

upon the collection of Mr. Hill. During the last summer Mr. Van Gorder collected it in Noble County, and Mr. Bradner includes in catalogue of the Flora of Steuben County (17th Report of State Geologist, p. 156), with the statement, "badly named, as the scape frequently has eight striae." The Hill collection is of the normal size from 2-6 inches high, while that of Van Gorder shows specimens from 1-2 feet high, having been submersed.

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DISTRIBUTION OF THE ORCHIDACEÆ IN INDIANA. By Alida M. Cunningham.

The family of Orchidaceæ, as shown by the reports and specimens examined, is represented in the State by twelve genera and thirty-seven species.

*Microstylis monophyllos* Lindl., according to the 6th edition of Gray's Manual, is found growing in cold swamps in northern Indiana. It is also reported from the "Knob" region by Dr. J. M. Coulter. No specimen was examined.

*Microstylis ophioglossoides* Nutt., has been reported from Monroe by W. S. Blatchley, whose determination is verified by specimens in the DePauw Herbarium. One specimen of this species has been reported from Noble by W. B. Van Gorder and has been examined.

*Liparis liliifolia* Richard, occurs in the southern and central portions of the State. It is reported as rare in Franklin by O. M. Meyncke, but common in rich, shady woods in Gibson and Posey by Dr. Schneck. No specimens of this form have been examined.

*Liparis Laselii* Richard, grows in extreme northern counties. Specimens from Lake by E. J. Hill and from Noble by W. B. Van Gorder were studied. Mr. Van Gorder states that it is very rare in that region and grows in tamarack marshes.

*Aplectrum hiemale* Nutt., is reported from the following counties: Clark, Jefferson and Franklin in the southeast; Gibson and Posey in the southwest; Putnam in the central; Noble and Steuben in the north. The State catalogue includes the species, referring it to Tippecanoe, but gives no authority for its inclusion. Specimens from Clark and Noble were the only ones studied.

*Corallorhiza* is represented in the State by three species—*innata*, *odontorhiza* and *multiflora*.

*C. innata* R. Brown. No Indiana specimen of this species was examined. It is reported, however, from the "knob" region by Dr. Clapp.

*C. odontorhiza* Nutt., is reported from Gibson and Posey by Dr. Schneck as rare, and found growing in shady woods in rich soil; from Franklin, by O. M. Meyncke; from Steuben, by E. Bradner, and from Noble, by W. B. Van Gorder, whose specimens were examined.

*C. multiflora* Nutt., is reported from Union by W. S. Blatchley, whose determination is verified by specimens in the DePauw Herbarium. From Noble, by W. B. Van Gorder, who states that it is rare in that county and grows in dry woods; and also from Steuben, by E. Bradner. The State catalogue includes this species, referring it to Jefferson, but gives no authority for its inclusion. No specimens were examined.

*Spiranthes* is said to be represented by four species: *latifolia*, *cernua*, *præcox* and *gracilis*.

*S. latifolia* Torr., is very limited in its range, at least as far as we have knowledge of its distribution. It is reported from Noble by Mr. Van Gorder, who states that only a few specimens were found. It is reported also from Tippecanoe by John Hussey, and his determination is verified by a specimen in the Purdue Herbarium.

*S. cernua* Richard, occurs chiefly in southern and western counties. It is reported also from Noble, where it grows with cranberry vines on the low shores of lakes.

*S. præcox* Watson, has been reported from Clark by Messrs. Baird and Taylor, and from Steuben by E. Bradner. The 6th edition of the Manual does not include Indiana in the range of this species, which reads: "Wet, grassy places, Mass. to N. J. and Fla."

*S. gracilis* Bigelow, is fairly well distributed, being reported from southeastern, northern and central counties, but is not found abundantly. Specimens from Noble, Lake and Jefferson were examined.

*Goodyera repens* R. Br., is reported from Steuben by E. Bradner. No specimens were studied, but the habit and range of the plant renders the determination doubtful.

*Goodyera pubescens* R. Br., has been collected in Noble by Mr. Van Gorder, whose specimen was examined. It is also reported from Warren and Vigo Counties.

*Arethusa bulbosa* L., is referred, in the State catalogue, to Lake Co. Dr. J. M. Coulter also reports it in the region of "Barrens." This would make it a true northern form and indicate that it grew in a cool climate and in both dry, sandy soil and low ground. No specimens were examined.

*Calopogon pulchellus* R. Br., is a northern species, being reported from St. Joseph by Dr. Barnes, whose specimen is in the Purdue Herbarium; from Steuben by E. Bradner, and from Noble by Mr. Van Gorder, who states that it is very abundant in that county and found growing in the same locality with *Pogonia ophioglossoides*.

*Pogonia* is represented by three species: *ophioglossoides*, *pendula* and *verticillata*.

*P. ophioglossoides* Nutt., is another true northern form. It is reported from Lake by E. J. Hill, from Noble by W. B. Van Gorder, who reports it to be very abundant and growing in cranberry marshes and low ground along the Elkhart River, and from Steuben by E. Bradner.

*P. pendula* Lindl., is reported from the extreme northern and extreme southern portions of the State. From Lake, by E. J. Hill, as very rare; Noble, by W. B. Van Gorder, as rare and growing in rich woods; Steuben, by E. Bradner; Gibson and Posey, by Dr. Schneck, as rare, growing in damp, rich woods, and from Jefferson, by Dr. J. M. Coulter.

*P. verticillata* Nutt., has been reported from three counties. From Monroe by W. S. Blatchley, Jefferson by Dr. Barnes, and from Noble by W. B. Van Gorder. Specimens from Noble and Jefferson were examined.

*Orehis spectabile* L., is the most widely distributed species in the family, being represented in twelve counties. It has been reported from the following: Jay, Delaware, Randolph and Wayne in the east; Jefferson, Clark and Monroe in the south; Noble and Steuben in the north; Putnam in the central; Franklin and Dearborn in the southeast.

*Habenaria* is represented by twelve species.

*H. tridentata* Hook., is reported from Lake by E. J. Hill whose specimen was examined.

*H. civescens* Spreng., is reported from Steuben by E. Bradner. No specimen of this species was examined, but its range would include it in the State list.

*H. bracteata* R. Br. Mr. Van Gorder reports three specimens of this species from Noble. Dr. Stanley Coulter says that it is fairly abundant in Tippecanoe, being reported by almost every class. Specimens from both counties were studied.

*H. hyperborea* R. Br., is referred to Lake in the State Catalogue, but no authority is given for its inclusion. It is probably, however, based upon the collection of E. J. Hill.

*H. Hookeri* Torr., is a northern form. Mr. Van Gorder reports it from Noble. A specimen from Lake by E. J. Hill was the only one studied.

*H. orbiculata* Torr., is also a northern species, being reported only from Noble, where it is very rare and grows in rich woods. A specimen from this county was examined.

*H. ciliaris* R. Br., is reported from St. Joseph by Dr. Barnes, from Noble by W. B. Van Gorder and from Steuben by E. Bradner.

*H. leucophora* Gray, is reported from Noble by W. B. Van Gorder, from Steuben by E. Bradner and from White by J. Hussey.

*H. lacera* R. Br., is reported from Noble, where it grows in tamarack marshes.

*H. psycodes* Gray, is limited to the eastern half of the State, being reported from Jay, Delaware and Randolph by Dr. Phinney; Clark by Baird and Taylor; Jefferson by Dr. J. M. Coulter; Noble by W. B. Van Gorder and Steuben by E. Bradner.

*H. fimbriata* R. Br., has been reported only from Clark by Messrs. Baird and Taylor.

*H. peramona* Gray, is a southern and western species. A specimen from Jefferson was the only one studied.

*Cypripedium* is represented by five species.

*C. candidum* Muhl., has been reported from Steuben by E. Bradner, and also from Gibson and Posey by Dr. Schneck, who states that it was at one time very common in that locality, but is rapidly disappearing.

*C. parviflorum* Salisb., is reported from Lake and Noble in the north; Dearborn in the southeast; Gibson and Posey in the southwest. In Noble it is rare and grows in birch marshes. It was at one time common in Gibson and Posey, but is becoming rare.

*C. pubescens* Willd., grows in northern and central counties. It was, at one time, common in Franklin, but is becoming rare. Mr. Van Gorder states that it is very common in dry woods in Noble.

*C. spectabile* Salisb., is another extreme northern species. It is found in Noble growing in moist, shady places of tamarack swamps and bogs. It is reported also from Steuben by E. Bradner.

*C. acaule* Ait., has been collected in Noble by W. B. Van Gorder whose specimen was examined. It is also reported from Lake.

Out of the thirty-seven species named in this paper twenty-seven have been verified by herbarium specimens. Most of the others doubtless occur in the State, as they have been reported by good authorities.

From these facts we find that the following species are found only in the region north of an imaginary line drawn east and west through Indianapolis:

*Liparis Leselii*, *Spiranthes latifolia*, *Goodyera repens*, *Arethusa bulbosa*, *Calopogon pulchellus*, *Pogonia ophioglossoides*, *Habenaria tridentata*, *H. virescens*, *H. bracteata*, *H. Hookeri*, *H. orbiculata*, *H. ciliaris*, *H. leucophaea*, *H. lacera*, *Cypripedium spectabile* and *C. acaule*. Of these the following are confined exclusively to the northern tier of counties: *Goodyera repens*, *Arethusa bulbosa*, *Habenaria tridentata*, *H. virescens* and *H. hyperborea*.

The following are reported only in the region south of the above named line: *Microstylis ophioglossoides*, *Liparis liliifolia*, *Corallorhiza innata*, *Habenaria fimbriata* and *H. peramoena*. *Habenaria fimbriata* is confined exclusively to counties bordering on the Ohio river.

*Habenaria virescens* and *Goodyera repens* are reported only from Steuben County, and need verifying specimens to support the reference.

Three species, viz., *Arethusa bulbosa*, *Habenaria tridentata* and *H. hyperborea*, are reported exclusively from the western portion of the State, yet it is a noteworthy fact that all three come from Lake County, and are doubtless exclusively northern species. In all probability a careful study of the flora of the northeastern counties would show no division between the eastern and western species.