

## THE VIOLETS OF OHIO.

ROSE GORMLEY.

The following list includes all of the violets known to occur in Ohio. It is probable, however, that a number of others occur in the state. The distribution given is based on material in the Ohio State Herbarium. In this list an attempt has been made to arrange the species in true phyletic series, the least specialized in each group standing at the beginning and the most highly specialized at the end.

### Violaceæ.

Small herbs, with bisporangiate, hypogynous, zygomorphic, axillary, nodding flowers and alternate, simple or lobed stipulate leaves. Sepals, petals and stamens 5 each; anthers erect, introrse, connivant or synantherous; ovulary of 3 carpels, unilocular with 3 parietal placentæ; lower petal enlarged usually with a spur; fruit a loculicidal capsule; seeds anatropous, with endosperm, embryo straight.

1. Sepals not auricled, stamens united, petals nearly equal.  
*Cubelium.*
1. Sepals more or less auricled at the base, stamens distinct,  
lower petal spurred. *Viola.*

### Cubelium.

Perennial, erect, leafy stemmed herb, the leaves, entire or obscurely dentate; small greenish flowers, one to three together in the axils, petals nearly equal, the lower somewhat gibbous; anthers sessile, completely united into a sheath, glandular at the base. A monotypic genus of North America.

**Cubelium concolor.** (Forst) Raf. Green Violet. Plants 1—2½ ft. high, hairy; leaves 2—5 in. long, entire, pointed at both ends. Auglaize, Belmont, Brown, Clermont, Fairfield, Franklin, Hamilton, Lake, Licking, Noble, Pike, Shelby, Warren Co.

### Viola.

Herbs with aerial leafy stems, or geophilous stems; flowers solitary or rarely 2 in the axils, early flowers petaliferous, often sterile, usually succeeded by apetalous, cleistogamous flowers which produce abundant seed; the two lower stamens bearing spurs which project into spur of the odd petal; capsules, three valved, elastically dehiscent.

*Synopsis.*

## AERIAL LEAFY STEMS.

1. Style capitate, beakless, bearded at the summit; petal spur, short; stipules entire; flowers, yellow or whitish, sometimes tinged with violet.

1. *Viola canadensis.*
2. *Viola scabriuscula.*
3. *Viola pubescens.*
4. *Viola hastata.*

2. Style slender, not capitate; spur at least twice as long as broad; stipules somewhat herbaceous, fringed-toothed; flowers white, cream-colored or violet.

5. *Viola striata.*
6. *Viola labradorica.*
7. *Viola rostrata.*

3. Style much enlarged upward into a hollow globose structure with a wide orifice on lower side; stipules leaf-like, large deeply cut or pinnatifid.

8. *Viola rafinesquii.*
9. *Viola tricolor.*

## UNDERGROUND STEMS.

4. Rhizomes long and slender, usually producing runners or stolons; flowers yellow, white or violet; style dilated upward in a vertical plane, capitate with conical beak on the lower side.

10. *Viola odorata.*
11. *Viola rotundifolia.*
12. *Viola lecontiana.*
13. *Viola blanda.*
14. *Viola lanceolata.*

5. Rhizome fleshy and thick without runners; petals violet blue to purple; style dilated upward in a vertical plane, capitate with conical beak on the lower side.

15. *Viola obliqua.*
16. *Viola papilionaceae.*
17. *Viola hirsutula.*
18. *Viola sororia.*
19. *Viola palmata.*  
Var. 1. *Viola palmata dilatata.*
20. *Viola pedatifida.*
21. *Viola emarginata.*
22. *Viola fimbriatula.*
23. *Viola sagittata.*

6. Rhizome short, erect, not scaly; leaves divided; style clubshaped, beakless, obliquely concave at the summit; stigma with a small protuberance near the center of the cavity.

24. *Viola pedata.*

## Key to the Species.

1. With leafy aerial stems; flowers axillary. 2.
1. Stems geophilous, sometimes stoloniferous; flowers appearing scapose. 9
2. Stipules entire; style capitate, beakless, bearded at the summit; flowers yellow or white with purple veins. 3.
2. Stipules sharply dentate, serrate or laciniate, much smaller than the leaf-blade; style, slender; flowers cream-colored, white, blue or purple; spur at least twice as long as wide. 6.
2. Stipules deeply divided, leaf-like, nearly as large as blade; style much enlarged upward into a globose hollow summit; annual or biannual. 8.
3. Flowers yellow. 4.
3. Flowers white with purple veins; leaves cordate-ovate, long pointed; plants tall. *V. canadensis* (1)
4. Leaves more or less hastate, those of the stem usually near the tip; flowers yellow. *V. hastata* (4).
4. Leaves not hastate; borne along whole length of the stem. 5.
5. Plant pubescent or villous. *V. pubescens* (3).
5. Plant glabrate or sparsely pubescent. *V. scabriuscula* (2).
6. Spur about half the length of petals or less; flowers white, cream-colored, pale blue or violet. 7.
6. Spur as long as petals or longer, slender; flowers pale violet veined with purple. *V. rostrata* (7).
7. Stipules very large, more or less laciniate,  $\frac{1}{2}$ -1 in. long; petals white or cream-colored, with purple veins. *V. striata* (5).
7. Stipules small, dentate or serrate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; flowers light blue or purple. *V. labridorica* (6).
8. Flowers  $\frac{1}{2}$ -1 in. broad, variously colored with yellow, white and purple; plants rather robust and spreading. *V. tricolor* (9).
8. Flowers  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, bluish white to cream-colored; plants tall and slender. *V. rafinesquii* (8).
9. Style ending in a small hook pointing downward, not plug shaped or capitate; flowers deep violet purple (sometimes white), fragrant; introduced species. *V. odorata* (10).
9. Style club shaped, capitate, or dilated upward, beakless or with a conical beak on the lower side; native species. 10.
10. Leaves merely crenate or dentate or incised at the base, not lobed. 11.
10. Leaves mostly lobed or parted; in ours, flowers blue or violet. 21.
11. Flowers yellow or white; plants stoloniferous. 12.
11. Flowers blue or violet, plants not stoloniferous. 15.
12. Flowers yellow; style enlarging upward abruptly, capitate, beakless. *V. rotundifolia* (11).
12. Flowers white, stigma with a conical beak. 13.
13. Leaves cordate-ovate to orbicular. 14.
13. Leaves lanceolate to linear-lanceolate. *V. lanceolata* (14).
14. Upper and lateral petals three times as long as broad; petioles usually red-spotted. *V. leontiana*.
14. Upper and lateral petals twice as long as broad; petioles not spotted. *V. blanda* (13).
15. Leaves of the cordate type, sometimes more or less ovate or reniform. 16.
15. Leaves of the ovate lanceolate, ovate or sagittate type, sometimes incised at the base. 19.
16. Plants essentially glabrous. 17.
16. Plants more or less pubescent. 18.
17. Leaves cordate-ovate, attenuate at the apex, very thin. *V. obliqua* (15)
17. Leaves ovate to reniform, obtuse or merely acute at the apex, thick. *V. papilionaceae* (16)

18. Spurred petal glabrous; flowers, violet to lavender. *V. sororia* (18).  
 18. Spurred petal with scattered hairs; petals reddish purple. *V. hirsutula* (17).  
 19. Leaves ovate or ovate-lanceolate not incised at the base. *V. fimbriatula* (22).  
 19. Leaves sagittate or ovate-sagittate, incised or deeply dentate toward the base. 20.  
 20. Leaves sagittate-lanceolate or ovate-sagittate; basal lobes often dilated and incised. *V. sagittata* (23).  
 20. Leaves deltoid sagittate, sharply dentate below the middle. *V. emarginata* (21).  
 21. Leaves sagittate-lanceolate or ovate-lanceolate in outline, only slightly lobed at the base. *V. sagittata* (23).  
 21. Leaves ovate or orbicular in outline usually deeply lobed or dissected. 22.  
 22. Lateral petals bearded; stigma with a conical beak on the lower side. 23.  
 22. Lateral petals not bearded; style club-shaped and beakless; stamen tips conspicuous orange. *V. pedata* (24).  
 23. Plants more or less pubescent; leaves mostly 3-9 lobed. *V. palmata* (19).  
 23. Plants glabrous or only slightly pubescent; leaves pedately divided into linear lobes. *V. pedatifida* (20).

1. ***Viola canadensis* L.** Canada Violet. Stem leafy, 4-16 in. high; leaves cordate-ovate, acute, serrate 1-4 in. long,  $\frac{7}{8}$ - $3\frac{3}{8}$  in. broad; stipules small, lanceolate, entire; flowers, pale violet or white with purple veins, lateral petals bearded. Lake, Medina, Columbiana, Jefferson, Coshocton, Belmont, Gallia, Muskingum, Fairfield, Clermont, Hamilton, Huron Co.

2. ***Viola scabriuscula* (F. & G.) Schw.** Smooth Yellow Violet. Plant 3-11 in. high; stems thick and leafy; leaves  $1\frac{1}{4}$ - $2\frac{1}{8}$  in. long, 1-2 in. broad, reniform to cordate-ovate, acute crenate-dentate; stipules, small, entire; flowers pale yellow. Common in Ohio.

3. ***Viola pubescens*. Ait.** Hairy Yellow Violet. Plant 6-16 in. high, hairy; leaves ovate or reniform, acute, crenate-dentate,  $1\frac{1}{4}$ - $2\frac{1}{2}$  in. long, 1-2 in. wide, petioles very short; flower yellow, purple veined with short spur and lateral petals bearded; capsule  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, glabrous or wooly; stipules ovate, entire. Ashtabula, Lake, Medina, Stark, Wayne, Huron, Richland, Crawford, Ottawa, Wood, Hancock, Wyandot, Morrow, Hardin, Franklin, Fairfield, Warren and Pike Co.

4. ***Viola hastata*. Michx.** Halbert-leaf Violet. Stem slender, erect, leaves and flowers borne near the top, 2-7 in. tall; leaves short petioled, hastate to hastate-ovate, slightly serrate, acute 1- $2\frac{3}{8}$  in. long,  $\frac{5}{8}$ - $1\frac{7}{8}$  in. broad; flowers yellow. Lake, Cuyahoga, Portage, Columbiana, Belmont Co.

5. ***Viola striata*. Ait.** Striped Violet. Plant 3-22 in. high, stem slender, leafy; leaves heart-shaped, crenate-dentate, sometimes acute,  $\frac{5}{8}$ - $2\frac{3}{8}$  in. long,  $\frac{1}{2}$ - $1\frac{5}{8}$  in. wide; stipules, large, oblong, lanceolate, attenuate,  $\frac{1}{2}$ -1 in. long; flowers white with thick spur, somewhat shorter than petals. Common in Ohio.

6. **Viola labridorica**. Schrank. American Dog Violet. Plant 4-7 in. tall, stems slender, numerous, glabrous; leaves somewhat hispidulous above, rounded at the apex,  $\frac{3}{8}$ - $1\frac{3}{8}$  in. long,  $\frac{5}{8}$ - $1\frac{3}{8}$  in. wide; stipules lance-linear, narrow  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; flowers deep or pale violet, spur rather long, not so long as petal, but rather thick. Lucas, Lorain, Portage, Trumbull, Wyandot Co.

7. **Viola rostrata**. Pursh. Long-spurred Violet. Plant  $1\frac{1}{2}$ -7 in. high, compact, low, leaves round, heart-shaped, glabrous  $\frac{5}{8}$ - $1\frac{3}{4}$  in. long,  $\frac{1}{2}$ -1 3-16 in. broad; stipules narrow lance-linear  $\frac{3}{8}$ - $\frac{1}{2}$  in. long; flowers lilac with deep violet along the veins, spur as long as petal. Hancock, Cuyahoga, Lorain, Medina, Wyandot, Crawford, Wayne, Auglaize, Franklin, Licking, Perry, Jackson, Belmont, Jefferson, Columbiana, Trumbull Co.

8. **Viola rafinesquii**. Greene. Wild Pansy. Plant very slender, 3-15 in. high; leaves, earliest sub-orbicular, later obovate to linear lanceolate, attenuate at the base,  $\frac{3}{4}$ - $1\frac{5}{8}$  in. long,  $\frac{1}{8}$ - $\frac{1}{2}$  in. wide; flowers bluish-white to cream-colored; stipules, very large, leaf-like  $\frac{5}{8}$ - $1\frac{1}{2}$  in. long. Ottawa, Erie, Cuyahoga, Lake, Ross, Tuscarawas, Franklin, Pike, Miama, Montgomery, Hamilton Co.

9. **Viola tricolor**. L. Garden Pansy. Plant more robust than rafinesquii; lower leaves ovate, upper leaves longer than broad, crenate,  $\frac{1}{2}$ - $\frac{7}{8}$  in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. wide; stipules large, leaf-like,  $\frac{3}{4}$ -1 in. long; flower variously, colored purple, white and yellow. Cuyahoga Co.

10. **Viola odorata** L. Sweet Violet. Plant, low, stoloniferous; leaves round or broadly ovate, cordate, obtuse, crenate,  $\frac{5}{8}$ - $1\frac{1}{4}$  in. long,  $\frac{5}{8}$ - $\frac{3}{4}$  in. broad; flowers deep purple,  $\frac{1}{2}$ - $\frac{5}{8}$  in. wide, very fragrant. Franklin, Lake Co.

11. **Viola rotundifolia** Michx. Round-leaf Violet. Plants low, bases of former leaves persistent on rootstock; leaves ovate or heartshaped, yellowish green, lighter below,  $\frac{7}{8}$ - $2\frac{3}{8}$  in. long,  $\frac{5}{8}$ - $2\frac{1}{8}$  in. wide, flowers yellow, lateral petals bearded, keel and lateral petals streaked with brown. Ashtabula, Cuyahoga, Hocking Co.

12. **Viola lecontiana** Don. Woodland White Violet. Leaves, bright green above, paler below, petioles red-spotted, blades orbicular to heart-shaped, 1- $2\frac{3}{4}$  in. long, 1- $2\frac{1}{4}$  in. wide; flowers white, fragrant. Hancock, Fairfield, Vinton, Cuyahoga Co.

13. **Viola blanda** Willd. Sweet White Violet. Plant, glabrate, somewhat stoloniferous from a very slender rootstock; leaves  $\frac{1}{2}$ - $1\frac{1}{2}$  in. long,  $\frac{3}{8}$ - $1\frac{1}{2}$  in. wide, thin, light green, reniform to orbicular; flowers, white. Ashtabula, Cuyahoga, Summit, Stark, Columbiana, Belmont, Knox, Licking, Fairfield, Hocking, Champaign, Franklin, Lucas Co.

14. **Viola lanceolata** L. Lance-leaf Violet. Leaves glabrous, lance-shaped, crenulate,  $\frac{5}{8}$ -2 in. long, 3- $16-\frac{3}{8}$  in. wide; flowers, sepals lanceolate, acute, keel petal white with purple stripes, lateral petals beardless. Fairfield and Lake Co.

15. **Viola obliqua**. Hill. Thin-leaf Blue Violet. Plant often solitary; leaves dark green, petioles 2-6 in. long, blades cordate, ovate crenate-dentate  $\frac{7}{8}$ - $2\frac{1}{4}$  in. long,  $\frac{3}{4}$ - $2\frac{1}{4}$  in. wide; flowers pale blue. General in distribution.

16. **Viola papilionaceæ** Pursh. Common Blue Violet. Plants robust; leaves sometimes deltoid, cordate, pointed or rounded, 1-5 in. broad,  $\frac{5}{8}$ -5 in. long, petioles  $1\frac{3}{4}$ -13 in. long, flowers deep violet, white or greenish yellow at base, sometimes wholly white; capsules ellipsoid to cylindric, green or dark purple. General in distribution.

17. **Viola hirsutula**. Brain. Southern Wood Violet. Plants low; leaves reniform to cordate, crenate  $\frac{3}{8}$ - $2\frac{1}{2}$  in. long,  $\frac{3}{8}$ -2 in. wide; flowers violet purple, lateral petals bearded, spurred petal with scattered hairs. Hocking, Fairfield Co.

18. **Viola sororia** Willd. Entire-leaf Blue Violet. Leaves pubescent, cordate to ovate, crenate-dentate,  $\frac{5}{8}$ - $1\frac{3}{4}$  in. long,  $\frac{5}{8}$ - $1\frac{1}{2}$  in. wide, petioles  $1\frac{1}{2}$ -6 in. long; flowers violet to lavender, spurred petal glabrous. Lake, Wood, Warren, Blemont Co.

19. **Viola palmata**. L. Palmate Blue Violet. Leaves cordate or ovate in outline, 1-3 in. long,  $\frac{7}{8}$ - $3\frac{3}{8}$  in. wide, with 3-9 lobes; flowers from pale to deep blue,  $\frac{1}{2}$ - $1\frac{1}{4}$  in. broad. Fulton, Wood, Lorain, Cuyahoga, Trumbull, Columbiana, Crawford, Licking, Fairfield, Clermont, Delaware, Darke, Preble, Wyandot, Franklin, Miami Co.

1. Var. **Viola palmata dilatata** Ell. Three-lobed Blue Violet. Leaves mostly three lobed, middle lobe ovate, outline of leaves usually hastate. Lake, Carroll, Knox, Auglaize, Vinton Co.

20. **Viola pedatifida**. Don. Larkspur Violet. Plant pubescent; leaves 5-9 parted pedately into linear lobes, 1- $2\frac{3}{4}$  in. long, petioles 2-6 in. long; flowers deep blue,  $\frac{3}{4}$ -1 in. broad. Ottawa and Auglaize Co.

21. **Viola emarginata** (Nutt) Le Conte. Triangle-leaf Violet. Leaves broadly ovate, deltoid-triangular, sharply dentate below the middle; flowers, violet blue. Cuyahoga and Lake Co.

22. **Viola fimbriatula** Smith. Ovate leaf Violet. Plant low, rather compact, pubescent; leaves ovate to oblong,  $\frac{3}{4}$ - $1\frac{1}{2}$  in. long,  $\frac{1}{2}$ - $\frac{5}{8}$  in. wide; petioles  $\frac{1}{2}$ - $1\frac{1}{2}$  in. long; flowers blue. Lake, Portage, Jefferson, Wayne, Licking Co.

23. **Viola sagittata** Ait. Arrow-leaf Violet. Plant rather low, glabrous; leaves deltoid-cordate, obscurely crenate,  $\frac{3}{4}$ - $2\frac{1}{2}$  in. long,  $\frac{3}{8}$ - $\frac{3}{4}$  in. wide; flowers violet blue,  $\frac{3}{4}$  in. broad. Fulton, Wood, Erie, Lorain, Cuyahoga, Franklin, Lucas Co.

24. **Viola pedata** L. Bird's-foot Violet. Plant rather low, glabrous; leaves usually 9-lobed, cordate in outline,  $\frac{1}{2}$ -1 in. long, 1- $1\frac{1}{2}$  in. wide; flowers, large, blue or sometimes upper petals purple with dark purple at the center of the other lilac petals, stamens large conspicuous orange; petals not bearded. Lawrence County.