes are closely related to a very special habitat. *Cordiceps herculea* develops within a large white larva producing death of its insect host at which time it erects a monument-like fructification from the body of its dead host.

Growing on wood are a number of species including *Xylaria polymorpha* and *Xylaria corniformis*, *Hypozydon rubiginosum* Fr., *Daldinia concentrica* Bolt., and *Bulgaria inquinans* Fr. *Geoglossum glutinosum* Pers. occurs occasionally on buried wood in the rich woods of the Dunes State Park, and *Leotia lubrica* Pers. of the same locality grows on moss near swamps during August.

SUMMARY

Ascomycetes are predominately vernal. Vernal fungi prefer open habitats with but little leaf cover whereas the abundant autumn fungi occur in deeply shaded, humus covered areas. Although autumnal fungi are at least one hundred times as abundant as vernal fungi, but few ascomycetes are present.