

The Bitternut Hickory, *Carya cordiformis*, in Northern Minnesota

Author(s): Arthur Monrad Johnson

Source: *American Journal of Botany*, Vol. 14, No. 1 (Jan., 1927), pp. 49-51

Published by: [Botanical Society of America, Inc.](#)

Stable URL: <http://www.jstor.org/stable/2435522>

Accessed: 16-01-2016 13:48 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Botanical Society of America, Inc. is collaborating with JSTOR to digitize, preserve and extend access to *American Journal of Botany*.

<http://www.jstor.org>

THE BITTERNUT HICKORY, *CARYA CORDIFORMIS*, IN NORTHERN MINNESOTA¹

ARTHUR MONRAD JOHNSON

(Received for publication November 8, 1926)

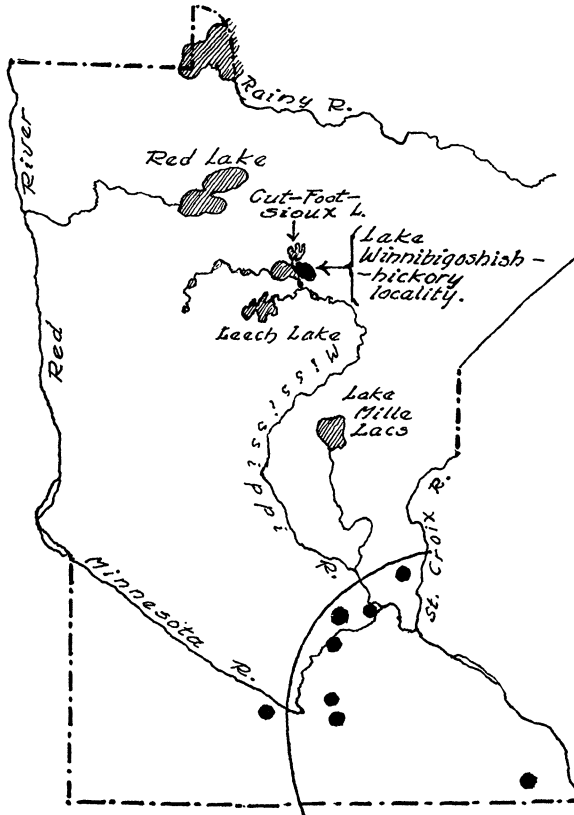
During the past six summers the writer has traversed a considerable part of the "wilderness" of northern Minnesota, that is, the region between the great Beltrami swamp on the west and the Superior National Forest on the east, and the Rainy river on the north and the Mississippi on the south. This region lies within the so-called "coniferous belt" of the state, and yet as one travels along the newly constructed highways one can not fail to be struck by the extensive areas of deciduous forest through which one passes. Fine examples of the "maple-basswood" forest are to be seen in some localities. These heavy deciduous forests seem to occur especially where the substratum is clayey. Often the demarcation between the deciduous forest and the pine forest—of the sandy outwash or gravelly or stony morainic materials—is very sharp. There are probably few other localities in the state in which the aspen (*Populus tremuloides*), the paper birch (*Betula papyrifera*), and the yellow birch (*B. lutea*) attain such proportions.

A few years ago Ranger George Farley, of the Cut-Foot-Sioux Ranger Station, took the writer by launch through Cut-Foot-Sioux Lake to a point on the northeast shore of Lake Winnibigoshish, primarily to find a hickory which was supposed to occur there, and incidentally to survey the timber of the fine hardwood forest which extends for several miles along this shore of the lake. At that time only a few small trees (about 10 feet high) of *Carya cordiformis* (Wang.) K. Koch were found—at the west end of the forest.

During the past summer, the water being very low, a passable road had been constructed out to the shore of Lake Winnibigoshish, east of Cut-Foot-Sioux Lake, and the writer this time (July 18, 1926) made the trip to the hickory locality by automobile, accompanied by Ranger Farley, Mr. Stott of the United States Forest Service station at Cass Lake, and Mr. Davie Hughes. This time the forest was explored for a distance of about a mile or more, parallel to the lake shore, and to our surprise about a hundred fine vigorous trees of *Carya cordiformis* were discovered, many of them 50–60 feet high and up to a foot in diameter at the base. A number of the trees were in fruit. That the occurrence of this hickory in this locality was known to the Indians and to at least some of the early white pioneers seems almost certain. According to Ranger Farley, specimens of the tree from this locality were sent to Sudworth about fourteen years ago, but that

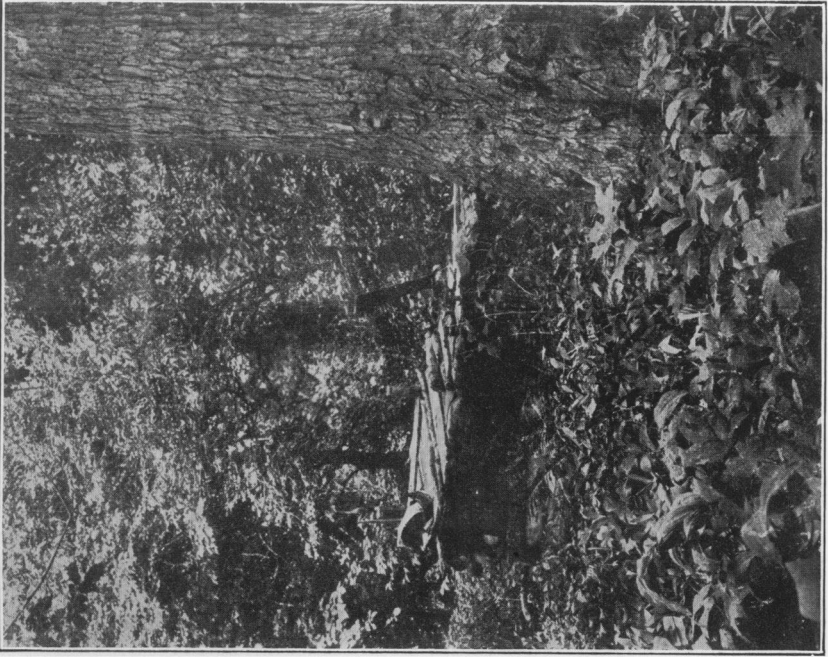
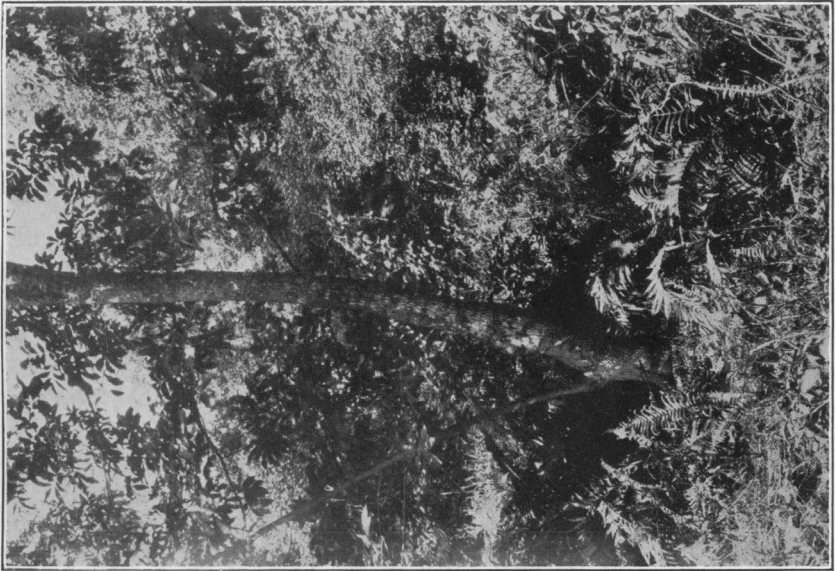
¹ Published, at the expense of the author, out of the order determined by the date of receipt of the manuscript.

the species occurred in such relative abundance here, and of such size, seems not to have been known.



TEXT FIG. 1. Distribution of *Carya cordiformis* in Minnesota. Black dots indicate approximately the principal stations of the species in southeastern Minnesota. The station on Lake Winnibigoshish is indicated by the arrow.

On August 9, 1926, the writer made a third trip to the hickory locality in company with Professor N. L. Huff of the University of Minnesota and Professor E. F. Parker of Washington University, St. Louis. The whole length of the forest, as it follows the shore of the lake, was traversed on this trip, and the hickory was found to occur almost throughout the entire stretch. Fine specimens in fruit were obtained. Later in the summer reports came to the writer that the species occurs also farther north, in a deciduous forest belt east of Round Lake; but these reports have not as yet been verified, although the occurrence of the species there would not be surprising. According to the collections in the herbarium of the University of Minnesota, the distribution of *Carya cordiformis* is limited to the southeastern part of the state, as cut off by a line drawn from Taylor's Falls on the



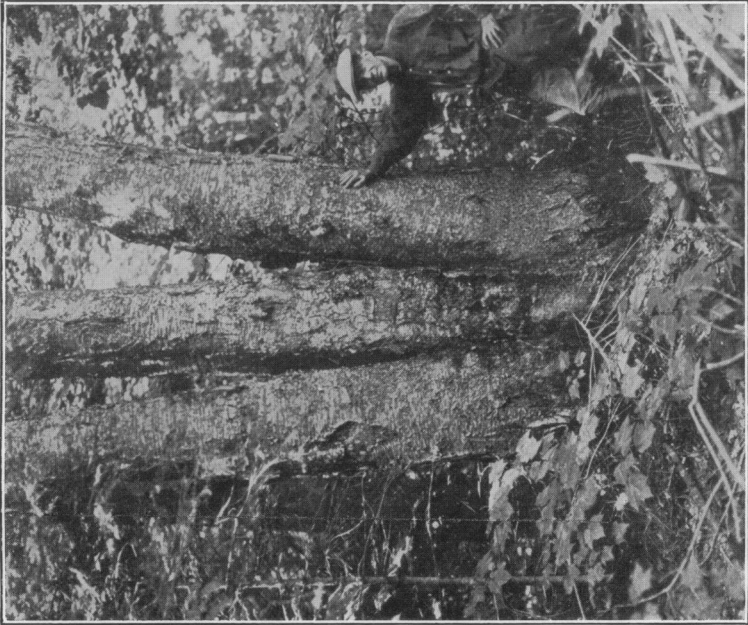


I



2

JOHNSON: BITERNUT HICKORY



I

JOHNSON: BITTERNUT HICKORY

2



St. Croix River through Lake Minnetonka to Mankato and thence south to the Iowa line. The locality on Lake Winnibigoshish is thus about 200 miles north of these limits, and, as far as the writer knows, the species has not been found in the intervening region.

Incidentally it may be remarked that the deciduous forest areas on the north side of Lake Winnibigoshish, as well as those of the Round Lake and of the Bowstring and Sand Lake regions, are among the finest of their type that the writer has seen in Minnesota. At least, few such pure and undisturbed stands are still extant in the state. The forest floor is of a rich loam, which often supports a luxuriant vegetation, as may be seen in the Pigeon River and the "hickory" forests of Lake Winnibigoshish. The Jack-in-the pulpits (*Arisaema triphyllum*) that we found here were much too enormous for our vasculum. Dense masses of the bitter-sweet (*Celastrus scandens*) often cover windfalls or hang from the tallest trees, the vines often as thick as one's wrist. In the Pigeon River forest the elms, *Ulmus americana*, *U. fulva*, and *U. racemosa*, can be seen growing in close proximity. Here and there are bur oaks, with straight, pine-like trunks, limbless for forty feet or more up, that appear almost unnatural for Minnesota. The sugar maples everywhere in the Lake Winnibigoshish forest show evidence of having been tapped for a long time back, and here and there through the forest one may come suddenly upon some crude sugar "refinery" of a Chippewa Indian. Dead-falls or wind-falls are rather few, but the severe storms of the summer of 1925 wrought some damage in a few localities. Fortunately the hickory is in a rather protected locality and within the Minnesota National Forest, which will assure its preservation.

MINNEAPOLIS, MINNESOTA

DESCRIPTION OF PLATES

PLATE VII

FIG. 1. A small hickory (*Carya cordiformis*) in hardwood forest, Lake Winnibigoshish. A. M. Johnson, photo. August 9, 1926.

FIG. 2. Sugar maple (*Acer saccharum*) at the right, and in the center a sugar shack of a Chippewa Indian. Hardwood forest, Lake Winnibigoshish, hickory locality. A. M. Johnson, photo. August 9, 1926.

PLATE VIII

FIG. 1. Aspect of the maple-basswood-aspens forest between Lake Winnibigoshish and Cut-Foot-Sioux Lake, northwest of government dam. N. L. Huff, photo. August 9, 1926.

FIG. 2. A large sugar maple in the hardwood forest on Lake Winnibigoshish, hickory locality. N. L. Huff, photo. August 9, 1926.

PLATE IX

FIG. 1. Paper birch (*Betula papyrifera*) in hardwood forest on east side of Upper Sand Lake, about 4 miles northeast of Inger, Itasca county, Minnesota. A. M. Johnson, photo. July 24, 1926.

FIG. 2. White cedar (*Thuja occidentalis*) in the maple-basswood forest on the east side of Upper Sand Lake, near Inger, Itasca county, Minnesota. N. L. Huff, photo. August 8, 1926.