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THE POLYPORACEAE OF WISCONSIN

BY
J. J. NEUMAN

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THE POLYPORACEAE OF WISCONSIN

J. J. NEUMAN.

This great family of fungi is represented in Wisconsin by a large number of species, belonging to all the commonly accepted genera except *Cyclomyces*. Many of them are common in all parts of the state but a few have so far been found only in certain regions. *Polyporus volvatus*, for example, is of course found only in the northern part of the state where its host, the pine, grows in considerable abundance. Many other species that have been collected only in the northern part of the state will probably also be found in the southern part, as their hosts, and the conditions necessary for their growth, are present in both regions. For example, *Fomes marginatus* grows on various deciduous trees, but it has thus far not been collected in the southern part of the state with the exception of one specimen which was found growing on a hickory stump in Madison.

The group includes parasitic, saprophytic and terrestrial species. To the latter belong the *Boleti*, *Boletini*, *Strobilomyces* and *Poria terrestris*. The great majority, however, belong to the first two groups and it is not yet clear as to many wood inhabiting species whether they are in a strict sense parasitic or saprophytic.

The collections on which the following account is based are now in the herbarium of the University of Wisconsin. They were made during a period of six or seven years by a number of collectors. By far the largest number of species was collected by the writer on special excursions into our northern forests. The brief account of the distribution and relation of the polypores to various decays in timber trees is largely the result of a special study of certain of our northern forest regions which were worked over in the summer of 1904, while the author was employed as a special agent of the United States bureau of Forestry. Abundant specimens of wood in various conditions of decay were collected and later worked over microscopically.

Following are the names of some of the principal collectors who have contributed material for the present work: F. E. McKenna, Blanch-

ardville, Iowa County; Prof. L. S. Cheney, Lake Superior Region; B. O. Dodge, Algoma, Kewaunee County; Dr. R. H. Denniston, Dane and Sauk Counties; Dr. C. E. Allen, Dane and Sauk Counties and Madaline Island; Dr. J. B. Overton, Brule River Region; Dr. R. A. Harper, Dane and Sauk Counties.

A large number of specimens have been sent to specialists for determination and comparison, and I am especially indebted to Dr. C. H. Peck, Prof. J. B. Ellis, Prof. A. P. Morgan, Dr. N. Patouillard, Prof. G. Bresadola, and Dr. Paul Henning for numerous identifications and notes on difficult and obscure species. I am also indebted to Prof. R. A. Harper for numerous suggestions and assistance in many ways.

The Distribution and Abundance of Polyporaceae causing the Decay of Timber Trees in certain Regions of Northern Wisconsin.

The territory in which I more specially studied the relations of the polypores to the decay of timber trees, lies in Oneida, Vilas and Ashland counties, all of which are in the northern third of Wisconsin. In Oneida county seven townships were quite thoroughly covered. Here the most careful study was made of the Yawkey Lumber company's stand of timber. In Vilas county about two townships north and west of Star Lake were studied, consisting largely of the Merrill Lumber Company's and Longely and Alderson's timber. In Ashland county a little over one township was covered and practically all the work was done in the Nash Lumber Company's forest near Shanagolden.

In Oneida county most of the land has been cut over and much of it is covered with a young growth of poplar, birch and maple with here and there a sprinkling of red and white pine. The forest which has not been cut consists of white and red pine (*Pinus Strobus* L. and *Pinus resinosa* Ait.), hemlock [*Tsuga canadensis* (L.) Carr] a little fir [*Abies balsamea* (L.) Mill.], and now and then a group of jack or gray pines (*Pinus Banksiana* Lamb). In the swamps, spruce [*Picea mariana* (Mill.) BSP], arbor vitae (*Thuja occidentalis* L.) and tamarack [*Larix laricina* (Du Roi) Koch] abound. Some deciduous trees are also found here but not in great abundance except in the new growth. Chief among these are sugar maple (*Acer saccharum* Marsh.) a little red maple (*A. rubrum* L.) red oak (*Quercus rubra* L.) yellow and red birches (*B. lutea* Michx. and *B. nigra L.*), American

aspen (*Populus tremuloides* Michx.), and at rare intervals an ironwood (*Ostrya Virginica* Willd.).

In the region around Star Lake the same kinds of trees were found but the proportion of deciduous trees is greater. Birches, poplar and scarlet oak (*Quercus coccinea* Muench) make up a very large part of the forest here. In some districts the forest is made up entirely of deciduous trees, with here and there a white or red pine and a few dwarfed firs. The swamps in this region are covered with spruce, tamarack and arbor vitae.

About Shanagolden, Ashland County, there are very few pines, some hemlock, and in the swamps, spruce, tamarack, willow and arbor vitae are found. The bulk of the forest here consists of red birch (*Betula nigra*), elm, (*Ulmus Americana* L.) and hard maple. In all of these districts the standing timber, the new growth, burned areas and fallen trees were carefully studied, since all of these furnish data as to the prevalence and destructiveness of timber diseases.

The age of the trees in the uncut forests is quite variable. In the older stands, the Norway pine often attains an age of one hundred to one hundred and fifty years, while large white pine stumps have two hundred rings of growth. Some of the largest of these trees have diameters of from twenty-five to thirty-six inches. The firs and spruce seldom reach a diameter of twelve inches at ages of not more than ninety-five years. Arbor vitae were measured at Shanagolden that had diameters of fifteen and sixteen inches at ages probably over one hundred fifty years. (As the center was decayed entirely in these trees their precise ages could not be determined.) These trees were seldom more than fifty or sixty feet in height. The birch, as in the sandy soil of Oneida and Vilas counties, was scrubby and not good for lumbering purposes, rarely exceeding from eight to eleven inches in diameter, and ranging in age from seventy-five to one hundred and twenty years. In the much richer soil of Ashland county, the red birch is considered one of the most valuable of the trees for lumbering purposes. Here the trunks often attain diameters of from one and one half to two feet at ages not over one hundred twenty-five years. The elm grows very large here and is very valuable. The maple never acquires a great size or high age in any of these counties and much of it cannot be used for lumbering purposes, for reasons to be mentioned later. It acquires the largest size and best shape in Ashland county, the largest ones here measuring about fifteen inches in diameter and from fifty to sixty feet in height. The ages of these trees vary from eighty to one hundred years. Much of the maple at Shanagolden is cut into cord wood. Tamarack and spruce rarely attain