

## CONTRIBUTIONS TO THE FLORA OF INDIANA. VI.

BY STANLEY COULTER.

In view of the publication in the near future of a catalogue of the phanerogamic flora of the State, this contribution is limited to a discussion of a few families, concerning which we have need of further knowledge. Each of these families, despite its familiarity, presents especial difficulties in the discrimination of species, difficulties which, as a rule, are not appreciated by the botanist who works remote from herbaria. Scant material and all too brief descriptions are responsible for a large proportion of the errors which have found their way into local lists.

## POLYGONACEÆ.

Perhaps the greatest uncertainty exists in regard to the species of *Rumex* within the State. Of the eight species reported in the State, the following are undoubted: *R. Acetosella* L., *R. Britannica* L., *R. crispus* L., *R. obtusifolius* L., and *R. verticillatus* L.

*Rumex altissimus* Wood, reported from Jay, Delaware, Randolph and Wayne counties by Dr. Phinney, and from Dearborn County by Dr. Collins, is probably *R. Britannica* L., under mesophytic conditions. I have had several collections of the form referred to, *R. altissimus* Wood, for examination, and they take their place so naturally in a series of *R. Britannica* L., collected to show the effect of differing conditions upon the species, that it is impossible to avoid the suspicion that in many cases, at least, the forms referred to *altissimus* are really *Britannica*. I am unwilling to exclude the form from the State flora, not having seen the specimens of Dr. Phinney. I request, however, that if in any of the herbaria in the State there are forms referred to *altissimus*, they be examined with care and report made to me before the publication of the flora, instead of after its appearance.

*R. occidentalis* S. Wats. Reported from Jefferson County by J. M. Coulter, and from Clark County by Baird and Taylor, is probably to be excluded from the State list. There are no verifying specimens, and in fairly full collections of the genus made from those counties during two seasons the form does not appear. There is no especial reason why it should not be a member of our flora so far as its geographical distribution

goes, and I should not be surprised if it were found in some of the herbaria of the State. If so a prompt report should be made.

*Rumex sanguineus* L., reported from Jefferson and Clark counties, shows itself, upon an examination of the specimens, to be *R. crispus* L., with the veins of the foliage leaves of a somewhat reddish cast. The outer characters are evidently those of *R. crispus* L. In the absence of further data *R. sanguineus* must be excluded from the State list.

It may be suggested at this point that few forms respond in so marked a manner to changed conditions as the docks. These changes involve the general habit, venation, inflorescence and markings of the valves. The collection of a single species under varying conditions will sufficiently explain the doubt felt in admitting to the State flora, without further evidence, the three forms just discussed.

The genus *Polygonum* is represented by nineteen species in our bounds. The specimens examined show a number of incorrect references, which serve to render doubtful some statements as to the distribution of these forms. Among the more common errors of reference are the following: *P. lapathifolium* L., for *P. incarnatum* Ell. The larger and more erect forms of *P. aviculare* L., for *P. erectum* L., while very often *P. Hydro Piper* L., and *P. punctatum* Ell. (= *P. acre* H. B. K.) are found associated upon a single herbarium sheet. An examination of the ordinary descriptions of these species will show how easily such errors in reference may be made, and how small is the likelihood of their subsequent correction unless especial attention is called to them.

*P. Carey* Olney is reported only from Noble County by Van Gorder. This is to my mind a very doubtful reference. The recorded range of the species is northern Maine and New Hampshire to Pennsylvania and Ontario, which militates somewhat against the accuracy of the reference, while the wide range of variation in the nearly related species *P. amphibium* L., and *P. emersum* (Michx.) Britton, (= *P. Muhlenbergii* Watson) suggest its proper reference is to one of these forms. My own experience in the collection of *Polygonum*s in the same region leads me to believe the form to be *P. emersum*. *P. Carey* Olney is, therefore, to be omitted from the State list unless other data are available.

*P. ramosissimum* Michx. is reported only from Vigo County, by W. S. Blatchley. The recognized range of the plant includes the whole State. It is probable that it is of fairly general distribution and has been mistaken

for *P. erectum* L., from which it differs chiefly in its reduced and bract-like upper leaves.

*P. tenue* Michx., reported only from Tippecanoe County and Lake County, is in much the same case. It is probable that in most instances it has been mistaken for *P. orientale* L., which it closely resembles in habit of growth and general aspect. Since recognizing it in Tippecanoe County I have been greatly surprised to find how abundantly it occurs. It would be well to examine herbarium specimens with some care for these two forms.

Generally speaking, the species of this genus can not be satisfactorily distinguished unless collected in fruit, a fact which seems to have been lost sight of in most of the herbarium sheets which have come to my notice.

#### GERANIACEÆ.

In this family, as at present limited, there are but the two genera *Geranium* and *Erodium*.

So far as I am able to determine the only species of geranium within our bounds are *G. Carolinianum* L. and *G. maculatum* L. Both seem of general distribution, although perhaps *maculatum* extends farther north and is everywhere much more abundant.

*G. Robertianum* L., reported from Dearborn County, by Dr. Collins, is probably *Carolinianum*. There is no apparent reason why *G. Robertianum* should not occur within the State, but as yet I have failed to find it in any collection. Several unpublished lists that have come into my hands have included *G. dissectum* L. The plants so referred are in every case depauperate forms of *G. Carolinianum* L.

*Erodium cicutarium* (L.) L'Her. is reported only from Gibson and Posey counties, by Dr. Schneck. It is to my mind very improbable that this rather rare, adventive plant, reported only from New York and Pennsylvania, should have found lodgement in these counties as a permanent member of our flora. Dr. Schneck preserved no specimens, but doubtful forms were passed upon by Dr. Gray. In my opinion the plant is not a member of the State flora, its admission in all probability being based upon a temporary escape. Unless additional data are at hand it will be dropped from the State list.

## POLYGALACEÆ.

Eight species and one variety of the genus *Polygala* have been recorded in the State. Of these *Polygala Senega* L., *Polygala Senega latifolia* Torr. & Gray and *Polygala viridescens* L. (= *P. sanguinea* L.) are of general distribution and fairly abundant.

The following are reported from a single station:

*P. ambigua* Nutt. (= *P. verticillata* var. *ambigua* Wood), from Gibson and Posey counties, upon the authority of Dr. Schneck.

*P. eruciata* L., from Cass County, by Dr. Robert Hessler.

*P. Nuttallii* Torr. & Gray, from Jefferson County, by J. M. Coulter.

*P. verticillata* L. is reported from only two stations, Jefferson County and Noble County, while *P. polygama* Walt. is also reported but from two counties, Vigo and Elkhart. The difficulty of discriminating the species of this genus, because of their great variability and because of the fact that nearly related forms tend to become confluent, makes the inclusion of these forms reported from a single station a matter of some doubt. The material examined verifying the references has been so scant that critical study has been impossible. There is, however, in no instance any range improbability in the record. The well-known accuracy of the botanists reporting these forms is sufficient to justify their inclusion in the list. It is especially desirable that those in charge of herbaria should examine their *Polygalas* in the hope of both extending the range of these forms and justifying their inclusion in the State list.

## VIOLACEÆ.

Sixteen species of the genus *Viola* have been recorded from the State, at least four of which seem questionable, so much so, indeed, that without additional evidence they should be excluded from the State list.

*Viola hastata* Michx., reported only from Clark County, upon the authority of Baird and Taylor, is a mountain form. It occurs in the Alleghanies in Pennsylvania and follows the system southward. It has an additional station in the extreme northeastern part of Ohio, but apart from this is confined to the mountain regions. It is closely allied to *V. pubescens*, Ait., from which it differs essentially in the size of the stipules. The halberd-shaped leaf often passing into an oblong to heart-shaped, while the broadly heart-shaped leaves of *pubescens* as frequently narrow.

The reference is undoubtedly incorrect, the plant being a narrow-leaved, rather glabrous form of the *V. pubescens* Ait.

*V. primulaefolia* L., reported as rare in moist soil in Gibson and Posey counties, by Dr. Schneck, I am forced to regard as a form of *V. blanda* Willd. *V. primulaefolia* is an eastern plant, ranging from New England to Florida near the coast. A glance at the descriptions of *blanda* and *primulaefolia* will serve to show how, with slight foliar changes, it might be possible to mistake the two forms. I have examined for intervening stations so far as I was able, but have found none that indicate even the slightest western movement of the species.

*V. rostrata* Pursh, reported from Jefferson County ("Clifty Ravine"), by C. R. Barnes, and from Noble County, by VanGorder is a rather rare northern form, extending southward along the Alleghanies. Of the two stations, that in Noble County would be the more probable. I have seen no specimen verifying either citation, but because of the known range of the form am inclined to refer it to a form of *V. striata* Ait. The most constant difference between *rostrata* and *striata* is in the spur. In the former it is slender and longer than the petals; in the latter it is thickish and shorter than the petals. It may, however, be a form of *V. Labradorica* Schrank (= *V. canina* var. *Muhlenbergii* Gray). I feel confident, however, that *V. rostrata* Pursh is not a member of the State flora.

*Viola rotundifolia* Michx., reported from Dearborn County, by Dr. Collins, and from Jefferson County, by Professor Young, is another eastern mountain form, whose presence in our territory is scarcely possible and certainly is very improbable. The recorded range of the plant reads: "Cold woods; Maine to Minnesota and southward along the Alleghanies." The form is so characteristic that it is difficult to understand with what species it may have been confused. The range probabilities, however, are so strongly against its presence in the State that in the absence of verifying specimens it must be excluded from the catalogue.

The admitted forms of the genus are as follows:

*V. blanda* Willd.

*V. Canadensis* L.

*V. Labradorica* Schrank (= *V. canina* var. *Muhlenbergii* Gray) a form not recorded north of Monroe County.

*V. lanceolata* L.

*V. obliqua* Hill (= *V. palmata* var. *cucullata* Gray).

*V. palmata* L.

*V. pedata* L.

*V. pedatifida* Don., reported from Wayne County, and also from Gibson and Posey. The form is western and is probably confined to the western tier of counties. The Wayne County reference is probably *V. pedata*.

*V. pubescens* Ait.

*V. sagittata* Ait., apparently confined to southern counties.

*V. striata* Ait.

*V. tricolor* L.

#### PLANTAGINACEÆ.

An examination of a large number of specimens from various localities referred to *Plantago major* L., showed the majority of them to be *P. Rugelii* Dec. The only character that readily separates the two forms is the number of seeds in the pod. In the case of *major*, running from eight to eighteen, and in *Rugelii* from four to nine. As the pods are of practically the same size, the difference in the size of the seeds is easily recognized. It is probable that in almost every region of the State *P. Rugelii* Dec. will be found in fair abundance closely associated with *P. major* L. The two forms run into each other in leaf, spike and bract characters, but may apparently always be separated by the number and size of seeds.

#### COMPOSITÆ.

*Vernonia gigantea* (Walt.) Brit., = (*V. altissima* Nutt.) is of much more general distribution than indicated in my Contribution to Flora of Indiana, IV, page 5. In the northwestern counties of the State it seems more abundant than *V. fasciculata* Michx., to which it is usually referred. In almost every collection thus far examined, *gigantea* is the prevailing form. I am inclined to believe it much more abundant in the State than *V. fasciculata* Michx.

As suggested in Contribution IV (supra), there are many reasons which lead to the belief that *gigantea* is really a hybrid and should be written *V. Norchoruscensis* × *fasciculata*. Experiments are now under way for the determination of this point.

Through the courtesy of Dr. Eigenmann, I have received a list of plants of the northern lake regions of the State, which fairly represents



the flora of such restricted areas in the months of August and September. The list is herewith published in the form in which it was received, with thanks to Mr. Deam for the use of his notes. Comments upon some of the species are reserved for the forthcoming report upon the flora of the State.

A LIST OF PLANTS COLLECTED AT CEDAR, SHRINER AND ROUND LAKES.

BY C. C. DEAM, BLUFFTON.

The following species are represented in my herbarium by specimens collected by Mr. Williamson and myself. The number here recorded by no means represents the rich flora of the region.

- Dryopteris Thelypteris* (L.). A. Gray. September 2, 1897. Shriner Lake.  
*Typha latifolia* L. September 2, 1897. Round Lake.  
*Potamogeton*, four species. August 3, 1896. Shriner Lake.  
*Sagittaria rigida* Pursh. August 6, 1896. Round Lake.  
*Panicum capillare* L. August 6, 1896. Round Lake.  
*Panicum Crus-galli* L. August 2, 1896. Round Lake.  
*Zizania aquatica* L. August 6, 1896. Round Lake.  
*Homalocenchrus oryzoides* (L.). Poll. September 2, 1897. Cedar Lake.  
*Muhlenbergia Mericana* (L.). Trin. September 2, 1897. Shriner Lake.  
*Cyperus Engelnanni* Steud. September 1, 1897. Shriner Lake.  
*Cyperus rivularis* Kunth. September 1, 1897. Round Lake.  
*Dulichium arundinaceum* (L.). Britt. September 1, 1897. Round Lake.  
*Eleocharis interstincta* (Vahl.). R. and S. September 1, 1897. Round Lake.  
*Eleocharis mutata* (L.). R. and S. September 2, 1897. Round Lake.  
*Scirpus Americanus* Pers. August 3, 1896. Shriner Lake.  
*Scirpus atrovirens* Muhl. August 2, 1896. Shriner Lake.  
*Scirpus lacustris* L. August 1, 1896. Shriner Lake.  
*Scirpus lineatus* Michx. August 1, 1896. Shriner Lake.  
*Rynchospora glomerata* (L.). Vahl. August 2, 1896. Round Lake.  
*Cladium mariscoides* (Muhl.). Torr. September 2, 1897. Shriner Lake.  
*Carex comosa* Boott. September 1, 1897. Shriner Lake.  
*Carex lupuliformis* Sartwell. September 1, 1897. Shriner Lake.  
*Eriocaulon septangulare* With. September 2, 1897. Round Lake.  
*Pontederia cordata* L. August 1, 1896. Shriner Lake.  
*Juncus Canadensis* J. Gay. September 2, 1897. Shriner Lake.  
*Pogonia trianthophora* (Sw.). B. S. P. August 2, 1896. Shriner Lake.