UNIVERSITY OF MICHIGAN MUSEUM OF ZOOLOGY Miscellaneous Publications No. 4

# Contributions to the Botany of Michigan

вү С. К. DODGE

ANN ARBOR, MICHICAN PUBLISHED BY THE UNIVERSITY. FEBRUARY 23, 1918

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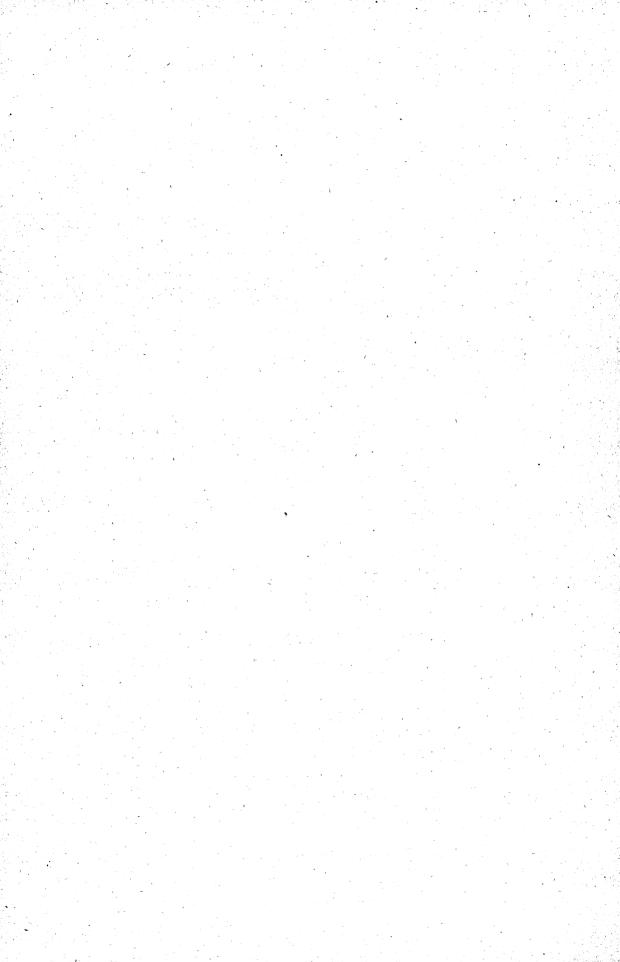
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> ALEXANDER G. RUTHVEN, Director of the Museum of Zoology, University of Michigan

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#### BY C. K. DODGE

#### INTRODUCTION

A considerable amount of data on the plants of the state has accumulated since the appearance of the last edition of W. J. Beal's Flora of Michigan.<sup>1</sup> Some of this data has been published but a large part is in the form of herbarium specimens, notes, and manuscripts. In his work on the phanerogamic flora of the state, carried on during the past ten years for the Michigan Geological and Biological Survey and the Museum of Zoology, the writer has been able to add a number of species to the known flora and to obtain much additional information on the ranges of many of the species. Some of this data has been published in local lists, but a large number of miscellaneous notes have not been appurtenant to the local lists and there has been in Michigan no suitable medium of publication for them. It is now purposed to publish such notes in the Miscellaneous Publications of the Museum of Zoology, under the general title Contributions to the Botany of Michigan, and to number these consecutively for ease in reference.

The present paper records a number of species new to the Michigan flora and extends the range of several forms. Unless otherwise stated specimens are in the writer's herbarium at Port Huron, Michigan.

## Pellaea glabella Mett. Smooth Cliff-brake

The smooth cliff-brake is perhaps very close to P. atropurpurea (L.) Link. It is not recognized in the last edition of Gray,<sup>2</sup> and it is given as a synonym of P. atropurpurea in Britton and Brown. It is not referred to in the last Michigan Flora. In 1905, while examining peat beds in the Upper Peninsula, the late Prof. C. A. Davis made a large collection from dry rocks near Norway, Dickinson County, of a fern that was then supposed to be P. atropurpurea but which has since been referred to P. glabella.

<sup>1</sup>5th Ann. Rept. Mich. Acad. Sci., 1904.

<sup>2</sup> The manuals referred to in this paper are Gray, New Manual of Botany, 7th edition, 1908; Britton and Brown, An Illustrated Flora of the Northern U. S., Canada and the British Possessions, 2nd Ed., 1913; and W. J. Beal, Michigan Flora, Fifth Annual Report Mich. Acad. Sci., 1904.

## Cryptogramma Stelleri (Gmel.) Prantl Slender Cliff-brake

As far as known to the writer this beautiful little fern is seldom seen in the state. The Michigan Flora reports it as found on Louse Isle and as seen by the late G. H. Hicks at the Pictured Rocks on the south shore of Lake Superior. In 1916 a visit was made to Grand Marais, Grand Island and Munising, and an attempt was made to reach the Pictured Rocks which lie between these two places. The old lumber roads and trails to the latter locality were found to be impassable, but at Munising conditions were more favorable and a search for the species was made at that place. The city is situated in a depression or valley surrounded by high abrupt hills covered with hardwoods. In the hills there are several small streams with overhanging rocky banks and precipitous falls. Under these overhanging rocks, in crevices or on little benches or projections, the slender cliff-brake was found in abundance, growing with *Cystopteris fragilis*, the brittle fern. A further search in similar places, at least in the Northern Peninsula, will undoubtedly bring to light other stations for this delicate species.

## Polystichum Braunii (Spenner) Fee Braun's Holly-fern

The Michigan Flora only mentions this fern as noted by O. A. Farwell in Keweenaw County. This would seem to indicate that it is scarce and has seldom been seen by our botanists, for, as compared with other ferns in the state, it is certainly very distinct. The writer observed it first in 1916, in the rich woods on Grand Island and near Peter White Camp in Alger County. In June, 1917, it was found to be very plentiful on the alluvial flood plain of the Salmon Trout River near the Huron Mountain Club on the south shore of Lake Superior, northwest of Marquette, Marquette County.

## Lycopodium tristachyum Pursh Clustered Club Moss, Ground Pine

The range of this club moss is given by Gray as "Dry sandy soil N. Me. to Del. and L. Superior," and by Britton and Brown as "Maine to Minnesota, etc." The Michigan Flora mentions it under the name of *L. Chamaecyparissus* A. Br. and says that it has been located in three places—Clare County, Keweenaw County, and near Manistee.

In 1908, while engaged in a botanical survey of the Saginaw Bay sand dune district, the writer found it in abundance in Huron County but at the time supposed it to be L. complanatum L. and so listed it. Since then it has been noted as quite common from Mackinac to Houghton and Keweenaw Counties inclusive.

## Contributions to the Botany of Michigan

## Sparganium diversifolium Graebner var. acaule (Beeby) Fernald and Eames

Stemless Bur-reed

The stemless bur-reed, given as a variety in Gray and as a species in Britton and Brown, has apparently been generally overlooked by Michigan botanists. There seems to be no published record, but the writer has found the species in several localities. In 1911 it was discovered on Harsen's Island in the southern part of St. Clair County, growing in abundance in muddy places and shallow water. In 1914 it was noted as abundant about Vermillion in Chippewa County, and in 1915 it was found to be common in Schoolcraft County. The plant very probably occurs throughout the state.

#### Anthoxanthum odoratum L.

#### Sweet Vernal Grass

This grass seems to have been naturalized from Europe. The habits and range are given by Gray as "Meadows, pastures and waste places, especially eastw."; and by Britton and Brown as "In fields and meadows throughout the whole of North America." The distribution given by the Michigan Flora is "Ionia; Grand Rapids, Coleman Cat.; well established in the college lawn. Rare." This would indicate that it is not at all common in the state. The writer saw it in abundance on and near the bank of Echo Lake, a small body of water in the woods of Grand Island, near Munising, Alger County, in 1914. It had the appearance of a native wild plant, but there are a number of buildings on the bank, and the lake is often visited.

#### Aristida oligantha Michx.

#### Few-flowered Aristida, Ant-rice

The habitat and range of this grass are given in Gray as "Dry sterile soil N. J. to Neb. and southw."; in Britton and Brown as "Dry soil; New Jersey to Nebraska, and Texas." It is not listed in the last Michigan Flora. To the writer's knowledge it has persisted in dry open ground near the city of Port Huron for about ten years.

#### Calamagrostis hyperborea Lange

#### Northern Reed-grass

The habitat and range of the northern reed-grass is given in Gray as "Moist meadows and calcareous cliffs, Greenl. to Alaska s. to e. Que., n. Vt., 'Pa.', Minn., and the Rocky Mts."; in Britton and Brown as "Meadows and swamps, Greenland to Alaska, south to Pennsylvania, Colorado and California." It is not listed in the Michigan Flora. In 1916 the writer observed the species to be very abundant in a meadow-like opening on the high bank of Lake Superior near Sable Banks, west of Grand Marais, in Alger County.

#### Calamagrostis inexpansa Gray

## Bog Reed-grass

It is to be inferred that both Gray and Britton and Brown include Michigan in the range of this grass, although the state is not specifically mentioned. The Michigan Flora states in its additions that Dr. H. S. Pepoon saw it near Keeler, Van Buren County.

For over five years it has persisted in open wet ground along the Grand Trunk Railway near the city of Port Huron. It has perhaps been introduced at this point.

#### Danthonia compressa Aust.

#### Flattened Wild Oat-grass

This species is new to Michigan flora. The habitat and range are given by Gray as "Dry woods, Me. to N. Y. and southw.", and in Britton and Brown as "In woods, Maine to New York, south to North Carolina and Tenessee." The writer found it plentiful in several dry, open or partially shaded places in the northeastern part of Schoolcraft County in 1916.

# Spartina patens (Ait.) Muhl.

## Salt-Meadow Grass

The habitat of this grass is "salt meadows and sandy beaches" along the Atlantic coast. It grows in salty ground, and with "Juncus Gerardi, the 'black grass,' furnishes most of the salt meadow hay of the Atlantic coast." Both manuals substantially agree as to its habitat and range. It is not included in the Michigan Flora.

The species has become established and has persisted for over ten years in the Grand Trunk Railway freight yards above the Tunnel Station near the city of Port Huron. One mound in particular, about thirty feet long and fifteen feet wide, is snugly sodded over with salt-meadow grass to the exclusion of almost every other plant. A few rods distant *Juncus Gerardi* is very abundant. Appropriate soil conditions are furnished by salt water from a large ice house and many salt vats where refrigerator cars are iced before going farther east. The salt used with the ice is often scattered about in substantial quantities.

#### Glyceria borealis (Nash) Batchelder

#### Northern-manna Grass

Michigan is apparently included in the range of this plant by Gray and Britton and Brown, although the state is not specifically mentioned. In the latter it bears the scientific name *Panicularia borealis* Nash, and the same common name as *P. laxa* Scribn, a grass whose range appears to be farther east. It is not listed in the Michigan Flora. It has been observed by the writer as plentiful in damp open ground near Fostoria, Tuscola County, 1910, and near L'Anse, Baraga County, 1916.

## Eriophorum tenellum Nutt.

Rough Cotton-grass

It is stated in Gray that the habitat and range of this cotton-grass is "Swamps and bogs. Nfd. to Ont. s. to N. J. and Ill.", and about the same distribution is given by Britton and Brown. It is not mentioned in the Michigan Flora.

In 1914 the species was noticed as frequent in swampy ground near Vermillion and at the lower falls of the Tahquamenon River, Chippewa County, and again near Newberry in Luce County. The writer believes this plant to be common throughout the eastern half of the Northern Peninsula.

#### Juncus Gerardi Loisel

Black Grass

The habitat of the black grass is given by Gray and Britton and Brown as "Salt marshes" and the range in part as "Vicinity of the Great Lakes." In the Michigan Flora it is listed as "Rare about the Great Lakes, Gray's Manual," which would indicate that it had been seldom seen in Michigan by our local botanists. As noted under *Spartina patens* it is found near Port Huron on soil which has become impregnated with salt in the icing of refrigerator cars. It has persisted here for more than ten years.

## Streptopus longipes Fernald Fernald's Streptopus

This plant was first described in 1906, and the description in Gray mentions the character, "rootstock slender and wide creeping" and gives in the range "woods Marquette Co., Mich." In the last edition of Britton and Brown it is thrown into synonymy. The writer is familar with the other two species in our territory, *S. roseus* and *S. amplexifolius*, and believes that *S. longipes* is a valid species. The only other Michigan records, so far as the writer has been able to ascertain, are those of Frank C. Gates<sup>3</sup> for Douglas Lake, Cheboygan County, Michigan.

In 1914 it was noted as common in Chippewa County, especially in the woods about Vermillion. It was again seen in Luce, Schoolcraft, Mackinac and Alger Counties in 1915, and was abundant in the hardwoods of Marquette County in 1916 and 1917. *S. roseus* was not observed in the last named county.

#### Salix pellita Anders.

#### Satiny Willow

The satiny willow apparently has not often been seen in Michigan. The manuals do not mention Michigan in its range and the Michigan Flora does not refer to it. W. S. Cooper<sup>4</sup> noted it on Isle Royale, and in 1915 the

<sup>&</sup>lt;sup>3</sup> Rhodora, XIII (1911), p. 237; 14th Ann. Rept. Mich. Acad. Sci., 1912, p. 88.

<sup>&</sup>lt;sup>4</sup> 16th Ann. Rept. Mich. Acad. Sci., 1914, p. 119.

writer found it in abundance along the low banks of the Tahquamenon River in Luce County. It was later located on swampy ground near Munising, Alger County, and on the margin of Pine Lake near the Huron Mountain Club, Marquette County. The under sides of the leaves are usually velvetywhite, presenting a beautiful sight when turned up by a breeze. It is probably frequent throughout the Northern Peninsula.

#### Arceuthobium pusillum Peck

#### Dwarf Mistletoe

This small parasitic plant, known as *Arceuthobium pusillum* Peck in Gray's Mannual and as *Rozoumofskyan pusilla* (Peck) Kuntze, small mistletoe, in Britton and Brown is attributed to Michigan in Gray. The Michigan Flora mentions it as observed by the late Prof. C. F. Wheeler near Chatham, Alger County; by B. Barlow at Turin, Marquette County; and by the late Prof. C. A. Davis near Cadillac, Wexford County. In 1908, the writer saw it in abundance on black spruce in Huron County; in 1913 on white spruce, Bois Blanc Island, Mackinac County, and in 1916 on white spruce near Peter White Camp in the western part of Alger County. It is now probably well established throughout Michigan.

#### Spergularia media (L.) C. Presl.

#### Large Flowered Sand Spurry

This plant is described in Gray, and it is included in the description of *Tissa marina* (L.) Britton, salt-marsh sand spurry, in Britton and Brown. It is not mentioned in the Michigan Flora. The range given in Gray is "Near Selina, N. Y.; also Cal. (Eu.)". The plant has been well established and abundant for nearly ten years at the Grand Trunk freight yards near the city of Port Huron. It is mostly found on wet ground and covers a large area.

#### Amelanchier species

## Juneberry

Gray describes four species and two varieties and Britton and Brown six species of this difficult genus. The Michigan Flora mentions six species. The species are so variable that there has been little unanimity of opinion as to their status, and the identification of specimens has been difficult. For the purpose of this paper it will be assumed that Prof. K. M. Wiegand's<sup>5</sup> revision of the eastern species is to be adopted by botanists generally. Eight species are recognized by Wiegand, seven of which occur in Michigan. The known species in the state so far as described by him will be taken up in order.

Amelanchier sanguinea (Pursh) DC. Round-leaved Juneberry.—Probably common throughout Michigan.

<sup>8</sup> Rhodora, Vol. 14, 1912, p. 117.

- Amelanchier humilis Wieg. Small Juneberry.—Barren sand in Kent County; near Huron Mountain Club in Marquette County.
- Amelanchier florida Lindley. Flowering Juneberry.—On Isle Royale; Keweenaw County; Alcona County; Alpena County.
- Amelanchier stolonifera Wieg. Low Juneberry.—Alpena County; Marquette County; Huron County; Arenac County.
- Amelanchier canadensis (L.) Medicus. Common Juneberry.—Probably common throughout the state. Often large trees.
- Amelanchier laevis Wieg. Smooth-leaved Juneberry.—Probably abundant throughout the state. Trees often large.
- Amelanchier Bartramiana (Tausch.) Roemer. Oblong-fruited Juneberry.—Keweenaw County; on Isle Royale; Chippewa County; Alger County.

To this list should be added the western species :

Amelanchier alnifolia Nutt. Northwestern Juneberry.—A western species. Dry open ground near Norway, Dickinson County, in 1905 by the late Prof. C. A. Davis; Presque Isle County; Keweenaw County, O. A. Farwell.

#### Geranium sanguinium L.

#### Red-rooted Geranium

Some time during the season of 1914, Miss R. M. Kearsley, of Detroit, observed an unfamilar road-side geranium near Birmingham, Oakland County. B. Gladewitz, of Detroit, determined the plant as *G. sanguinium*, and this identification has been confirmed by K. K. Mackenzie.

The species is from one to one and one-half feet high, inclined to be ascending, flowers purple and showy, petals heart-shaped, roots long and red—fully as red as the rootstocks of our common bloodroot, *Sanguinaria canadensis*. The plants occupy a space by the roadside about ten by twenty feet, extend slightly into an adjoining field and are reported by nearby people as having been there at least fifteen years.

#### Viola Selkirkii Pursh

#### Great-spurred Violet

According to Gray the range of this violet is in part "L. Superior and Northw., rare."; and in Britton and Brown the distribution is given in part as "New Brunswick to Pennsylvania and Minnesota." The Michigan Flora lists the following localities, "Gillman, A. Gray; Keweenaw County, O. A. Farwell. U. P." This violet is very distinct and easily recognized. It was first noted by the writer in the hardwoods near Manistique, in Schoolcraft County, and in 1916-7 it was observed frequently in rich, shaded ground in Marquette County, especially about the premises of the Huron Mountain Club. It is very probably to be found throughout the Upper Peninsula.

### Opuntia Rafinesquii Engelm.

#### Western Prickly Pear

The above scientific name is given in Gray which specifically mentions Michigan as part of its range. Britton and Brown call it *O. humifusa* Raf., and the distribution is given as "Ohio to Minnesota, etc." In the Michigan Flora under the latter name the following localities are mentioned: "Common in Newago County along the Muskegon River, Cedar Creek Tp., Muskegon Co., C. F. Wheeler; and a stunted variety on sand barrens near Greebville, J. Satterlee; also northward into British Am., Englemann."

The writer first saw the species in 1910, on Point Pelee, Essex County, Ontario. In September, 1916, while making a botanical survey about the Huron Mountain Club in Marquette County, Michigan, Miss Anne Russell, of Detroit, discovered it in rocky places on a near-by granite hill known as Huron Mountain. In August, 1917, the writer noted it as plentiful about New Buffalo, Berrien County. It has been reported on rocky hills about the city of Marquette and on sandy open ground west of Alpena in Alpena County.

## Osmorhiza species

#### The Sweet Cicelies

In Gray and Britton and Brown four species and one variety of sweet cicely are mentioned and described. In Britton and Brown the generic name is Washingtonia, in Gray, Osmorhiza. In this paper the latter name will be used. The manuals apparently do not specifically credit Michigan with more than two species, Osmorhiza Claytoni (Michx.) Clarke, woolly sweet cicely, and O. longistylis (Torr.) DC., smoother sweet cicely. The Michigan Flora mentions these two and reports them common throughout the state. The variety O. longistylis villicaulis Fernald, pubescent smoother sweet cicely, has been noted as frequent from St. Clair County north and west to Delta County. In 1907, the writer discovered O. divaricata Nutt., western sweet cicely, in rich shaded ground on Thunder Bay Island, Alpena County,<sup>6</sup> and again in rich woods near Eckerman, Chippewa County, in 1914. In the same year O. obtusa (Coult. & Rose) Fernald, blunt-fruited sweet cicely, was noted in rich woods in Chippewa County and throughout Alger County. It appears that the last two species may be considered abundant throughout the eastern part of the Upper Peninsula, and perhaps occasional in the northern part of the Lower Peninsula.

#### Gentiana linearis Froel. var. latifolia Gray

#### Gray's Gentian

Gray's gentian is listed in Gray under the above scientific name and the range is given as "Lake Superior; N. B." Britton and Brown record the species as *Dasystephana grayi* (Kusnezow) Britton. There is no reference

<sup>&</sup>lt;sup>e</sup> Additions to the Michigan Flora, by W. J. Beal. 10th Ann. Rept. Mich. Acad. Sci., 1908, p. 89.

to it in the Michigan Flora. In the course of botanical work in the eastern part of the Northern Peninsula, from 1912 to 1917, the writer found it abundant on damp, open or partially shaded ground on Bois Blanc Island, about St. Ignace, and in all the northern counties from Macinac to Marquette inclusive.

## Collinsia parviflora Lindl.

## Small-flowered Collinsia

This little plant is given in Gray, and its habitat and range are described as "Rich soil and limy gravel, Ont. N. Mich. and westw." In Britton and Brown it goes by the name of *C. tenella* (Pursh) Piper, and the habitat and range are given as "Moist places, Ontario to British Columbia, Michigan, Colorado, Arizona and Utah." The Michigan Flora mentions only one Michigan record, Keweenaw County, observed by O. A. Farwell. Owing to the fact that it is usually only three to six inches long and grows in obscure places it easily escapes observation. In early June, 1917, it was found by Mr. B. Gladewitz and the writer in Marquette County, where it grew in abundance in rock cracks and crevices on the summit and sides of a large granitic hill known as Huron Mountain. It is very probably to be found in like places throughout the county.

#### Mimulus moschatus Dougl.

#### Musk Flower

Both Gray and Britton and Brown give Michigan in the range of this plant and intimate that perhaps it has been introduced from the west. In the Michigan Flora it is mentioned as having been observed by O. A. Farwell in Keweenaw County. The writer found it plentiful about Grand Marais in Alger County in 1916, where it occurs in damp places mostly along roads but also in other damp open spots. It may have been introduced.

#### Digitalis purpurea L.

### Purple Foxglove

Both Gray and Britton and Brown substantially agree that this plant is "naturalized from Europe, sparingly escaped from cultivation." It is not only cultivated as an ornamental plant but it is a valuable and much used drug sold under the name of digitalis. It is not mentioned in the Michigan Flora as an escape in the state. In 1916, in company with Mr. George W. Howe of Port Huron, Michigan, the writer collected in the territory adjacent to the south shore of Lake Superior. Among other places visited was the Peter White Camp, a beautiful place about ten miles from the south shore of Lake Superior, in the western part of Alger County. The purple foxglove was growing wild at this place and also at Howe's Lake, a small body of water near by. Howe's Lake is surrounded by primitive forests and only a short distance from its margin, but entirely hidden from view from the lake, was discovered a small clearing of perhaps a quarter of an acre in extent with two very old log hunting huts. The camps and clearing

had the appearance of having been abandoned for many years. In this clearing the purple foxglove was holding its own with grass and weeds; there were many plants five feet high, and varieties with both white and purple flowers were present. Its companion was the sweet william, *Dianthus borbatus* L. We were informed that these plants had been growing wild there for over thirty-five years.

## Solidago lepida DC., var. molina Fernald

#### Woolly Goldenrod

In 1916, while engaged in a botanical survey of a part of the south shore of Lake Superior, the writer collected near L'Anse, Baraga County, and also in Houghton County a very woolly stemmed goldenrod, usually in open places not far from the lake shore. Specimens were referred to Mr. K. K. Mackenzie, who identified them as *S. lepida* Fernald, the original description of which appeared in Rhodora, Vol. 17, p. 8 (1915).

#### Adenocaulon bicolor Hook

#### Adenocaulon

As far as can be ascertained Michigan botanists know very little about this plant. The range is given in Gray as "Moist woods, shores of Lake Huron, Lake Superior, and westward," in Britton and Brown as "In moist woods, northern Michigan and Lake Superior to British Columbia, Montana and California," and in the Michigan Flora as "Ontonagon River, U. P." In June, 1916, the writer found it to be plentiful near Peter White Camp in the western part of Alger County, and again, in September of the same year, in open hardwoods at the foot of Huron Mountain in the northwestern part of Marquette County.

#### Hieracium aurantiacum L.

#### Orange Hawkweed

The orange hawkweed is now well known in the state, especially in the Lower Peninsula, and the manuals give it a wide range as a weed and pest from Europe. Curiously enough, it has only once been recorded for Michigan,—in the writer's Mackinac Island list. In the late Prof. C. F. Wheeler's annotated copy of Beal and Wheeler's Michigan Flora is the note *"Hieracium aurantiacum* is becoming a weed near Huron (Lenawee County)." It is omitted in the last Michigan Flora. In 1912, the writer examined the wild plants on or near Lake Huron shore from near Bay City to Mackinaw City. This species was abundant in fields and on roadsides just north of Alpena, where farmers reported that it had been noted for many years, and it was common even in the open woods from Alpena to Mackinaw City.

