

THE NATIVE IRIS OF OHIO AND BORDERING TERRITORY.*

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Sufficient progress in the study of the native American species of the genus *Iris* as locally represented has been made during the past five years to warrant the publication at this time of a list with a key and distribution maps. Before 1926 the State Herbarium had only two species listed, the northern blue flag, *Iris versicolor*, L. and the crested dwarf *Iris*, *Iris cristata* Ait. The leafy blue flag, *Iris foliosa*, Mack and Bush, although known to have been collected in the state, was not represented in the Herbarium. The intervening years since 1926 have witnessed an awakening enthusiasm for native iris, occasioned in part by collectors of garden iris, but chiefly resulting from the availability of certain valuable botanical publications. These *Iris* papers have shown conclusively that in spite of its showiness and the natural attractiveness of its flowers, the genus has been decidedly neglected by the botanists. A conspectus of the genus, which has about 170 species, goes back to Sir Michael Foster and Mr. W. R. Dykes. The former's great interest in collecting and classifying, after having grown the plants, bore fruit in the monograph of the genus by Dykes (2) published in 1913. The monograph, probably not circulated much beyond the greater libraries was happily followed by a Handbook (3) in 1924 by the same author. The Handbook furnishes a convenient guide to anyone interested in the genus and has made it possible for the many garden enthusiasts to become acquainted with a group of most interesting plants. During the same period, Dr. John K. Small (6), (7), of the New York Botanical Garden, has added a new interest to native American iris by his collections of many fine forms in the Southeastern States from Florida to the Mississippi Valley. Also during this period, Mr. Edgar Anderson (1) of the Missouri Botanical Garden, has cleared up the confusion in nomenclature of *Iris versicolor* and has shown that what was negligently classified under that name is really a pair of distinct species with definite characters and decidedly different geographic ranges.

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The purpose of this paper is to call attention to our local species. Since the political boundaries of the State bear no relation to origin or migrational history of a group of plants, it is thought best to include such native American species as we have in our closely surrounding neighboring States, attention being in each case given to the proved records of their collection from actual Ohio territory.

METHODS OF STUDY.

The collection of iris into gardens lends itself particularly well to modern taxonomic study which at present demands more than the preservation of good herbarium material. There are several reasons for herbarium specimens being unsatisfactory. The first one is that iris flowers are perishable and delicate and not easy to determine in the dried state. Iris specimens usually defy all attempts at dissection. Few herbaria have specimens with complete parts of the plants included. Seeds, capsules, rhizomes are all wanted for the diagnosis of certain species. The student of iris will do well to bear in mind that the collection of entire plants and the notes on habitats and time of bloom are important. Too much stress has been laid upon flower color, quite the most easily lost of all the characters. After a few years the Albino forms recorded in several species are completely indistinguishable from the dark forms in herbarium sheets. Consequently all collections I have made are supplemented with garden culture of doubtful species. With this method of study it has not taken long to show that the descriptions of species in our general manuals of botany are in need of revision. Few of the manuals present in concise form those differences needed for diagnosis. None have taken advantage of the convenient grouping of the species into subsections of the genus. The examination of the following paragraphs will show that the determination of a few endemic species is made easier by a study of the relation of the species to the genus as a whole.

SECTIONS, AND SMALLER GROUPS OF THE GENUS.

The iris forms commonly grown in our gardens are characterized by a prominent beard on the sepal. This has no functional significance, although inexperienced hybridizers have been known to mistake it for the stigmatic surface of the plant. It is intended at a future date to take up the naturalized species

as it can be shown that a number of garden forms have escaped in Ohio and a number of species have become naturalized. The point in this connection is that we have no native bearded iris or *Pogoniris* in Ohio. The two main groups into which our native species fall are the *Evansia* section and the *Apogon* section of the genus.

The *Evansia* section derives its name from Thomas Evans, of India House, who first introduced a crested iris to the botanists in Great Britain. It was at one time given a separate generic name, *Evansia*, but was later put back into the genus *Iris* after several somewhat similar forms became known. All the *Iris* of this section have the median line of the sepal decorated with a white or yellow linear crest usually of three small ridges, more or less bearded or waved. The crest in the iris of this group, replaces the beard of the previously mentioned group of garden forms. Our native American species, *cristata* and *lacustris*, are the members of this section. Most of the species of the crested group are from India and China and probably most of the 8 or 9 described species have garden possibilities. *Tectorum* is the Chinese species most commonly introduced into our gardens.

The *Apogon* section is large and comprises nearly half the genus. However, it is so conveniently split up into a number of smaller subsections that are readily grasped by the iris growers that the whole section is scarcely ever thought of as having unity except in two main points. The iris are all without beards or crests and they are all rhizomatous. Taken together these two characters separate the *Apogons* from the bearded iris and the crested iris as well as the bulbous iris. If any ornamentation of the median line of the sepal exists, it takes the form of a color stripe or a minute pubescence. It is not until the fundamental divisions of the iris groups are borne in mind that a manual of local forms can be properly constructed, and be useful to some one not already acquainted with many irises.

In our American species the *Apogon* section is represented in Ohio by the *Hexagona* subsection and by a subsection that will be proposed a little further on in this paper. The *Hexagona* subsection derives its name from the six-angled or six-sided seed capsule. The ovulary of the *Hexagona* group of iris is subtended by three narrow linear troughs extending from base to apex. These troughs are bounded by prominent ridges forming ribs. The wider and more or less flat faces may also

have minor ridges on them. This subsection is distinctly American and contains three species, *I. hexagona*, native in the Carolinas, not known outside of cultivation in Ohio; *I. fulva*, with a distribution center in the Mississippi Valley, but known in Ohio, and *I. foliosa*, known since 1926 to be rather widely distributed in Ohio. From the time of the proposal of the name in 1902 until 1926 the occurrence of this iris had only been definitely recorded for the State Herbarium from a colony on Middle Bass Island. There were specimens from Ohio, however, in other herbaria.

Two species of Apogons obviously closely related to one another are *Iris versicolor* L. and *Iris virginica* L. They are enough like each other that the hasty superficial methods of collecting only flowers and then finding in the herbarium a mass of collapsed material that is more an exasperation than a record, has led for many years to indiscriminate lumping of all of these under one name, *versicolor*. This species was thought to have been the only one of the blue flags native in Ohio. This mistake was unfortunately not realized by Dykes. Probably because of lack of critical material easily at hand, these two species were not separated in Dykes Monograph. Possibly he may have looked askance at the problems of untangling the synonymy and deferred to the current American diagnosis. It is easy on this ground to account for his remarkable summary of the range of *versicolor*, from Hudson Bay to the Gulf of Mexico, a range which on the Age and Area Hypothesis would readily concede to *versicolor* the parentage of all other iris species.

NEW SUBSECTION OF APOGONS. THE VIRGINICA SUBSECTION.

The separation of the two species has been carefully explained by Mr. Anderson, (loc. cit.) with full references to all the records of taxonomic importance.

Since Dykes did not separate the two and Anderson in making the separation used his material in such a way that the affinities are not emphasized it is here proposed to group these two into a new subsection of the genus and call it the *Virginica* subsection. Dykes was interested in attempting to show similarities between *versicolor* and *Iris pseudacorus*, the yellow European bog iris. Attention to this led him away from the more logical and more important consideration of the *virginica-versicolor* problem.

The *Virginica* subsection of the *Apogons* may be defined as comprising *versicolor* and *virginica*. It is distinct from the *Hexagona* group and the western group, but is related to the Gulf Coast forms.

The remaining single species of the area covered by this paper is *Iris verna* L. It does not belong to any other group of species of the *Apogons*. It has in the past been variously grouped, but does not have close affinities with any members of the genus. It is dwarf and has been confused with *cristata*, but it lacks the crest found in all *Evansia* irises. It is beardless, but bears on the median line of the sepals a marked pubescence of short unicellular hairs. The small flowers with erect standards and spreading falls give it somewhat the appearance of a diminutive bearded iris. However, it is not related to the dwarf bearded irises. It has not definitely been proved to be in Ohio, but is suspected and is known not far south of the Ohio River in Kentucky and West Virginia, and probably also west of Ohio, in Indiana.

Further remarks on the above plants will be postponed to examine a key to the species before discussing these individually.

KEY TO NATIVE IRIS.

- A. Dwarf plants without flower stalks, flowers borne on relatively long perianth, tubes, sepals crested.
 - B. Perianth tube narrowly funnel form, 1½ cm. to 3 cm. long, shorter than the sepals.....*I. lacustris*.
 - B. Perianth tube broadly funnel form, 4-7 cm. long, as long or longer than the sepals.....*I. cristata*.
- A. Dwarf plants with short flower stalks not exceeding the perianth tube, the two together less than 7 cm. long, sepals not crested, petals somewhat arching cupped.....*I. verna*.
- A. Plants with flower stalks at least 8 cm. long.
 - B. Hexagonal ovaries.
 - C. Flower stalk erect, 20-50 cm. long floral segments drooping, sepals and petals coppery red.....*I. fulva*.
 - C. Flower stalk curved, often zigzag, sometimes procumbent, usually less than 40 cm. long, sepals and petals spreading horizontal, blue to lilac.....*I. foliosa*.
 - B. Trigonal ovaries.
 - C. Flower stalk sparingly branched, ovules filling the locules, sepals usually with bright yellow blotch at base of blade, blade pubescent sepals thin textured, easily wilting, blue purple or lighter, capsule lining dull, seeds dull, corky, both rounded and D-shaped.....*I. virginica*.
 - C. Flower stalk freely branching above, ovules not filling the locules, blotch, if present, green or greenish yellow, sepals relatively heavy textured, not easily wilting, reddish purple, capsule lining shiny, seed coats relatively thin, shiny, D-shaped.....*I. versicolor*.

DISCUSSION OF THE SPECIES AND THEIR DISTRIBUTION.

Iris cristata Ait. Hort. Kew. 1:70. 1789.

Plates. Dykes, pl. 25. Addisonia, pl. 320.

Description—The stem is a slender rhizome which spreads by long stolons. In a favorable location the stolons may be 6 or more in number and rather short. In the native state on eroding stream banks the stolons may be 15 cm. long without lateral buds forming. The leaves are usually less than 12 cm. at flowering time, but may be twice that length later in the season. In width they are between 1 and 3 cm. The flower stalk is short or absent and bears two or three reduced leaves at the base. The perianth tube is greatly elongated up to 10 cm., 3 angled and distinctly wider at the top. The falls (sepals) do not have any constriction separating blade and haft. The blade is broadly obovate and surmounted by three ridges. The central ridge is waved, white, tipped with orange. The lateral ridges are orange or yellowish. The central ridge becomes dotted with purple toward its apex around which is a white patch sharply outlined with lilac purple which fades to paler lilac toward the margins of the blade. The standards, (petals) are horizontal or drooping. The style branches are appressed over the falls. The stigma is oblong entire, the filaments are white or tinged, the anthers cream and the pollen white. The capsule is small, not more than 1½ cm. long. It dehisces while still green and somewhat hidden by the spathe valves. It is sharply trigonal, broader at the apex and tipped with a small point. The seeds are small, oval, and bear small gelatinous appendages which are viscid at first, but shrivel quickly on being exposed to the air.

This interesting little plant was introduced into England by Peter Collinson in 1756. It was well known to John Bartram, to Short, and other botanists of pioneering days.

Through the courtesy of the Missouri Botanical Garden I have studied their collection and find that its range exceeds that given by Small, Dykes and others.

Distribution—*Iris cristata* ranges through the hilly sections of Georgia and the Carolinas, across Virginia, Tennessee and Kentucky, north across Ohio to Lake Erie, across to Southern Indiana to Missouri, Arkansas and Texas. It is decidedly a plant of the Appalachian Highland rim spreading out to the Ozarks and south westward. In Ohio in post-glacial times it has migrated across the hilly eastern part of the state.

Habitat—Drained but moist and cool soils are occupied by *Iris cristata*. It may form a mat in association with ferns, mosses, violets and other plants of moist rock faces, but it is equally a part of drained terraces and flood plains in partial

shade. As a garden plant it can be better managed in soils that have well decayed humus incorporated and kept cooled by the shade of small trees or shrubs. The stolons do not spread so far and strong clumps bearing numerous flowers are formed. Rhizomes that have flowered do not again flower. They may be discarded to make room for young stolons. Iris clumps help solve the erosion problems of partially shaded garden terraces and make ideal plants for the base of a wall wherever height is not wanted. It appears that seeds are not easy to germinate and in plants collected from vigorous patches seed production is never very heavy. The question raised by Dykes whether or not the albino form appears in the wild state or only in gardens can now be answered. Mr. Floyd Bartley, of Circleville, Ohio, brought me some white forms collected in Hocking County, in East Pike Run, where it occasionally appears among the blue flowered plants. A specimen is in the State Herbarium from this locality.

Iris lacustris Nuttall. Gen. 1:23. 1818.

Plate. Addisonia, Pl. 319.

Dykes Genus *Iris*, p. 106, makes *I. lacustris* a variety of *I. cristata*, but in the Handbook, p. 85, he appears to have reversed his earlier opinion and gives it as a species. The description on p. 86 is not convincing. The key in this paper gives the major points by which *I. lacustris* may be distinguished from *I. cristata*, namely, the dimensions and form of the perianth tube. In other characters there are also differences, though it must be admitted that the species are closely linked. The type specimen collected by Krebs is in the Herbarium of the Berlin Botanic Garden and has not been examined, though the Ohio State University has the material on *I. cristata*, collected by Krebs. Both are labelled "collected in Cuyahoga County." The best material I have seen of *I. lacustris* was collected and kindly sent by Dr. George E. Nichols, from Douglass Lake, in Michigan. Michigan and Ohio are the critical states for the determination of these two species as it is there that the distribution shows an overlap. In garden cultivation with me, *I. lacustris* has never succeeded well, though growing side by side with *I. cristata*. While this is not sufficient evidence, it leads me to suspect that the separation had occurred before glaciation and that *I. lacustris* was preserved

in its more northern habitat on some of the unglaciated areas, while *I. cristata* was forced into a temporary retreat in the region southeast of the Moraines of Fairfield County. At least *I. lacustris*, as the name implies, has its center of distribution in the Great Lakes region.

Iris verna Linnaeus. Sp. Pl. ed. 1, p. 39. 1753.

As mentioned previously, this dwarf iris is not at present officially recorded from Ohio. It has been reported from Adams County. However, it is thought desirable to spread our area a little to include it since it is becoming a familiar form in cultivation and it is not necessary to go far south of the Ohio River to find it in the wild state. A few years ago it was seen in a flourishing condition in the pine woods at the top of the hill at Natural Bridge, Kentucky.

Description—The stem is a slender rhizome, not bearing long stolons as in *I. cristata*. The leaves are narrowly ensiform, 10–16 cm. long at flowering time, later somewhat longer. The flowering stalk is short, the perianth tube 3–4 cm. long, rounded to trigonal. The ovary is trigonal, the mature seed capsule with a groove on each face, is blunt at the base and tapering to the apex. The sepals are about 3 cm. long and less than 1 cm. wide, obovate cuneate. The haft is marked by a pubescent band of unicellular hairs, orange and brown, extending outward to the blade, which is uniformly purplish lilac. The falls are horizontal and the standards are arching cupped and of the same color as the blade of the falls.

The style arms do not separate at the base of the segments, but about $\frac{1}{2}$ cm. higher. The styles are lighter than the blade of the falls in color. The stigma is entire. Filaments are white or tinged, longer than the anthers. The anthers are blue, the pollen creamy white. The seeds are pear-shaped, a light brown and marked with a raphe of white.

Distribution—The range of *I. verna* is in the Southern Appalachians, but it nowhere forms the matted colonies which make a conspicuous plant of *I. cristata*. It has been collected from Virginia, Kentucky, Tennessee, North Carolina, Georgia, and Alabama.

Habitat—*I. verna* requires greater drainage than *I. cristata*, but still requires somewhat cool soil in the summer. It can be successfully lifted and transplanted in early autumn in Ohio and a planting made of it five years ago to a well drained shaded slope not far from a limestone gravel walk has thrived without further attention. A planting made at the same time and put

into soil that was acidulated with alum died promptly after flowering the first year. This seems to be the reverse of the experience of most gardeners. The leaves are decidedly slower to die and absciss than *I. cristata*, a fact that commends it to the attention of gardeners looking for dwarf plants with more or less evergreen foliage.

Iris fulva Ker-Gawler. 1812.

Plate in Botanical Mag., 1496. Pl. in Dykes, Genus Iris, 21. Seeds, Pl. 48, Fig. 3.

No iris is more readily identified than *I. fulva*, in which the flowers are apparently lacking in the violet or purplish tones so abundant in most iris species. The color is according to Ridgeway's charts (4) between cornelian red and vinaceous rufous. (Plate 14). This is far from the conventional description as terra cotta, given both in the Genus Iris and in Dyke's Handbook and consequently found in a number of other writings. The color is far too brilliant to continue to mask under such a drab designation. The flower color and the hexagonal ovulary are sufficient to distinguish it.

Description—The rhizome is stout, becoming green if exposed and bearing the shredded leaf bases on prominent scars of the successive years growths. The flower stalk is 60 cm. or more long and bears two flowers at the apex and one or two more in the axils of short leaves. The ovulary is six-ribbed and at maturity the seed capsule may be 5 cm. long by 2 cm. broad. The sepals are oblanceolate cuneate, nearly 3 cm. broad at the widest part of the blade. The petals are emarginate and truncated. Sepals and petals are of a uniform color close to cornelian red or dark at the veins. The styles are short, about 2 cm., the stigma bears two small pointed teeth. The filaments are yellow, the anthers cream, reaching the stigma, the pollen is cream. The seeds are large, flat sided and covered with a thick coriaceous husk.

Distribution—The range of *I. fulva* is given in the Genus Iris and in the Handbook of Dykes as limited to the banks of the Mississippi near New Orleans. It is known to range from there as far north as Illinois and is reported eastward as far as Georgia. It is also known from the moister parts of Texas and Arkansas and its distribution in Western Tennessee and Kentucky is suspected.

Habitat—*I. fulva* is distinctly a swamp plant, tolerating poorly the dry conditions of most gardens. It is best planted close to a stream where it can be kept moist. The plants that I have known for the past fifteen years have been in a pasture

on the farm of Mrs. Joseph Wing, near Mechanicsburg, Champaign County, Ohio, where they have spread without protection and have at times even been trampled, though never eaten by the livestock. While there is not an altogether clear record, the plants are supposed to have been brought from Clark County. I have never been able to disprove or to verify this statement, since the plants have been living in their present location without attention for such a long time. It is the habit of *I. fulva* to send out new shoots in autumn which seem perfectly able to withstand cold during the winter. The specimens in Champaign County have a number of times endured zero and lower temperatures. *I. fulva* seems fully as hardy as the related species, *I. foliosa*. It is recommended for trial in all gardens able to give it sufficient moisture.

Iris foliosa Mackenzie and Bush in Trans. Acad. Sci.
St. Louis, 12:81, 1902.

Plate, Dykes Genus *Iris*, 20. Addisonia, 315.

Description—The rhizome is light brown, often with green from the leaf bases encircling it. The leaves are glaucous, $2\frac{1}{2}$ cm. wide and 40–50 cm. long. In autumn when the leaves die away new shoots appear at once. These remain green, but do not grow until spring. The flower stalk is short, 15–25 cm., flexuous or distinctly zigzag so that its length is uncertain. The leaves at flowering exceed the length of the stem. The spathe valves are green, 5 cm. long. The ovary is six-angled and ribbed with six prominent ridges. The perianth tube is $1\frac{1}{2}$ cm. long and ribbed. The falls are ascending spreading, a clear blue violet, the blade ovate, the haft narrowly cuneate. A large downy patch of white at the center of the falls extends in toward the haft, becoming greener toward the haft. The standards are oblanceolate of the same color as the falls. The styles are keeled, greenish along the keel. The stigma has two large lobes, the filaments are stout, about equalling the anthers. The anthers are wide, the sac being widely separated, the pollen is yellowish white and pointed. The capsule is about as wide as long, 3 cm. The ribs on the capsule meet in a rosette at the apex. The seeds are large, corky grayish buff and of irregular shapes.

Distribution—Since this iris is one for which a great number of records have been made recently, it seems desirable to give a few of these to show that this plant is not a rare one, but had merely escaped the notice of collectors. The earliest specimens were recorded as *I. hexagona* in 1897. The species *foliosa* was erected in 1902.

***Iris foliosa* Mack. and B.**

Auglaize County—St. Mary's, A. Wetzstein, 1897, (*I. hexagona*).

Auglaize County—St. Mary's, A. Wetzstein, 1898, (*I. hexagona*).

Ottawa County—Catawba Island, Edgar Anderson, 1925.

Mercer County—Near Celina, A. E. Waller, 1926.

Shelby County—Near Sidney, Joseph A. Clem, 1926.

Franklin County—West of Glenmary Park, A. E. Waller, 1927.

Highland County—Hillsboro, Garden escape. Katie M. Roads, 1928.

Van Wert County—Willshire, A. E. Waller, 1929.

Darke County—Ten miles north of Greenville, Hicks and McCormick, 1930.

Henry County—One and one-half miles east of Napoleon, Hicks and McCormick, 1930.

Union County—One mile south of Essex, Hicks and McCormick, 1930.

Ottawa County—Middle Bass Island, C. J. Kennedy and Helen Brown, 1930.

The distribution by counties indicates clearly that this iris fits in with the distribution of Mississippi Valley plants that have migrated post-glacially northeastward along the Ohio, Wabash, and Maumee River systems across the northwestern part of Ohio. The farthest south distribution point in Ohio, Highland County, is recorded by Miss Roads as a garden escape. The farthest east record to date is Franklin County. It is further interesting to be able to record that I have seen colonies of this species in Wells County, Indiana, near the Wabash River, while collecting with Mr. E. B. Williamson, of Bluffton, Indiana. Both Mr. Williamson and Mr. Paul Cook, of Bluffton, have traced this species over to Willshire, Ohio.

Habitat—*Iris foliosa* is a plant of small stream terraces and succeeds well in partly shaded positions. The colonies spread vigorously and the corky seeds float to other parts of the stream. It is not easy to see how the great upstream migration could be accomplished in any but rather level country. The accompanying distribution map gives a reliable picture of the known facts. Both Sir Michael Foster and Mr. E. B. Williamson have produced hybrids of *I. foliosa* and *I. fulva* using the pollen of *I. foliosa*. These hybrids are rather widely grown in gardens, being more frequently seen than the parent species. The hybrid forms have the vigor and flower size of the pollen parent and the height of the seed parent. No second generation segregates have yet appeared in cultivation. The plants produced by the two hybridizers are readily distinguished by iris fanciers.

Iris virginica Linneaus. Sp. Plant. Ed. 1, p. 38 (1753).

Plate 36, Fig. 2, in Anderson (loc. cit.).

Description—Rhizome 2–4 cm. wide. Leaves 1–5 cm. wide, 60–80 cm. long, ensiform. Flowering stalk not much branched. Spathe valves long, 4–12 cm., sometimes becoming reduced leaves. Ovary long, slender, 1.8–3.8 cm., walls of ovary relatively thick, and the ovules nearly filling the locules. Sepals a blue purple with a bright yellow pubescent spot at the base of the blade. The thickness of the blade is less than the length of the hairs of the pubescences. Petals ovate spatulate, nearly as long as the sepals, of the same general color as the sepals, thin and easily wilted. The seed capsule is long and slender, the lining irregularly marked with striae, dull. The seeds are large, rounded to D-shaped, having a heavy cork wall and the seed coats are dull.

Distribution—*Iris virginica* appears all over our area. It is the common flag of our region and the earlier collections in the State Herbarium have been checked to separate *I. virginica* from the collection which was originally entirely labelled *I. versicolor*. We have herbarium sheets and sight records from most of the state. In the northwestern part of the State, *I. foliosa*, *I. virginica* and *I. versicolor* all meet.

Anderson, (loc. cit.) reports a partially sterile hybrid between *I. virginica* and *I. versicolor*. He obtained it as the result of an artificial pollination and also reports its spontaneous appearance in the areas of overlap of the two species. The Southeastern part of Ohio affords less opportunity for the occurrence of the swamp irises than the northern and western parts.

Habitat—*Iris virginica* is a plant of stream borders and marshy ground. It does not endure shade as well as *I. foliosa*, but in the open makes the most vigorous colonies of any of our iris species. It is increasing in moist pastures over the state as the livestock will not eat it except in the absence of all other herbage. It makes an excellent plant for water gardens, where a fine effect of vigorous foliage is wanted, and should have *I. pseudacorus*, the yellow swamp iris of Europe, as its garden associate. It is in my estimation a finer plant for garden effects than *I. versicolor*. Since its identity has not been clear it is uncertain whether all the garden forms that have been separated are from *versicolor* or *virginica*.

Iris versicolor L. Sp. plant ed., 1, p. 39. 1753.

Plates. Curtis, Bot. Mag. 1: Pl. 21, 1790. Meehan, Native Flowers and Ferns 1: Pl. 36, 1878. Small in Addisonia 9: 55, Pl. 316, 1924.

Description—Rhizome 1–2.5 cm. wide. Flower stalk freely branching above. Spathe valves 3–4.5 cm., never becoming leafy (see preceding species). Ovary 0.8–2.0 cm. long in flower. Walls of the ovary thin, ovules not filling the locules. Sepals a reddish violet, blade often without a conspicuous spot at the base. If the spot is present, the color is a greenish yellow to green. The pubescence of the base of the blade is short and inconspicuous. The petals are lanceolate, shorter than the sepals, and of firm texture, not readily wilting. The capsule is not usually as long as in *I. virginica*. The capsule lining is shiny. The seeds are D-shaped, shiny and regularly pitted and relatively thin.

Distribution—Part of the specimens heretofore erroneously labeled *I. versicolor* have to be reclassified as *I. virginica*. Instead of being widely distributed, this iris is found only in some of the northern counties of the state. To date the list of counties in which we unmistakably have *I. versicolor* consists of Williams, Fulton and Defiance in the Northwest, and Ashtabula, Lake, Cuyahoga, Geauga, Summit, Portage and Trumbull in the northeast, and Sandusky county in the center near the Lake. Perhaps further study will add the intervening counties along the Lake Shore, but we do not have records.

Habitats—Dispersal is by means of the floating seeds and many small streams emptying into the lake are populated with colonies of *I. versicolor*. The species spread is probably from the Great Lakes region across New York along the Mohawk and Hudson Valleys to Eastern Pennsylvania and Maryland. It is the only native species listed in the Flora of the Cayuga Basin, by Weigand and Eames (10). As a garden plant the reddish purple variety known as kermesina is without doubt selected from *I. versicolor* and is seen more frequently than any other form. Miss Sawyer (5) has reported on the cause of failure in attempting to cross *I. versicolor* and *I. pseudacorus*. She has shown in her scholarly paper that while some fusions within the embryo sac occur, the embryos fail to develop.

SUMMARY.

This account of seven species of irises growing in or near Ohio without cultivation shows the neglect of a striking group of plants in which there is an expanding public interest. That situation is also found true in the southeastern states where in addition to some of the irises named here there are a great number of other forms. A summarizing paper by Dr. Small, the *Chronicle of Eastern American Iris* (7) indicates the energy and enthusiasm he has devoted to the task of describing these new southern species.

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Iris cristata Ait.



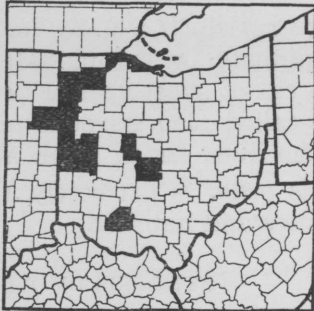
Iris verna L.



Iris lacustris Nuttall



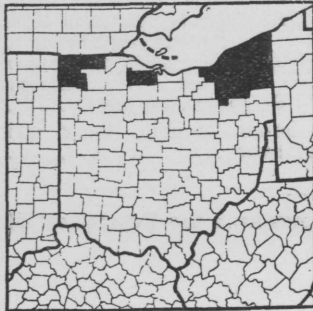
Iris fulva Ker.



Iris foliosa MoK and B



Iris virginica L.



Iris versicolor L.