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Spring Flora of East Central Illinois

Susan Janet Barlow

Eastern Illinois University

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SPRING FLORA
OF
EAST CENTRAL ILLINOIS
(TITLE)

BY

Susan Janet Barlow

A.B. in Botany, Rutgers, The State University, 1971

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Master of Science

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY,
CHARLESTON, ILLINOIS

1973
YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

10 Aug 73
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Introduction

Since there are no books available devoted to the spring flora of Illinois, this thesis is designed to fill this void and to be used in beginning taxonomy courses studying the flora of this area.

It contains keys, descriptions, and illustrations for all of the common and several of the lesser common plants of East Central Illinois, which flower or sporulate before May 15th. Members of the Cyperaceae and Gramineae have been excluded. For ease of reference, the families and their included species are arranged in alphabetical order.

Except in the genus Asarum, the nomenclature of the species follows that of Jones, 1963. Jones considered this genus to be composed of two Illinois species, Asarum acuminatum and A. reflexum. It appears more realistic to consider this one species, Asarum canadense, with two relatively distinct varieties; var. canadense and var. reflexum, (Gleason and Cronquist, 1963).

The illustrations were done, by the author, from living specimens. The student should be cautioned to use the illustrations as an aid to the keys, rather than as a substitute, to them. Illustrations, although helpful, are limited in that they can show the plant in only one stage and one form of its growth. All varieties of the plant, whether due to seasonal or ecological causes, cannot possibly be portrayed. The actual size of the plant, in most cases is portrayed in the drawings, but where the true size was not shown, the amount of magnification (e.g., 2x) or reduction (e.g., $\frac{1}{2}x$) is written next to that particular plant or plant part.

KEY TO THE SECTIONS

1. Plants lacking flowers and seeds; reproduction by spores borne in sporangia..... Section 1.
1. Plants with flowers and fruits; normally reproducing by seeds, or aquatic, commonly reproducing asexually.
 2. Small, floating aquatics; less than 1 cm long.9. Lemnaceae
 2. Plants larger; not floating aquatics.
 3. Leaves simple and parallel-veined; flowers 3-merous (plants with 3-merous flowers and net-veined leaves should be keyed in the next section).....Section 2.
 3. Leaves simple or compound and net-veined; flowers 4- or 5-merous (rarely 3-merous).....Section 3.

SECTION 1. FERN AND FERN-ALLIES

1. Stem aerial, green, hollow; leaves reduced to a whorl of sheathing scales at each node; sporangia borne in terminal cones..... 1. Equisetaceae
1. Stem subterranean; leaves large and prominent; sporangia borne on fertile stalks or on the leaf blade.
 2. Sporangia borne on a fertile stalk, the leaf with a single flattened blade..... 2. Ophioglossaceae
 2. Sporangia borne in sori on the underside of pinnae; leaves compound..... 3. Polypodiaceae

SECTION 2. MONOCOTYLEDONS (Plants with simple, parallel-veined
leaves and 3-merous flowers)

1. Flowers on a spadix subtended by a spathe.....5. Araceae
1. Flowers not on a spadix, not subtended by a spathe.
 2. Ovary superior.
 3. Plants grass-like; perianth of 6 small, greenish or brownish tepals.....8. Juncaceae
 3. Plants not grass-like; perianth larger and variously colored.
 4. Filaments pubescent with long hairs; petals dark blue.....6. Commelinaceae
 4. Filaments glabrous, petals usually not blue.....10. Liliaceae
 2. Ovary inferior.
 5. Flowers irregular; stamens 1 or 2, fused to the style... ..11. Orchidaceae
 5. Flowers regular; stamens 3 or 6, separate, not attached to the style.
 6. Stamens 3; perianth white or blue.....7. Iridaceae
 6. Stamens 6; perianth yellow.....4. Amaryllidaceae

SECTION 3. DICOTYLEDONS (Plants with simple or compound, net-veined leaves and 4- or 5-merous, rarely 3-merous, flowers)

1. Flowers on a spadix, surrounded by a spathe.....5. Araceae

1. Flowers not on a spadix, not surrounded by a spathe.

2. Flowers hypogeous or perigynous (ovary superior or surrounded by a hypanthium).

3. Flowers polypetalous.

4. Flowers irregular.

5. Leaves compound.

6. Leaves trifoliate, or of 2 leaflets and a terminal tendril; stamens 10, usually diadelphous.....21. Fabaceae

6. Leaves with numerous leaflets; stamens 4-6, separate.....22. Fumariaceae

5. Leaves simple, sometimes deeply palmately lobed.

7. Styles 2; flowers in a panicle.....42. Saxifragaceae

7. Styles 1; flowers solitary.....48. Violaceae

4. Flowers regular.

8. Hypanthium present.

9. Stamens and pistils numerous.....39. Rosaceae

9. Stamens 5; pistils 2.....42. Saxifragaceae

8. Hypanthium absent.

10. Leaves opposite or whorled.

11. Pistils 4 or 5.....20. Crassulaceae

11. Pistil 1.

12. Leaves 2.

13. Leaves peltate, palmately lobed; flowers not
5-merous.....33. Podophyllaceae
13. Leaves linear, entire; flowers 5-merous.....
.....36. Portulacaceae
12. Leaves more than 2.....19. Caryophyllaceae
10. Leaves alternate or basal.
14. Flowers 3- or 4-merous.
15. Plants with red, orange, or yellow sap.....
.....31. Papaveraceae
15. Plants with watery sap, not colored.
16. Sepals and petals each 4; stamens 6, 4 long
and 2 short.....16. Brassicaceae
16. Sepals and petals not 4; stamens not as above.
17. Leaves simple.....35. Polygonaceae
17. Leaves compound.
18. Ovary deeply 2 or 3 lobed.....
.....26. Limnanthaceae
18. Ovary not lobed.....33. Podophyllaceae
14. Flowers 5-merous.
19. Stamens monadelphous.
20. Leaves trifoliate; stamens 10..30. Oxalidaceae
20. Leaves simple; stamens numerous..27. Malvaceae
19. Stamens separate.
21. Stamens and pistils numerous (pistils rarely 1)
.....38. Ranunculaceae
21. Stamens 5-10; pistil 1.
22. Leaves palmately lobed; stamens 10.....
.....23. Geraniaceae

22. Leaves entire and linear; stamens 5.....
36. Portulacaceae
3. Flowers sympetalous.
23. Flowers irregular.
24. Plants not green, parasitic on the roots of other
 plants29. Orobanchaceae
24. Plants green.
25. Flowers strongly bilabiate; inflorescence not a
 spike.
26. Stem square; ovary deeply 4 lobed.....25. Lamiaceae
26. Stem round or nearly so; ovary not lobed.....
43. Scrophulariaceae
25. Flowers weakly bilabiate; inflorescence a spike.....
47. Verbenaceae
23. Flowers regular.
27. Ovaries more than 1, or deeply lobed and appearing as
 more than 1.
28. Ovaries 2; corolla without appendages.....
12. Apocynaceae
28. Ovary deeply lobed into 4 cells; corolla often with
 appendages.....15. Boraginaceae
27. Ovary not lobed or divided.
29. Leaves opposite or only basal.
30. Flowers solitary, axillary.
31. Corolla salverform.....44. Solanaceae
31. Corolla rotate or with reflexed lobes.....
37. Primulaceae
30. Flowers in panicles, spikes or cymes.

- 32. Plants scapose.....32. Plantaginaceae
- 32. Plants cauline.
 - 33. Stem square; inflorescence a spike.....
 -47. Verbenaceae
 - 33. Stem round or nearly so; inflorescence a
 - panicle or cyme.....34. Polemoniaceae

29. Leaves alternate, basal leaves sometimes present.

- 34. Leaves simple and entire.....44. Solanaceae
- 34. Leaves compound or simple and variously lobed.
 - 35. Leaves compound, the leaflets entire; inflorescence a panicle.....34. Polemoniaceae
 - 35. Leaves simple and lobed, or compound with lobed or serrate leaflets; inflorescence a scorpioid cyme, or flowers axillary...24. Hydrophyllaceae

2. Flowers epigynous, the ovary inferior.

- 36. Perianth of 1 whorl of parts.
 - 37. Flowers 5-merous; sepals white.....41. Santalaceae
 - 37. Flowers 3-merous; sepals brownish purple.....
 -13. Aristolochiaceae

36. Calyx and corolla both present.

- 38. Flowers closely aggregated on a common receptacle in a head subtended by an involucre.....14. Asteraceae
- 38. Flowers not aggregated in a head type inflorescence, either solitary or in cymes, panicles or umbels.
 - 39. Corolla polypetalous.
 - 40. Flowers in umbels; hypanthium absent.....
 -45. Umbelliferae

- 40. Flowers solitary; hypanthium present.....
28. Onagraceae
- 39. Corolla sympetalous.
- 41. Flowers 4-merous.....40. Rubiaceae
- 41. Flowers 5-merous.
- 42. Leaves opposite; corolla tubular, white or deep red.
- 43. Flowers white; inflorescence a terminal cyme.....
46. Valerianaceae
- 43. Flowers deep red, solitary in the axils of the
 upper leaves.....18. Caprifoliaceae
- 42. Leaves alternate; corolla rotate to campanulate,
 light blue.....17. Campanulaceae

1. EQUISETACEAE Horsetail Family

Perennial herbs from deep rhizomes; stem photosynthetic, jointed, prominently ridged, internodes hollow; branches whorled; leaves minute, scale-like, whorled, connate, forming a sheath around the stem; sporangia in terminal cones (strobili); sporangiophores whorled, stalked, peltate with 5-10 sporangia on their under surface.

1. EQUISETUM L. Horsetail.

1. Equisetum arvense L. Common Horsetail; Field Horsetail. Perennial herb with two types of annual stems; sterile stems to 4 dm tall, green regularly branched, appearing in late spring; fertile stems to 2 dm tall, light brown, not branched, appearing in early spring; cones 1-3 cm long. Common in moist field, roadsides, railroad embankments, and shores.

2. OPHIOGLOSSACEAE Adder's-tongue Family

Sporophyte perennial with an erect, unbranched rhizome bearing fleshy roots; leaf on a long stipe (petiole) and divided into a sterile and fertile blade; sterile blade sessile or stalked, simple to pinnately compound, green; fertile blade stalked, simple or compound, sporangia embedded in the reduced pinnae. Gametophyte small, non-green, subterranean.

1. OPHIOGLOSSUM L. Adder's-tongue.

1. Ophioglossum vulgatum L. Small perennial fern to 15 cm tall; sterile blade, simple, entire, elliptic to lanceolate, fleshy, glabrous, 3-8 cm long, 1-3 cm wide; fertile blade a simple spike, the sporangia region 1-2 cm long, the stalk to 10 cm long. Rare in moist, open woods.

3. POLYPODIACEAE Fern Family

Sporophyte perennial with subterranean rhizomes bearing

scales and hairs; leaves simple or variously compound, petioled, usually pubescent or scaly, venation pinnate or anastomosing; vernation circinate; fertile and sterile blades similar or dissimilar; sporangia grouped into sori, either marginal or on the underside of the blade, with or without an indusium. Gametophyte (prothallium) small, green, usually not observed.

- a. Leaves bipinnate-pinnatifid; petioles scaly only at the base..
 1. Cystopteris
- a. Leaves pinnately compound; petioles scaly throughout.....
 2. Polystichum

1. CYSTOPTERIS Bernh.

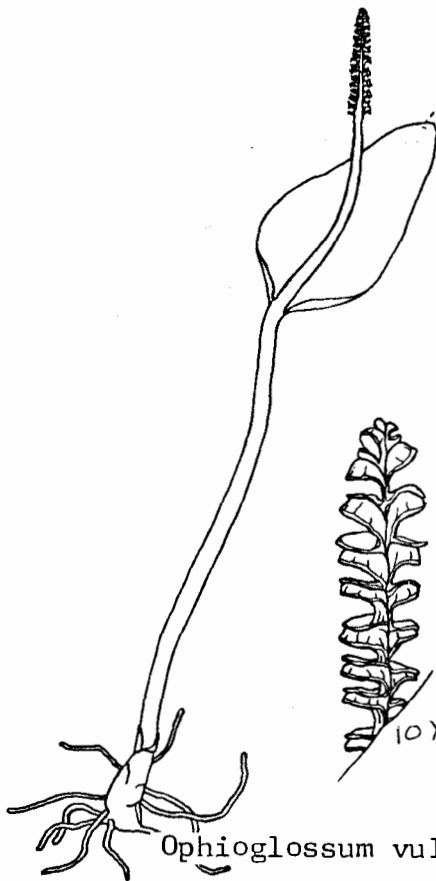
1. Cystopteris fragilis (L.) Bernh. Fragile Fern; Brittle Fern. Deciduous, perennial fern; rhizomes usually long creeping; leaves bipinnate-pinnatifid, to 3 dm long; petiole yellowish, scaly only at the base; fertile pinnae undifferentiated, sori round; indusium attached at the sides and surrounding the sorus. Common in moist woods.

2. POLYSTICHUM Roth.

1. Polystichum acrostichoides (Michx.) Schott. Christmas Fern. Evergreen, perennial fern; rhizomes short, scaly, covered by the bases of old petioles; leaves pinnately compound, to 50 cm long, with 20-30 pairs of alternately arranged pinnae; petiole green, scaly throughout; pinnae oblong, auriculate at base, scaly beneath, serrate, the teeth bristle-tipped; sori round, confined to the upper, reduced pinnae; indusium peltate, attached centrally in each sorus. Common on wooded slopes.



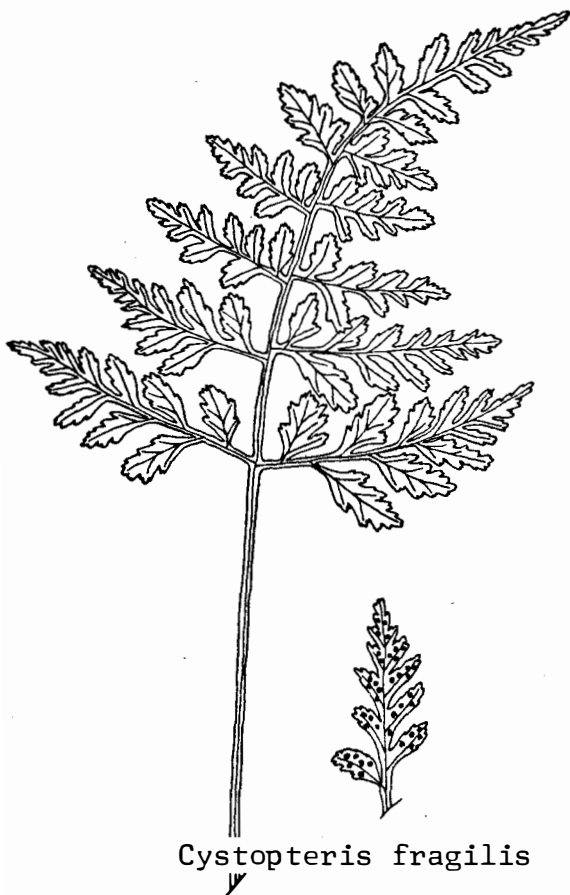
Equisetum arvense



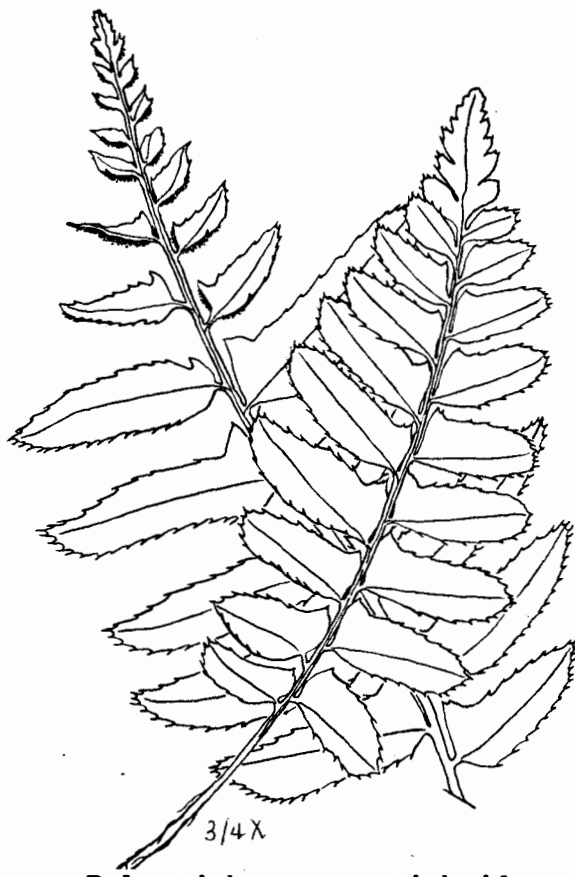
Ophioglossum vulgatum



10X



Cystopteris fragilis



Polystichum acrostichoides

3/4X

4. AMARYLLIDACEAE Amaryllis Family

Perennial, scapose herbs with bulbs or corms; leaves basal, simple, linear and grass-like; flowers perfect, epigynous, complete, 3-merous, mostly regular; hypanthium present; perianth of 6 similar segments; corona often present, particularly in cultivated species; stamens 6; ovary 3-celled; fruit usually a capsule. Several commonly cultivated species of the genus Narcissus L., including daffodil and jonquil, belong to this family.

1. HYPOXIS L. Star Grass.

1. Hypoxis hirsuta (L.) Cov. Yellow Star Grass. Perennial, scapose herb to 3 dm tall; leaves pubescent, 2-10 mm wide, to 3 dm long; flowers regular, yellow, 1-2 cm wide, usually 2-4 in loose, irregular umbels; sepals slightly longer than the petals, pubescent on the back; fruit a capsule 3-6 mm long. Occasional in dry, open, upland woods.

5. ARACEAE Arum Family

Perennial herbs; flowers numerous, minute, perfect or unisexual, 4-6-merous, polypetalous, regular, hypogynous, closely arranged on a spadix, subtended by a spathe, the ovary embedded in the spadix to varying extents; fruit a fleshy berry. Plants commonly with a pungent taste due to the presence of calcium oxalate crystals.

- a. Leaves compound, variously lobed.....2. Arisaema
 a. Leaves simple or absent at flowering time.
 b. Leaves long and thin, grass-like..... 1. Acorus
 b. Leaves large, broadly ovate, appearing after the flowers...
 3. Symplocarpus

1. ACORUS L. Sweetflag; Calamus.

1. Acorus calamus L. Perennial, sweet-smelling herb; the simple leaves stiff, grass-like, to 1 m long; flowers small, yellow, crowded on a spadix 5-10 cm long; spathe a continuation of the grass-like scape, green and leaf-like in appearance. Occasional in open, wet areas.

2. ARISAEMA Mart.

a. Leaves trifoliate; spadix club-shaped.....1. A. triphyllum

a. Leaves with 7-13 leaflets; spadix long and tapering.....

.....2. A. dracontium

1. Arisaema triphyllum (L.) Schott. Jack-in-the-Pulpit; Indian Turnip. Perennial herb to 10 dm tall; leaves compound with 3 ovate, acuminate leaflets; flowers apetalous, borne on the lower part of an elongated club-shaped spadix; the spathe tube-like below, surrounding the spadix, hood-like above and arching over the spadix. Common in moist woods.

2. Arisaema dracontium (L.) Schott. Green Dragon; Dragonroot. Perennial herb to 10 dm tall; the single leaf pedately divided into 7-13 elliptic to lanceolate leaflets; flowers at the base of a slender, tapering spadix 10-20 cm long; spathe small, not enclosing the spadix completely. Occasional in moist woods.

3. SYMPLOCARPUS Salisb. Skunk-cabbage.

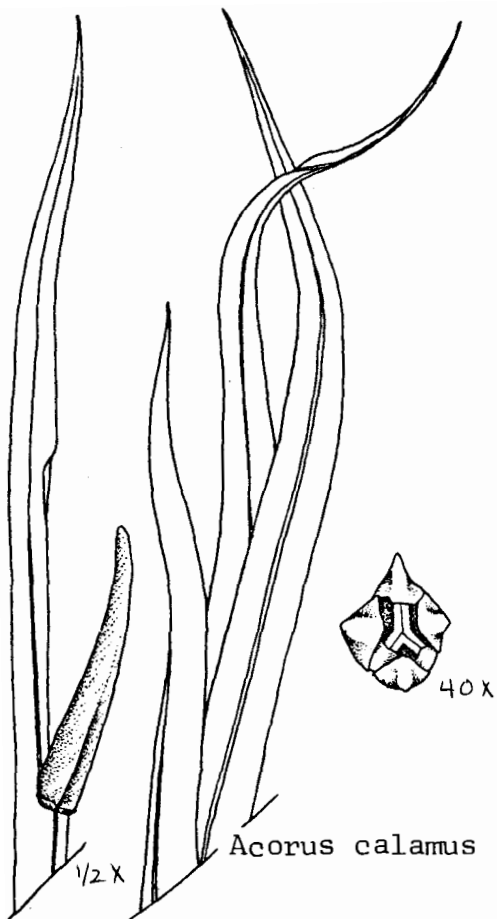
1. Symplocarpus foetidus (L.) Nutt. Perennial, ill-smelling herb; leaves large, broadly ovate, appearing later than the flowers; flowers aggregated on an ovoid spadix that is enclosed by a large, fleshy, somewhat angular spathe; spathe green, mottled with purple. Rare in wet open woods and swamps.

6. COMMELINACEAE Spiderwort Family

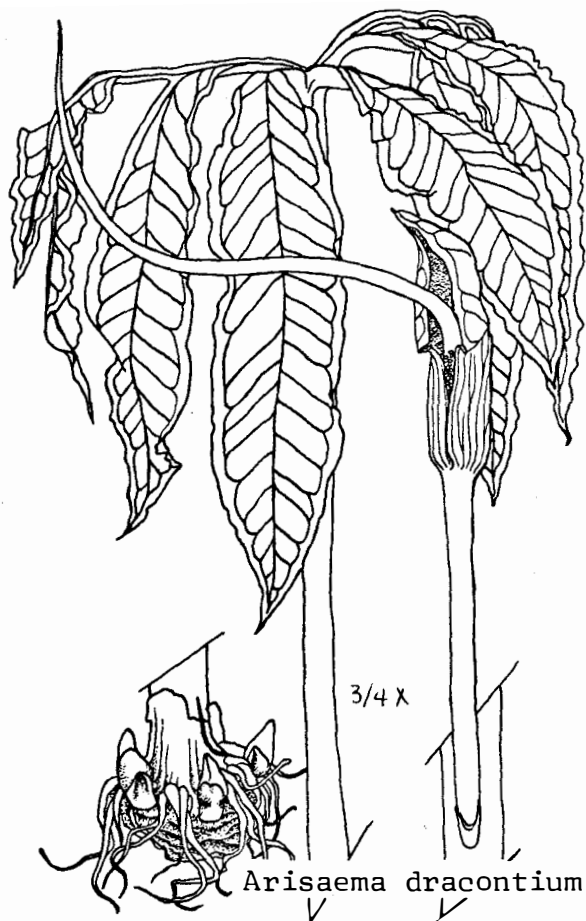
Annual and perennial herbs; leaves alternate, grass-like, dilated at the base into a tubular sheath; flowers perfect, hypogynous, complete, 3-merous, polypetalous, regular or irregular; sepals distinct; petals usually ephemeral; stamens 6; ovary 3-celled; fruit a capsule.

1. TRADESCANTIA L. Spiderwort.

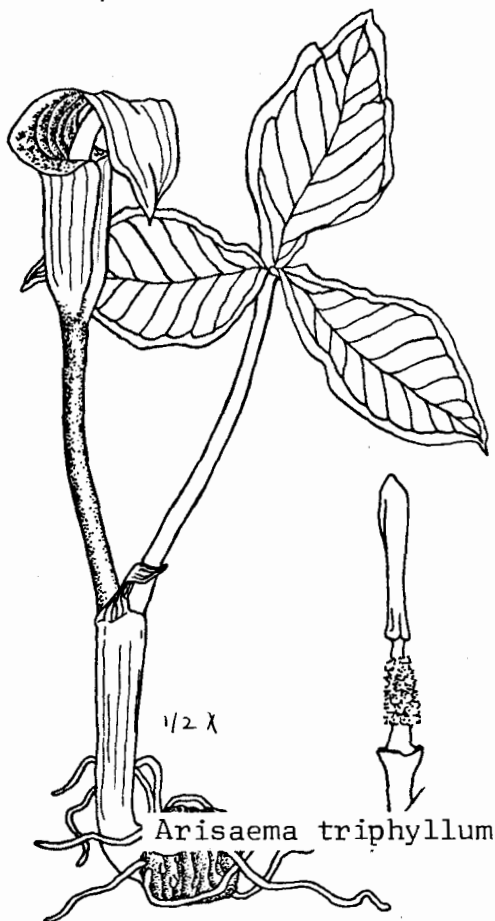
1. Tradescantia virginica L. Perennial herb to 3 dm tall;



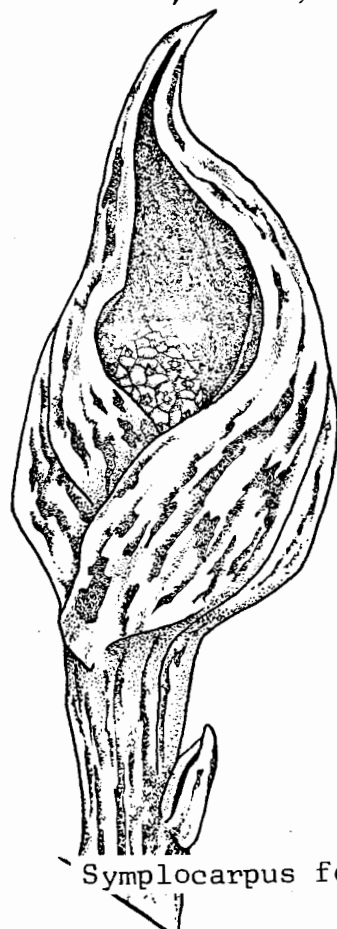
Acorus calamus



Arisaema dracontium



Arisaema triphyllum



Symplocarpus foetidus

leaves alternate, linear, to 15 mm wide; flowers several in a terminal cyme subtended by foliaceous bracts; sepals densely pubescent, 10-15 mm long; petals blue to purplish, 12-20 mm long; stamens with hairy filaments. Common in moist, open woods and roadsides.

7. IRIDACEAE Iris Family

Mostly perennial herbs from rhizomes or corms; leaves mostly basal, equitant, simple, linear or sword-shaped; flowers perfect, epigynous, complete, 3-merous, mostly regular, commonly subtended by a leaf-like spathe; hypanthium present, solid; perianth parts petaloid and alike; stamens 3; ovary 3-celled styles often petaloid; fruit a capsule. Common cultivated members include iris, gladiolus, and crocus.

- a. Leaves 1-3 cm wide; flowers large, more than 4 cm across; styles petaloid..... 1. Iris
- a. Leaves less than 5 mm wide; flower small, less than 1 cm across; style not petaloid..... 2. Sisyrinchium

1. IRIS L. Iris; Flag.

1. Iris shrevei Small. Blue Iris, Wild Flag. Perennial from shallow rhizomes; leaves stiff, to 1 mm tall, sword-shaped; scape to 1 m tall, several flowered; flowers blue-purplish, 6-8 cm broad, the perianth parts unlike; sepals larger, veined with deep purple, somewhat reflexed; petals arching upward; stamens inserted on the sepals, hidden by the petaloid 3-branched style. Occasional in wet meadows or bogs, along streams and lakes.

2. SISYRINCHIUM L. Blue-eyed Grass.

- a. Perianth white; leaves 1-3 mm wide..... 1. S. albidum
- a. Perianth blue; leaves 3-5 mm wide..... 2. S. bermudiana

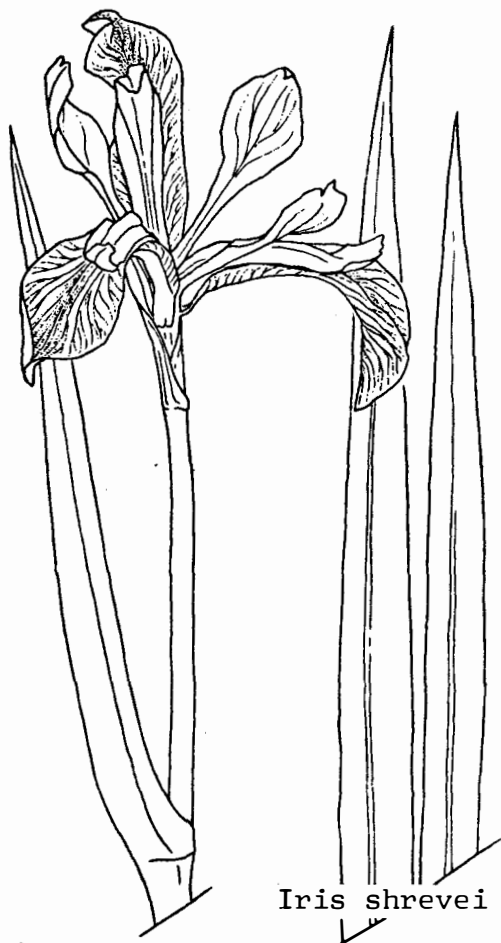
1. Sisyrinchium albidum Raf. White Blue-eyed Grass. Perennial herb to 3 dm tall; leaves linear, grass-like, 1-3 mm wide; scape winged; flowers in loose umbels; spathes 2, sessile; tepals



Hypoxis hirsuta



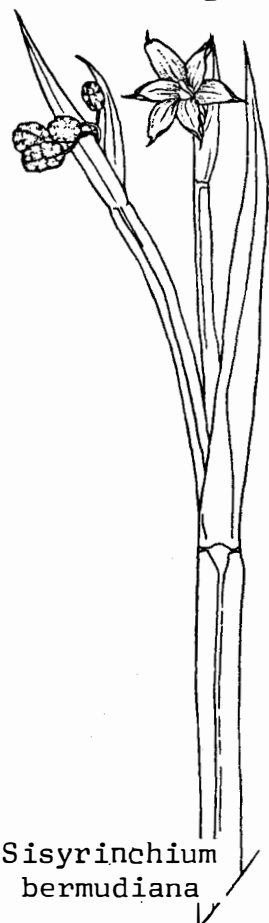
Tradescantia virginica



Iris shrevei



Sisyrinchium albidum



Sisyrinchium bermudiana

6, white, apiculate; stamens with connate filaments, surrounding the 3-branched style. Fairly common in prairies and open fields.

2. Sisyrinchium bermudiana L. Blue-eyed Grass. Perennial herb to 4 dm tall; leaves linear, grass-like, 3-5 mm wide; scape winged; flowers in loose umbels; spathes 2, long-stalked from the axils of leaf-like bracts; tepals 6, deep blue; stamens with connate filaments, surrounding the 3-branched style. Common in moist, open woods and meadows.

8. JUNACEAE Rush Family

Annual or perennial herbs; leaves commonly basal and grass-like, sometimes reduced to sheaths; flowers small, perfect, hypogynous, complete, 3-merous, polypetalous, regular; perianth of 6 segments, green or brown, papery, scale-like; stamens 3 or 6; pistil 1-celled; fruit a 3-valved capsule.

1. LUZULA DC. Wood Rush.

1. Luzula mutiflora (Retz) Lej. Erect. Perennial herb to 4 dm tall; leaves 1-6 mm wide, grass-like, callous-tipped, lightly pubescent with long white hairs; flowers small, in long peduncled, capitate or short cylindrical glomerules that are arranged in an umbel; perianth 2-3 mm long. Occasional in moist to dry, open woods.

9. LEMNACEAE Duckweed Family

A family of small or minute, free floating or submersed aquatic plants that are not differentiated into stem and leaf, but consist of a flat or rounded thalloid body; flowers imperfect, monoecious, perianth lacking; staminate flower consisting of a single stamen; pistillate flower of 1 pistil; fruit an utricle. This family contains the smallest known flowering plants.

1. LEMNA L. Duckweed.

1. Lemna minor L. Common Duckweed. Plants solitary or in small colonies of 3 or 4; plant circular to oblong or ovate, 2-4

mm long, 1.5-3 mm wide, faintly 3-veined; root 1, threadlike; flowers produced in small pouches, but rarely observed. Commonly found floating on ponds and lakes.

10. LILIACEAE Lily Family

Perennial herbs from rhizomes, bulbs, corms, or fleshy roots; leaves basal or cauline, simple, entire; flowers perfect, hypogynous, complete, mostly 3-merous, polypetalous or sympetalous, regular; sepals 3, often petaloid, petals 3; stamens 6; ovary 3-celled; fruit a berry or capsule.

- a. Perianth sympetalous, tubular; flowers or flower-clusters borne in the axil of leaves or stems.
 - b. Leaves reduced to scales.....2. Asparagus
 - b. Leaves broad, flat.....7. Polygonatum
- a. Perianth polypetalous; flowers or flower-clusters terminal.
 - c. Leaves 3, in a single whorl at the top of the stem.....9. Trillium
 - c. Leaves alternate or basal.
 - d. Leaves basal; flowers borne on a scape.
 - e. Flowers solitary; leaves 2.....4. Erythronium
 - e. Flowers in racemes or umbels; leaves usually numerous, linear.
 - f. Flowers in umbels.
 - g. Plants with an onion odor; flowers commonly replaced by bulblets.....1. Allium
 - g. Plants without onion odor; bulblets absent.....5. Nothoscordum
 - f. Flowers in racemes.
 - h. Racemes 3-7 flowered; perianth segments white with a median green strip beneath.....6. Ornithogalum

- h. Raceme with numerous flowers; perianth segments usually blue, lacking a green median strip.....

.....3. Camassia

d. Leaves cauline, alternate.

- i. Leaves sessile; flowers white, many in a terminal panicle or raceme.....8. Smilacina

- i. Leaves perfoliate; flowers yellow, solitary.....

.....10. Uvularia

5. ALLIUM L. Onion.

1. Allium canadense L. Wild Onion; Wild Garlic. Perennial herb with a pungent odor; bulb fibrous-coated, 1-3 cm wide; leaves basal, linear, to 3 dm long; scape to 5 dm long, terminating in an umbel, subtended by 2-3 ovate, acuminate, papery bracts; flowers rarely formed, usually replaced by small bulblets; perianth segments distinct, pink to white, 6-9 mm long; the capsule rarely forming. Common in pastures, lawns and waste places.

2. ASPARAGUS L. Asparagus.

1. Asparagus officinalis L. Garden Asparagus. Much-branched, perennial herb to 2 mm tall; rhizomes present; leaves reduced to small scales; stems photosynthetic, the ultimate branchlets filiform, 8-15 mm long, resembling leaves; flowers solitary or in pairs from the axils of the branches; perianth segments fused, campanulate, greenish-white, 3-5 mm long; stamens 6, attached at the base of the perianth; fruit a bright red berry, about 8 mm wide. Occasional at edge of road and waste places.

3. CAMASSIA Lindl. Camas.

1. Camassia scilloides (Raf.) Cory. Wild Hyacinth. Perennial herb to 6 dm tall; bulbs 1-3 cm wide; leaves few, basal, linear, 2-4 dm long; scape 3-6 dm long, terminating in a many-flowered, bracted raceme; perianth segments distinct, blue to purplish or white, 8-12 mm long, persistent; fruit a capsule 5-8 mm long. Rare in prairies and moist open woods.

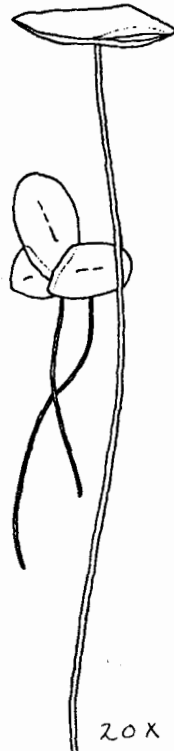
4. ERYTHRONIUM L. Dog's-tooth Violet, Trout-Lily; Adder's-tongue.

a. Perianth white; stigmas separate, 1-3 mm long.....1. E. albidum

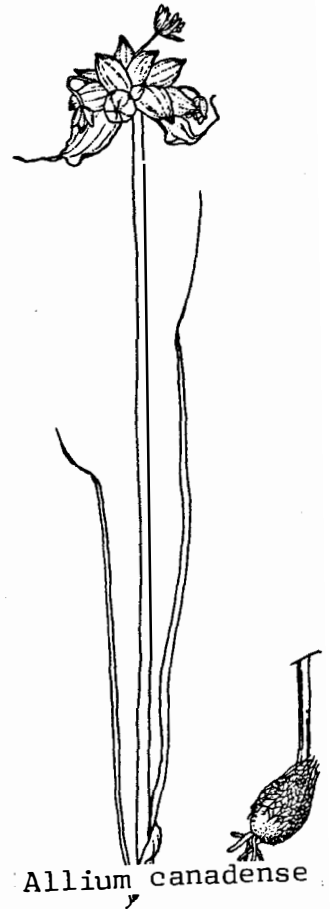
a. Perianth yellow; stigmas mostly united.....2. E. americanum



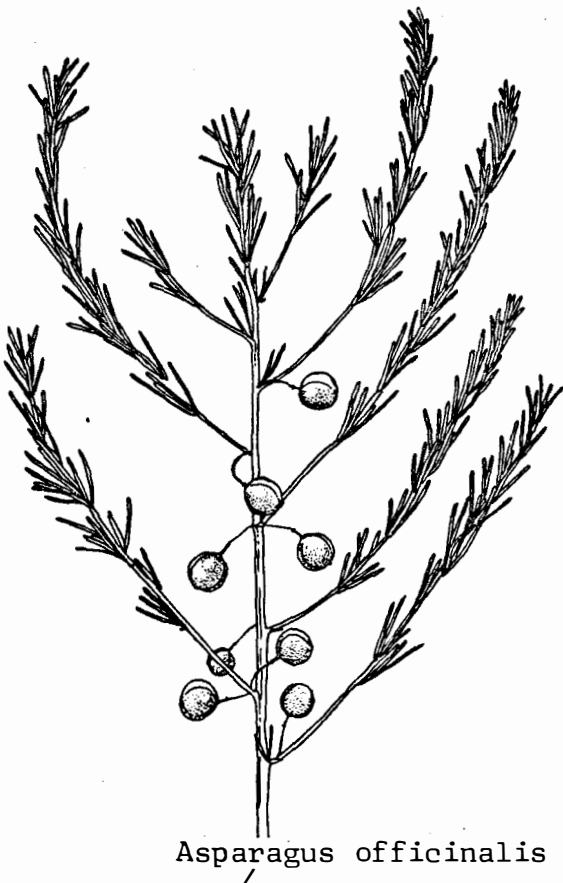
Luzula multiflora



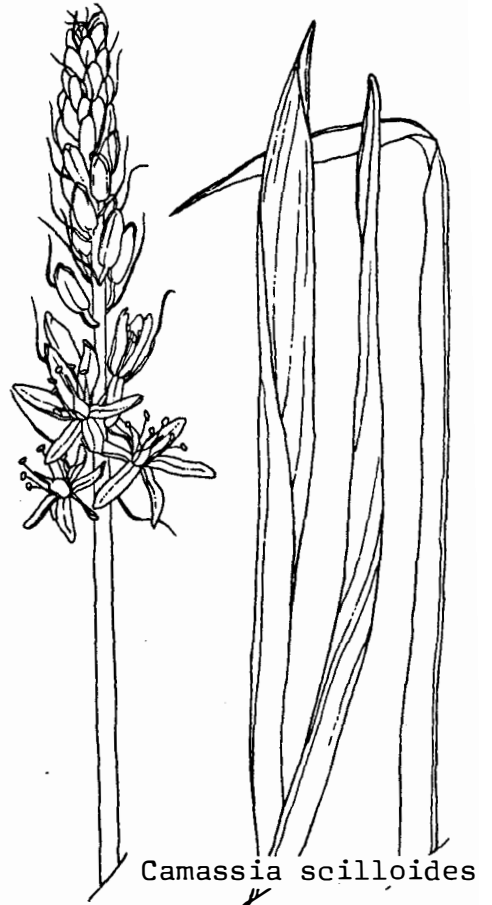
Lemna minor



Allium canadense



Asparagus officinalis



Camassia scilloides

1. Erythronium albidum Nutt. White Dog's-tooth Violet. Perennial herb from a deep corm; leaves 2, basal, lanceolate to elliptic, about 12 mm long, usually mottled with purple; scape 1-2 dm long with a single terminal, nodding flower; perianth segments distinct, white to bluish-white, rarely pink, 1-4 cm long; stigmas separate, 2-4 mm long. Occasional in moist, open woods.

2. Erythronium americanum Ker. Yellow Dog's-tooth Violet; Yellow Adder's-tongue. Perennial herb from a deep corm; leaves 2, basal, lanceolate to elliptic, about 1 dm long, mottled with purple; scape 1-2 dm long with a single terminal, nodding flower; perianth segments distinct, yellow, 2-4 cm long; stigmas short, barely separate. Occasional in moist, open woods.

5. NOTHOSCORDUM Kunth. False Garlic.

1. Nothoscordum bivalve (L.) Britt. Perennial herb from a bulb 1 cm wide; leaves few, basal, linear, to 3 dm long; scape 1-3 dm tall, terminating in an umbel of 5-12 long-pedicelated flowers, the umbel subtended by 2 membranous bracts; perianth segments distinct, white to greenish, 8-12 mm long; stamens 6, adnate to the base of the perianth; fruit a capsule to 5 mm long. Rare in moist open woods and fields.

6. ORNITHOGALUM L.

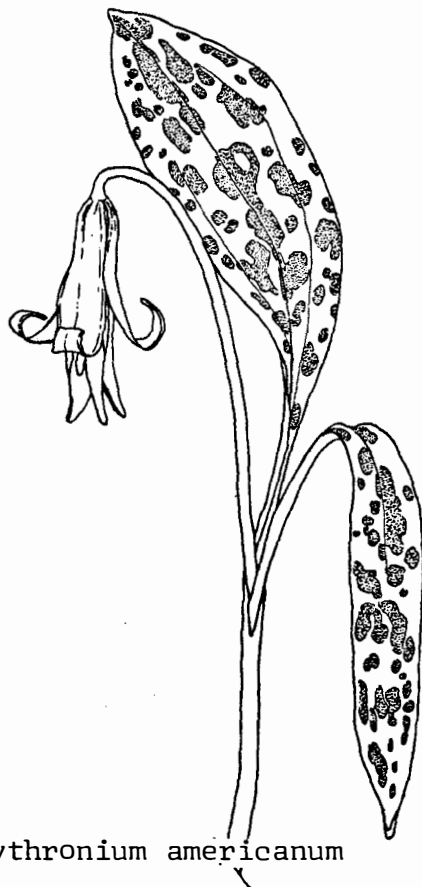
1. Ornithogalum umbellatum L. Star-of-Bethlehem. Perennial herb from a bulb 2 cm wide; leaves numerous, basal, linear about 2 dm long; scape 1-3 dm tall, terminating in a loose, bracted raceme of 3-7 flowers on very long pedicels; perianth segments distinct, 15-20 mm long, white with a median green stripe beneath; stamens 6, free from the perianth; fruit a small capsule. Occasionally planted and sometimes escaping to roadside and waste places.

7. POLYGONATUM Mill. Solomon's-seal.

1. Polygonatum commutatum (Schultes.) Dietr. Perennial herb to 1 m tall; knotty, elongated rhizomes present; leaves alternate, sessile, 2-ranked, elliptic-lanceolate to lanceolate, 10-15 cm long, acuminate; flowers in axillary cluster of 2-8 flowers; perianth segments fused, tubular, greenish-white, 15-20 mm long; stamens 6, attached at the base of the perianth; fruit a bluish-purple berry. Common in moist woods and thickets.

8. SMILACINA Desf. False Solomon's-seal.

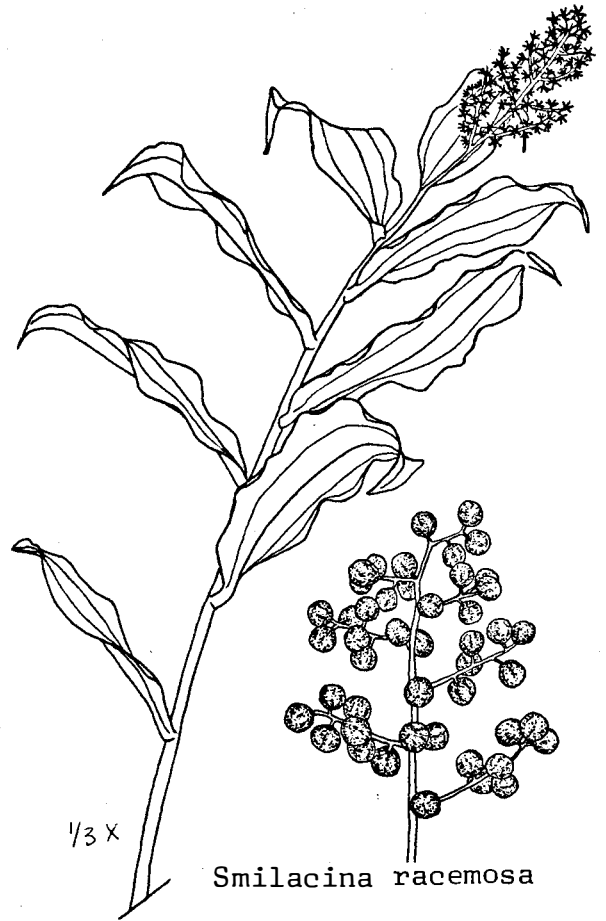
1. Smilacina racemosa (L.) Desf. Perennial herb to 7 dm tall; rhizomes present; leaves alternate, sessile or nearly so, 2-ranked, lanceolate to elliptic, 10-16 cm long, acuminate; stem terminating in a panicle; flowers numerous, 3-5 mm wide; perianth

*Erythronium albidum**Erythronium americanum**Nothoscordum bivalve**Ornithogalum umbellatum*



1/3 X

Polygonatum commutatum



1/3 X

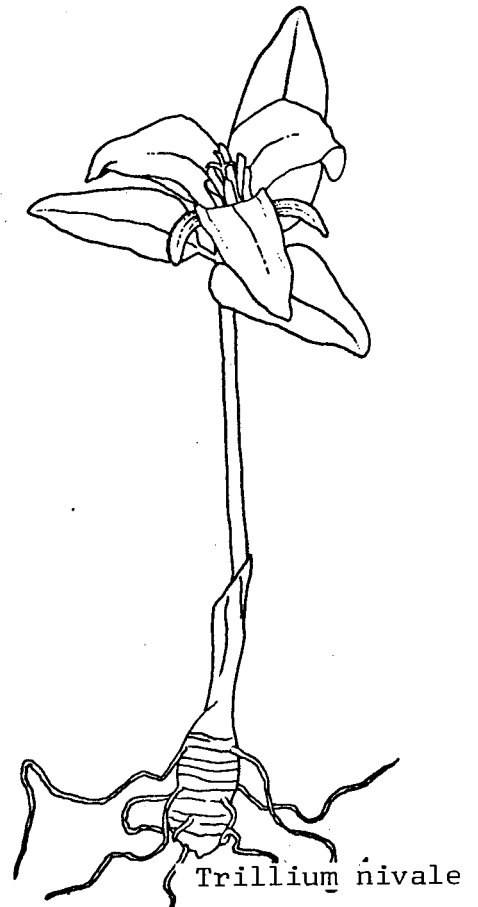
Smilacina racemosa



1/2 X

1/3 X

Trillium gleasoni



Trillium nivale

segments distinct, white, shorter than the 6 stamens; fruit a globose berry, green to red, spotted with dark red. Common in moist woods.

9. TRILLIUM L. Trillium.

a. Flower on an elongated peduncle; petals white.

b. Ovary 6-lobed; leaves commonly sessile, 8-15 cm long.....

.....1. T. gleasoni

b. Ovary 3-lobed; leaves petiolate, 3-5 cm long.....

.....2. T. nivale

a. Flower sessile; petals normally deep red.

c. Leaves petiolate; sepals reflexed.....3. T. recurvatum

c. Leaves sessile; sepals curved upward.....4. T. sessile

1. Trillium gleasoni Fern. White Trillium. Perennial herb to 4 dm tall; rhizome stout, horizontal; stem with a single whorl of 3, sessile, broadly rhombic, acute to short-acuminate leaves, 8-15 cm long; flower terminal, peduncle nodding, 4-12 cm long; sepals 3, green, 2.5-5 cm long; petals 3, white to pink tinted, about equalling the sepals. Occasional in moist woods and ravines.

2. Trillium nivale Riddell. Snow Trillium; Dwarf Trillium. Perennial herb to 1.5 dm tall; rhizome stout, short; stem with a single whorl of 3, short petioled, elliptic to ovate leaves, 3-5 cm long; petiole 5-10 mm long; flower terminal, peduncle to 3 cm long; sepals 3, green, to 2 cm long; petals 3, white, usually pink at the base, 2.5-4 cm long. Rare in moist woods.

3. Trillium recurvatum Beck. Purple Trillium; Wake Robin. Perennial herb to 3 dm tall; rhizome, slender, horizontal; stem with a single whorl of 3, petioled, ovate leaves to 12 cm long, usually mottled with purple; flower terminal, sessile; sepals 3, green, reflexed, to 3 cm long; petals 3, deep purple (rarely green or yellow), clawed at the base, ascending. Common in moist woods.

4. Trillium sessile L. Sessile Trillium. Perennial herb to 3 dm tall; rhizome very thick, erect; stem with a single whorl of 3, sessile, broadly ovate to nearly orbicular leaves to 9 cm long; flower terminal, sessile; sepals 3, green, ascending, 3 cm long; petals 3, deep purple (rarely green or yellow), slightly longer than the sepals. Rare in moist woods.

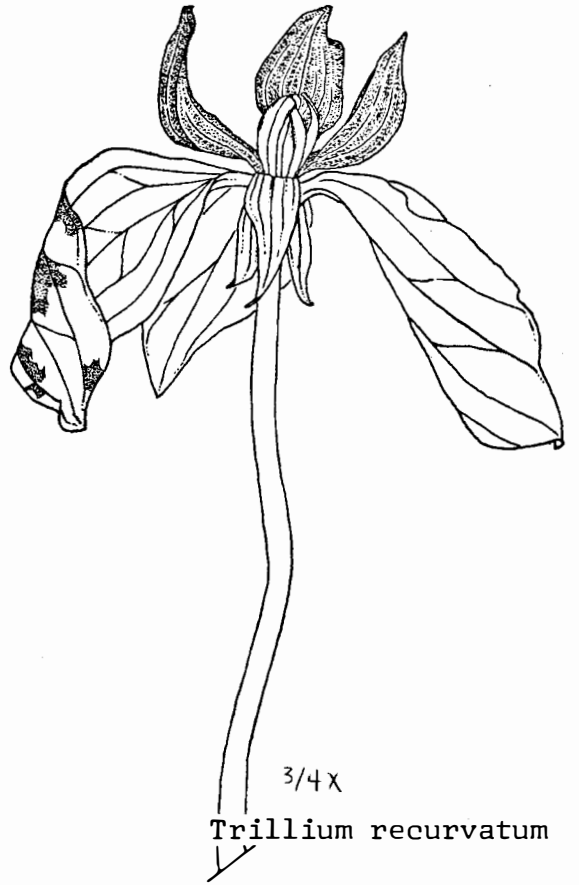
10. UVULARIA L. Bellwort.

1. Uvularia grandiflora Sm. Branching, perennial herb to



1/2 X

Trillium sessile



3/4 X

Trillium recurvatum



Uvularia grandiflora



Aplectrum hyemale

5 dm tall; leaves alternate, perfoliate, lanceolate to oblong, 5-14 cm long; flowers solitary, terminal, drooping; perianth segments distinct, yellow, twisted, 3-4 cm long; stamens 6, free from the perianth; fruit a capsule 1-2 cm long. Occasional in moist woods.

11. ORCHIDACEAE Orchid Family

Mostly perennial herbs; leaves usually basal, or alternate and sheathing; flowers solitary or in racemes or panicles, perfect, epigynous, complete, 3-merous, polypetalous or partly sympetalous, irregular; sepals 3, or 2 by fusion, green or colored as the petals; petals 3, the lower (lip) often large and showy; stamens 1 or 2, fused to the style forming the fleshy column; pollen contained in waxy pollinia that are borne near the end of the column; pistil 1-celled; fruit a capsule bearing many minute seeds.

- a. Leaves absent or non-functional at flowering time, or reduced to sheathing scales.
 - b. Lateral petals 10-15 mm long; plants arising from 1-several subglobose corms.....1. Aplectrum
 - b. Lateral petals 5-8 mm long; plants arising from a group of coral-like rhizomes.....2. Corallorhiza
- a. Leaves present and green at flowering time.
 - c. Cauline leaves present; flowers large and yellow.....
.....3. Cypripedium
 - c. Leaves usually 2, basal; flowers not yellow
 - d. Perianth without a spur; lip purple; sepals and lateral petals green to yellow-green.....4. Liparis
 - d. Perianth with a spur; lip white; sepals and lateral petals pink.....5. Orchis

1. APLECTRUM Nutt. Putty-root.

1. Aplectrum hyemale (Muhl.) Torr. Adam-and-Eve. Perennial, scapose herb to 6 dm tall from subglobose corms; leaf basal, elliptic, 10-15 cm long, appearing in late summer; flowers 7-15 in a terminal, bracted raceme; scape with a few membranous scales; lip white, marked with purple, 3-lobed, broadly obovate; lateral petals and sepals purplish to greenish-brown, 10-15 mm long. Rare in moist woods.

2. CORALLORHIZA Chat. Coralroot

1. Corallorhiza wisteriana Conrad. Wister's Coral-root; Spring Coralroot. Perennial, saprophytic, scapose herb to 4 dm tall; rhizome coral-like; stem purple; leaves reduced to a few sheathing scales; flowers 10-15 in a terminal raceme; lip white, spotted with purple, broadly obovate; lateral petals and sepals greenish-yellow, marked with purple, narrowly lanceolate, 5-8 mm long. Rare in open woods and thickets.

3. CYPRIPIEDIUM L. Lady's Slipper.

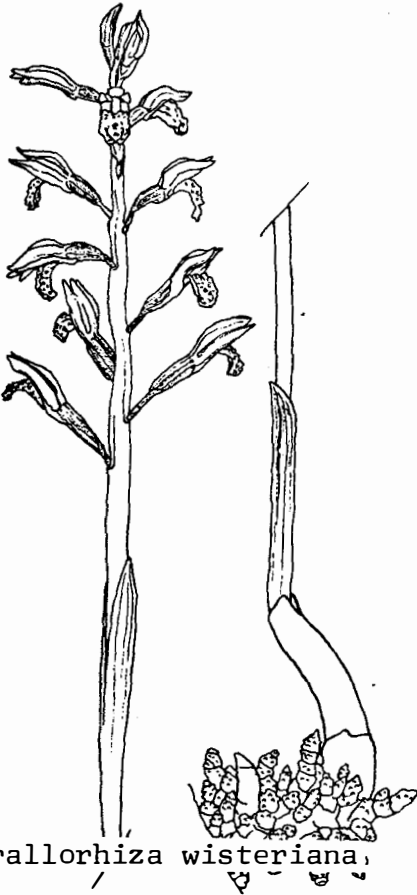
1. Cypripedium parviflorum Salisb. Yellow Lady's Slipper; Yellow Moccasin Flower. Fragrant, perennial herb to 6 dm tall; leaves 2-5, alternate, sheathing the pubescent stem, ovate to elliptic, 6-20 cm long; flowers 1 or 2, each subtended by a foliaceous, lanceolate bract; sepals 2, lanceolate, the lower cleft, colored as the lateral petals; lip large, sac-like, 2-6 cm long, yellow, marked with purple; lateral petals; linear to narrowly lanceolate, spirally twisted, greenish-yellow to purplish, variously spotted. Rare in moist, open woods.

4. LIPARIS Rich. Tway-blade.

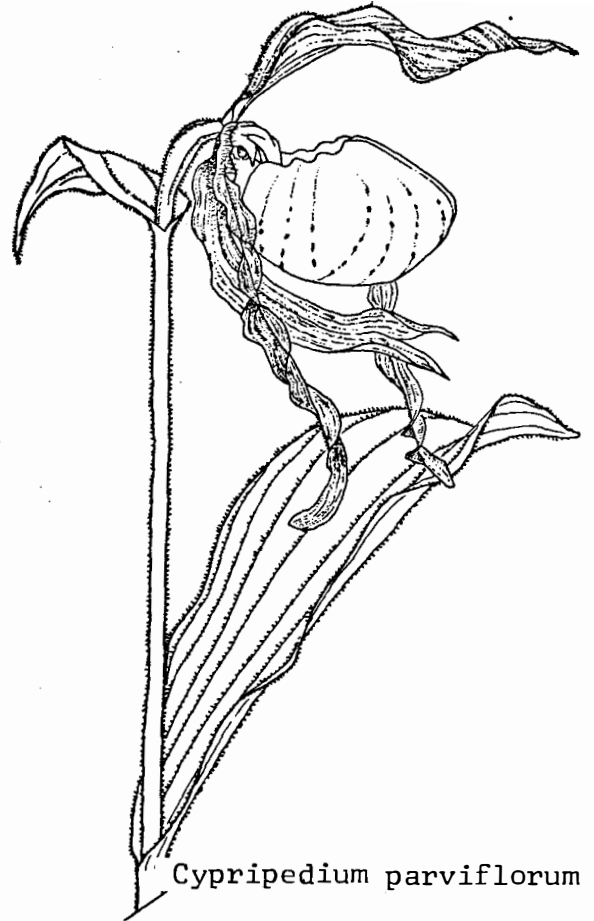
1. Liparis lilifolia (L.) Rich. Large Tway-blade. Perennial, scapose herb to 2 dm tall; corm present; leaves 2, basal, ovate to elliptic, 5-15 cm long; flowers 5-20 in a terminal, bracted raceme; sepals green, linear to oblong; lip pale purple, nearly flat, broadly obovate, bluntly apiculate, 10-12 mm long; lateral petals green to purplish, linear, revolute. Occasional in moist, open woods and thickets.

5. ORCHIS L. Orchis.

1. Orchis spectabilis L. Showy Orchis. Perennial, scapose herb to 2 dm tall; rhizomes and thickened roots present; leaves 2, basal, obovate to elliptic, 8-16 cm long; flowers 5-15 in a terminal, bracted raceme; lip white, ovate with a truncate base, somewhat crenate, spurred at the base; sepals and lateral petals pink to purple, 13-18 mm long. Occasional in moist, lowland woods.



Corallorrhiza wisteriana.



Cypripedium parviflorum



Liparis lilifolia



Orchis spectabilis

12. APOCYNACEAE Dogbane Family

Perennial herbs and twining vines, usually with milky sap; leaves opposite or alternate, simple, entire, usually exstipulate; flowers perfect, hypogynous, complete, 5-merous, sympetalous, regular; calyx 5-lobed; corolla salverform or tubular; stamens 5, epipetalous and alternate with the lobes; ovaries 2, separate, attached by their stigmas and styles; fruit of 2 follicles.

a. Plants erect; leaves alternate; flowers in terminal cymes.....

.....1. Amsonia

a. Plants trailing; leaves opposite; flowers axillary and solitary.....

.....2. Vinca

1. AMSONIA Walt.

1. Amsonia tabernaemontana Walt. Blue-star. Perennial, erect herb to 1 m tall; leaves alternate, petioled, narrowly lanceolate to elliptic, 7-14 cm long; flowers in terminal cymes; corolla salverform, bluish-purple, the tube villous, 6-10 mm long, the lobes linear; follicles cylindrical, 6-12 cm long. Rare in moist woods and open wet areas.

2. VINCA L. Periwinkle; Running Myrtle.

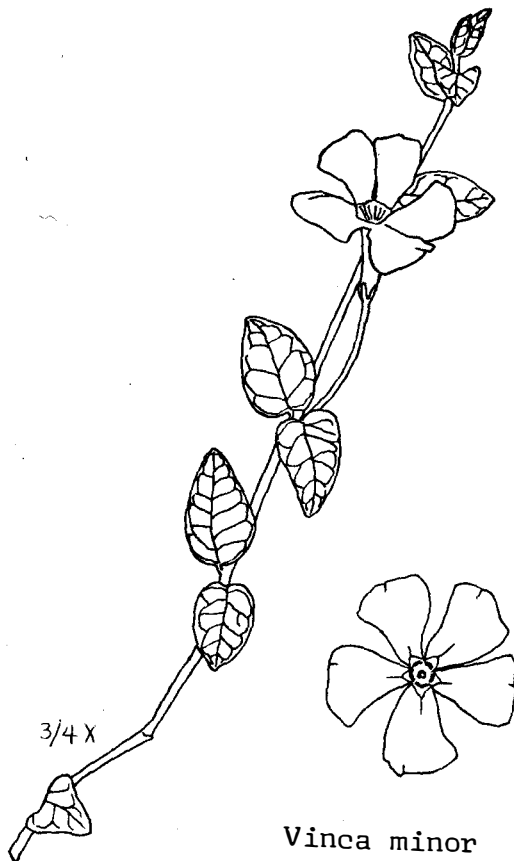
1. Vinca minor L. Trailing, perennial herb; leaves opposite, coriaceous, ovate to elliptic, 2-4 cm long, entire; flowers solitary, axillary, on peduncles to 3 cm long; corolla salverform, bright blue, the tube 8-13 mm long, the limb 2-3 cm wide. Commonly cultivated and occasionally escaped to roadsides.

13. ARISTOLOCHIACEAE Birthwort Family

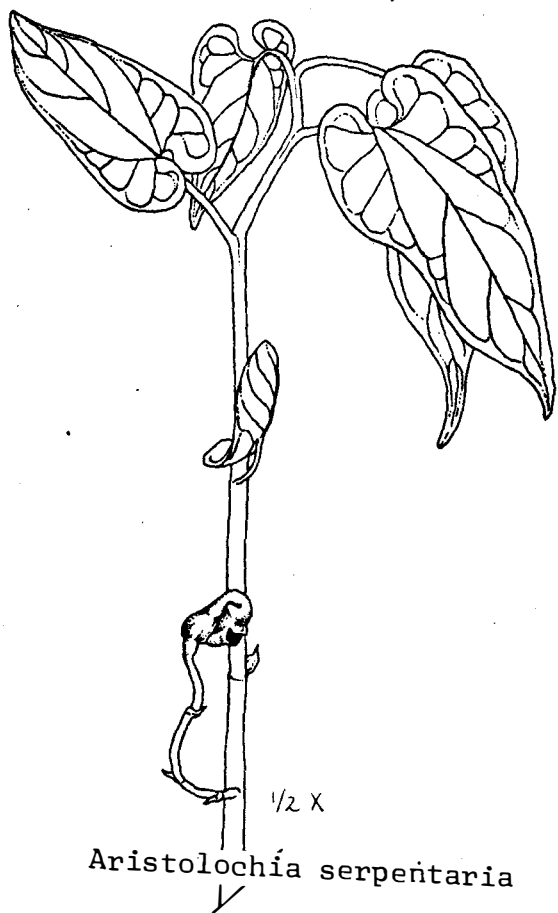
A small family of perennial herbs and vines with simple, entire, alternate leaves; flowers usually solitary, perfect, epigynous, regular to irregular, 3-merous, apetalous; calyx petaloid, 3-lobed; stamens 6-12, usually attached at the top



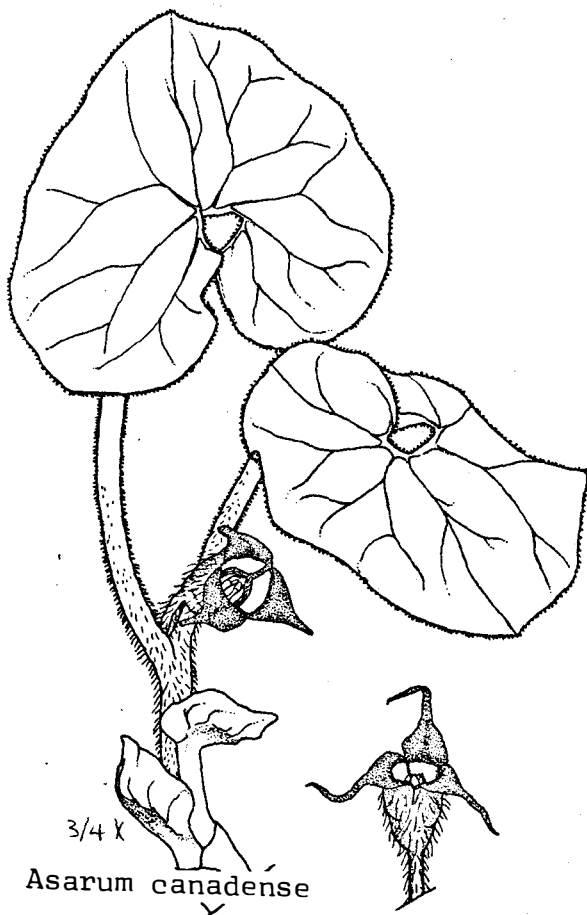
Amsonia tabernaemontana



Vinca minor



Aristolochia serpentaria



Asarum canadense

of the ovary; fruit a capsule.

- a. Leaves 2, basal; flowers regular.....1. Asarum
 a. Leaves several, alternate on the stem; flowers irregular.....
2. Aristolochia

1. ASARUM L. Wild Ginger.

1. Asarum canadense L. Perennial, aromatic herb with slender rhizomes; leaves 2, alternate, basal, reniform, pubescent beneath, 8-12 cm wide, base cordate; flowers solitary, arising from between the leaves; calyx lobes variable, spreading or reflexed, short triangular to long acuminate, 4-15 mm long, pubescent; stamens 12, the connective prolonged as a subulate tip. Two varieties are recognized based upon differences in the calyx and sometimes are treated as separate species: var. canadense, having long acuminate lobes with revolute margins; and var. reflexum (Bickn.) Robins., with short, reflexed lobes. Occasional in moist woods.

2. ARISTOLOCHIA L. Pipe Vine, Birthwort.

1. Aristolochia serpentaria L. Virginia Snakeroot. Perennial herb to 5 dm tall; leaves several, alternate, ovate, 6-12 cm long, base auriculate; flowers solitary on slender, scaly peduncles, attached at ground level; calyx irregular, purplish-brown, tubular, S-shaped, the limbs spreading and 3-lobed; stamens 6; fruit a ridged capsule. Rare in moist, upland woods.

14. ASTERACEAE Sunflower Family

Mostly herbaceous plants with variable leaves which may be alternate, opposite, whorled, or basal; flowers arranged into dense heads, the receptacle of each head subtended by an involucre of several to many bracts (the head therefore, appearing like a single flower, but composed of many flowers); flowers of two types: ray flowers (ligulate), epigynous, 5-merous, sympetalous, irregular, commonly sterile; and disk flowers (tubular), epigynous, 5-merous, sympetalous, mostly regular and perfect; calyx usually represented by a pappus of capillary

- bristles or scales; stamens usually 5, united by their anthers into a ring surrounding the style; fruit an achene.
- a. Some or all of the flowers with tubular corollas (disk flowers); sap not milky.
- b. Ray flowers absent, the head composed only of disk flowers; the marginal ones sometimes enlarged.
- c. Flowers white; pappus of capillary bristles.....2. Antennaria
- c. Flowers mostly blue or pink (rarely white), pappus of scales.....3. Centaurea
- b. Ray flowers present.
- d. Ray flowers yellow.....7. Senecio
- d. Ray flowers white or pink, never yellow.
- e. Ray flowers numerous (100 or more); leaves simple never compound or pinnatifid.....5. Erigeron
- e. Ray flowers fewer, usually less than 25 per head; leaves compound to pinnatifid.
- f. Head solitary 3-5 cm wide; leaves commonly pinnatifid.....4. Chrysanthemum
- f. Heads numerous, each less than 1 cm wide; leaves bipinnately compound.....1. Achillea
- a. Flowers all ligulate and perfect; sap milky.
- g. Plants scapose, the leaves coarsely toothed and lobed.....8. Taraxacum
- g. Plants with an obvious stem; leaves entire to shallowly lobed or toothed.
- h. Leaves linear-lanceolate; achenes long-beaked.....9. Tragopogon

h. Leaves oblanceolate; achenes lacking a beak.....

.....6. Krigia

1. ACHILLEA L. Yarrow; Milfoil.

1. Achillea millefolium L. Aromatic, perennial, woolly pubescent herb to 8 cm tall; rhizomes present; basal leaves much dissected, bipinnately compound pinnatifid, 4-14 cm long, to 2 cm wide, petioled; cauline leaves similar, alternate, sessile; head numerous in a corymb to 1 dm wide; involucre 4-5 mm long; ray flowers white to rarely pink, 4-6 mm long; pappus absent. Common in field and waste places.

2. ANTENNARIA Gaertn. Pussytoes, Ladies'-tobacco.

a. Basal leaves less than 1.5 cm wide, 1-nerved or obscurely

3-nerved.....1. A. neglecta

a. Basal leaves more than 1.5 cm wide, prominently 3-7 nerved....

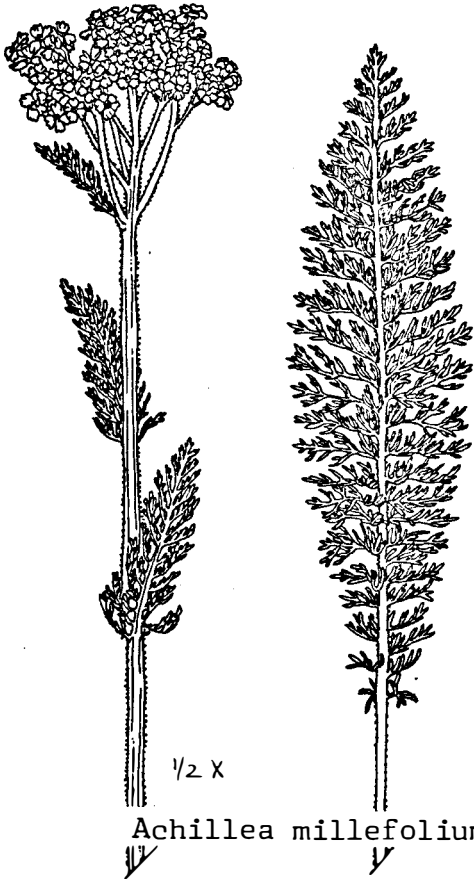
.....2. A. plantaginifolia

1. Antennaria neglecta Greene. Stoloniferous, dioecious, woolly pubescent herb to 3 dm tall; basal leaves oblanceolate to spatulate, 1.5-5 cm long, 0.5-1.5 cm wide, glabrous above, white woolly beneath; cauline leaves few, reduced, linear; heads 2-8, glomerulate to racemose; involucre bracts in several series, 5-8 mm long, white tipped; corollas all tubular; pappus of capillary bristles; achene about 1 mm long; the staminate plant usually less than 1 dm tall. Fairly common in dry open areas.

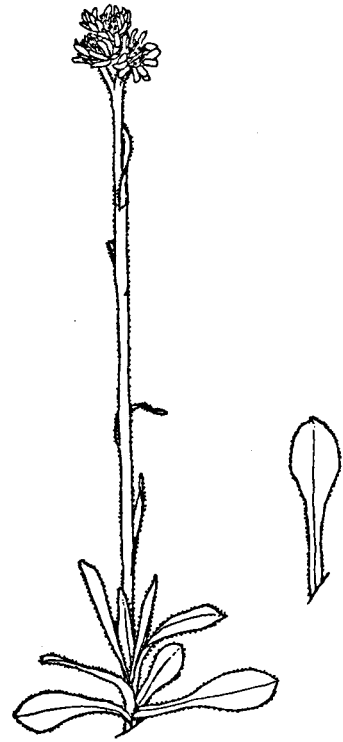
2. Antennaria plantaginifolia (L.) Hook. Stoloniferous, dioecious, woolly pubescent herb to 4 dm tall; basal leaves ovate to obovate, petioled, 2-8 cm long, 1.5-6 cm wide; glabrous above, white woolly beneath; cauline leaves alternate, reduced, mostly linear; heads to 1 cm broad, several in a cyme; involucre bracts in several series, 5-10 mm long, white tipped; corollas all tubular; pappus of capillary bristles; achenes 1-1.5 mm long; the staminate plants usually smaller. Common in open woods and dry open areas.

3. CENTAUREA L. Star Thistle.

1. Centaurea cyanus L. Bachelor's Button. Annual, pubescent herb to 10 dm tall; leaves alternate, linear, 6-12 cm long, 3-8 mm wide, entire or with few teeth or linear lobes near the base; heads solitary, terminating the branches, 2-4 cm wide; involucre 10-16 mm long, the bracts pectinately fringed near the tip; flowers blue (rarely white or pink), mostly tubular, marginal ones with



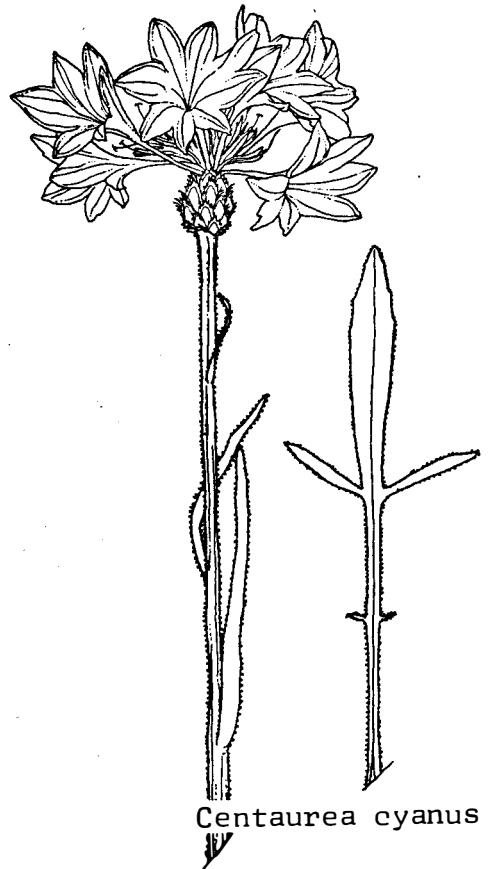
Achillea millefolium



Antennaria neglecta



Antennaria plantaginifolia



Centaurea cyanus

enlarged, irregular corollas; pappus of scales 3-6mm long, commonly planted and occasionally escaping to roadsides and waste places.

4. CHRYSANTHEMUM L.. Ox-eye Daisy.

1. Chrysanthemum leucanthemum L. Mostly glabrous, perennial herb to 7 dm tall; rhizomes present; basal leaves oblanceolate, 5-15 cm long, commonly pinnatifid, petioled; cauline leaves alternate, reduced and sessile upwards, pinnatifid to almost entire; heads solitary at the ends of the branches, 3-5 cm wide; involucre 6-10 mm long the bracts numerous, narrow; ray flowers white, 1-2 cm long; disk flowers yellow; pappus absent. Fairly common in fields, roadsides and waste places.

5. ERIGERON L. Fleabane.

1. Erigeron philadelphicus L. Pubescent, perennial to biennial herb to 7 dm tall; basal leaves oblanceolate, coarsely toothed, to 12 cm long and 3 cm wide; cauline leaves alternate, oblanceolate to ovate, clasping at the base; heads few to numerous in a corymb; involucre bracts 4-7 mm high; ray flowers numerous (more than 100), the corollas white to pink, 5-10 mm long; disk flowers yellow; pappus of capillary bristles. Fairly common in open woods, fields and roadsides.

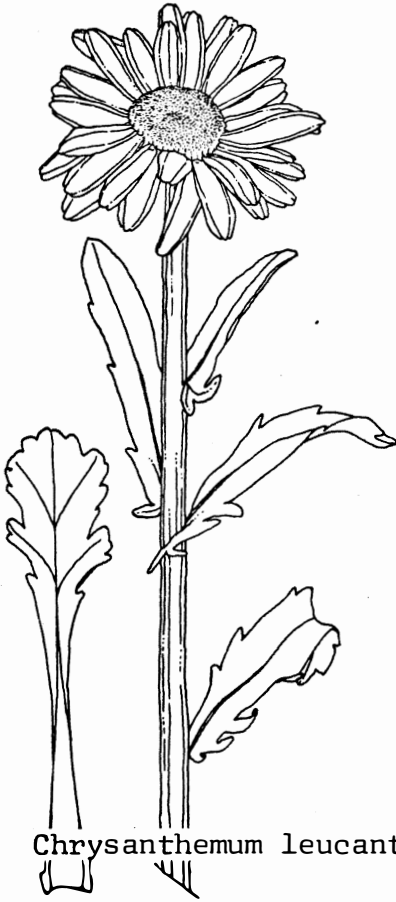
6. KRIGIA Schreb. Dwarf Dandelion.

1. Krigia biflora (Walt.) Blake. Perennial, erect, nearly glabrous herb to 8 dm tall; basal leaves oblanceolate, 8-25 cm long, entire to shallowly toothed or lobed; cauline leaves few, reduced, sessile and clasping; heads on long peduncles from the axils of the upper leaves; involucre bracts 10-18, narrow, 7-14 mm long, in one series; flowers all ligulate, the corollas bright yellow to orange; pappus of capillary bristles; achenes beakless. Occasional in open woods.

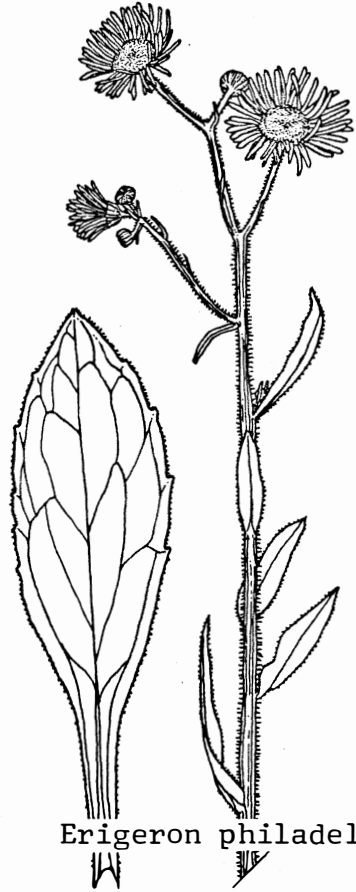
7. SENECIO L. Ragwort.

- a. Plants perennial; basal leaves crenate to serrate, not pinnatifid.....1. S. aureus
- a. Plants annual; basal leaves pinnatifid.....2. S. glabellus

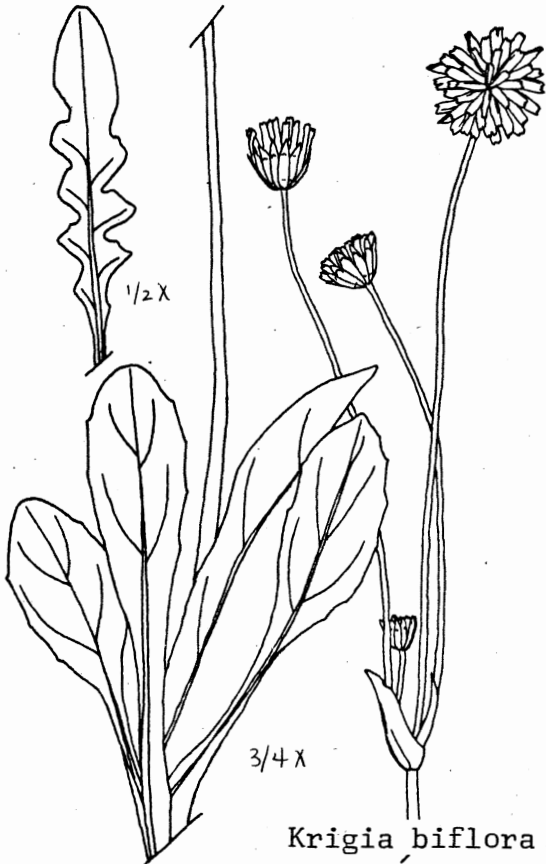
1. Senecio aureus L. Golden Ragwort. Perennial herb to 8 dm tall; rhizomes and stolons present; stem floccose-pubescent when young, nearly glabrous when mature; basal leaves long-petioled, blades ovate, crenate to serrate, 3-10 cm long, the base cordate;



Chrysanthemum leucanthemum



Erigeron philadelphicus



Krigia biflora



Senecio aureus

cauline leaves few, alternate, pinnatifid, greatly reduced; heads in a much branched corymb; involucre bracts 4-9 mm long, purple-tipped, in one series; ray flowers yellow, the corollas 8-12 mm long; disk flowers yellow; pappus of capillary bristles. Occasional in moist woods and roadsides.

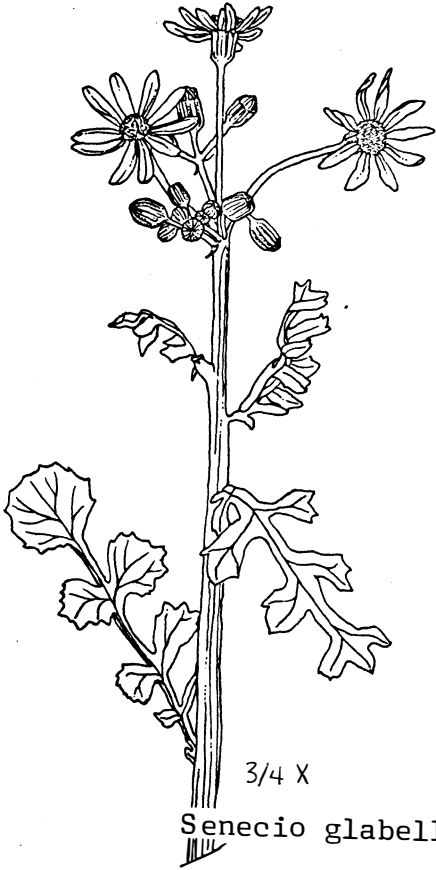
2. Senecio glabellus Poir. Butterweed. Mostly glabrous, annual herb to 8 dm tall; stem thick and fleshy; leaves alternate, pinnatifid to pinnately compound, to 18 cm long and 5 cm wide, reduced upwards; heads numerous in a much branched corymb; involucre bracts 4-6 mm long, in one series; ray flowers yellow, the corollas 6-12 mm long; disk flowers yellow; pappus of capillary bristles. Extremely common in moist disturbed ground, particularly cultivated fields.

8. TARAXACUM Zinn. Dandelion.

Taraxacum officinale Wiggers. Common Dandelion. Perennial, scapose herb from a long taproot, leaves all basal, lanceolate, to 30 cm long, pinnatifid or lobed, the terminal lobe much larger than the others; scape to 40 cm long with a single terminal head; involucre bracts numerous, 1.5-2.5 cm long, in more than 1 series, reflexed; flowers all ligulate, the corollas bright yellow, pappus of numerous capillary bristles; achene long-beaked, caped with persistent pappus. Extremely common in lawns and disturbed areas.

9. TRAGOPOGON L. Oyster-plant.

Tragopogon dubius Scop. Goat's Beard. Perennial, erect, mostly glabrous herb from a long taproot; leaves linear-lanceolate, entire, to 30 cm long, the cauline leaves alternate and progressively reduced; heads few, terminal on enlarged peduncles; involucre bracts 10-13, 3-5 cm long, in a single series; flowers all ligulate, the corollas bright yellow; pappus plumose; achenes long-beaked, 3-4 cm long, caped with persistent pappus. Common at the edge of roads and disturbed areas.



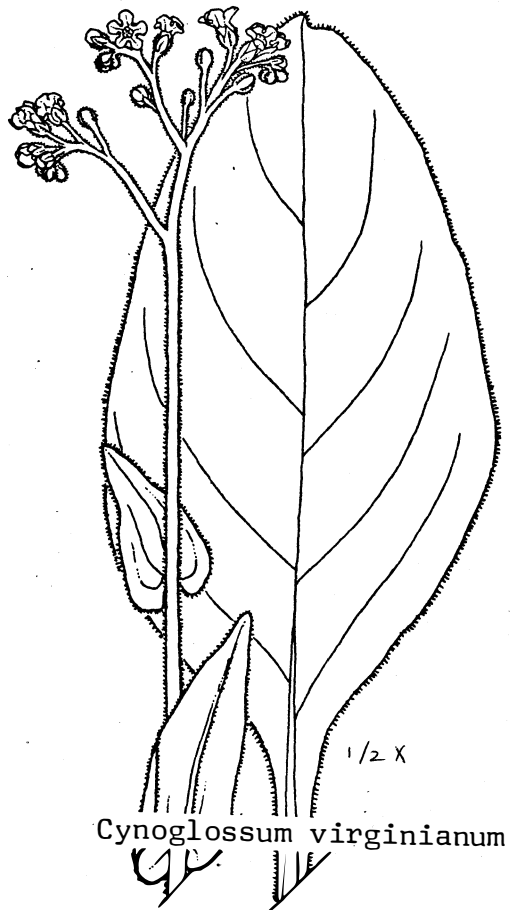
Senecio glabellus



Taraxacum officinale



Tragopogon dubius



Cynoglossum virginianum

15. BORAGINACEAE Borage Family

Mostly pubescent, perennial herbs; leaves alternate, simple, usually entire, exstipulate; inflorescence variable, but often a scorpioid cyme; flowers perfect, hypogynous, complete, 5-merous, sympetalous, regular; calyx 5-lobed; corolla tubular, salverform or funnelform, the throat often closed by petaloid appendages forming a corona; stamens 5, epipetalous and alternating with the corolla lobes; ovary 2-celled, usually deeply 4-lobed; fruit usually of four 1-seeded nutlets.

- a. Plants glabrous; corolla tubular-funnelform, more than 18 mm long.....3. Mertensia
- a. Plants pubescent, corolla salverform to funnelform, less than 18 mm long.
- b. Racemes bracteate, each flower borne in the axil of a bract or flowers solitary in the axils of the upper leaves.....
.....2. Lithospermum
- b. Raceme mostly bractless, all or most of the flowers not subtended by a bract.
- c. Flower blue; nutlets covered with hooked bristles.....
.....1. Cynoglossum
- c. Flowers white; nutlets smooth.....4. Myosotis

1. CYNOGLOSSUM L. Hound's-tongue

1. Cynoglossum virginianum L. Wild Comfrey. Pubescent, perennial herb to 8 dm tall; stem erect, mostly unbranched; basal leaves elliptic-oblong, to 3 dm long, long petioled; cauline leaves progressively smaller, becoming sessile and with broadly clasping bases; flowers in 1-4 terminal bractless racemes; corolla blue, 4-7 mm long, 8-12 mm wide; floral appendages present; nutlets bearing stout, hooked bristles. Occasional in dry, upland woods.

2. LITHOSPERMUM L. Gromwell, Puccoon.

a. Flowers white, 5-8 mm long.....1. L. arvense

a. Flowers orange to yellow, 8-13 mm long.....2. L. canescens

1. Lithospermum arvense L. Field Gromwell. Densely pubescent annual herb to 4 dm tall; leaves mostly linear, 2-6 mm wide, 2-4 cm long; flowers solitary in the axils of the upper leaves; corolla white, salverform, 5-8 mm long, 3-4 mm wide; calyx lobes about as long as the corolla. Common weed in waste places, roadsides and fields.

2. Lithospermum canescens (Michx.) Lehm. Hoary Puccoon; Hoary Gromwell. Densely pubescent perennial herb to 4 dm tall; leaves lanceolate, 2-6 cm long, obtuse; inflorescence a densely flowered scorpioid cyme the flowers subtended by foliaceous bracts; corolla bright orange or yellow, salverform, 8-13 mm long, about 10 mm wide. Fairly common in prairie areas and dry, open woods.

3. MERTENSIA Roth. Bluebells.

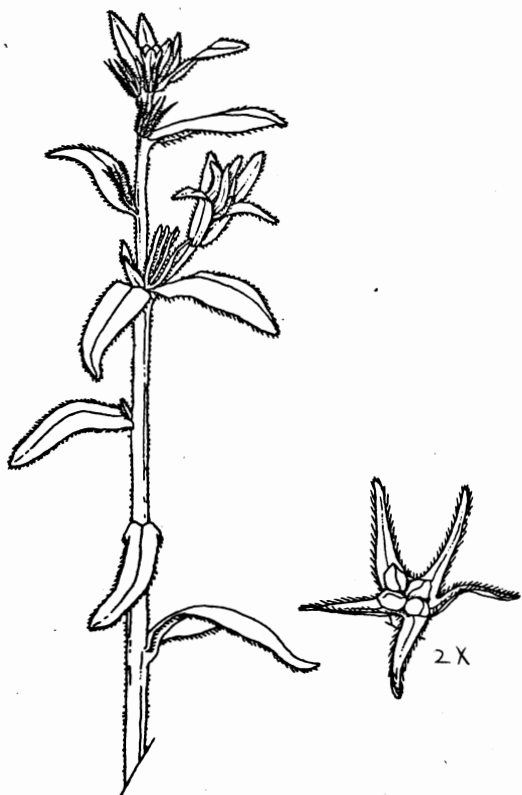
1. Mertensia virginica (L.) Pers. Glabrous perennial herb to 6 dm tall; leaves alternate, elliptic to obovate or oblanceolate, 5-15 cm long, entire, obtuse, varying up the stem from petioled to sessile; flowers in paniced cymes; corolla tubular-funnelform pink to blue or purplish, rarely white, 18-25 mm long, floral appendages absent; fruit of 4 nutlets. Common in moist, lowland woods.

4. MYOSOTIS L. Forget-me-not.

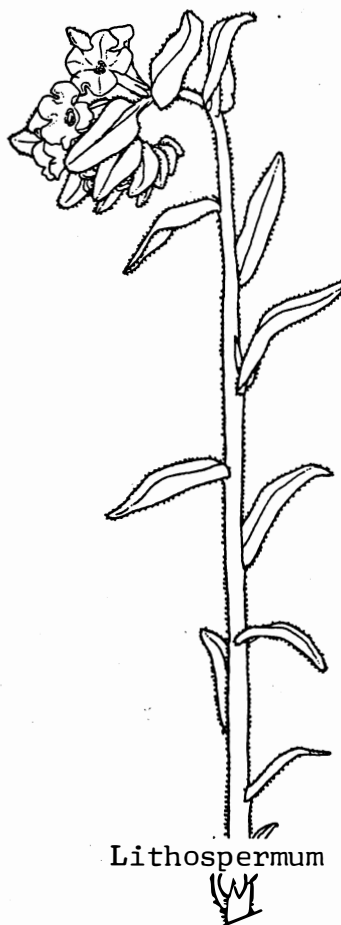
1. Myosotis virginica (L.) BSP. Pubescent annual herb to 4 dm tall; leaves linear to oblong, 2-10 mm wide, 1-5 cm long; flowers in loose racemes, the lower flowers sometimes subtended by a bract, the remainder bractless; corolla white, salverform, 2-3 mm long, 1-2 mm wide; floral appendaged present; nutlets smooth and shiny. Common in waste places and open fields.

16. BRASSICACEAE Mustard Family

Annual, biennial and perennial herb; leaves alternate, exstipulate, entire to pinnatifid or pinnately compound; inflorescence mostly an ebracteate raceme; flowers perfect, hypogeous, complete, 4-merous, polypetalous, regular; sepals separate; petals usually long clawed; stamens 6, the outer 2



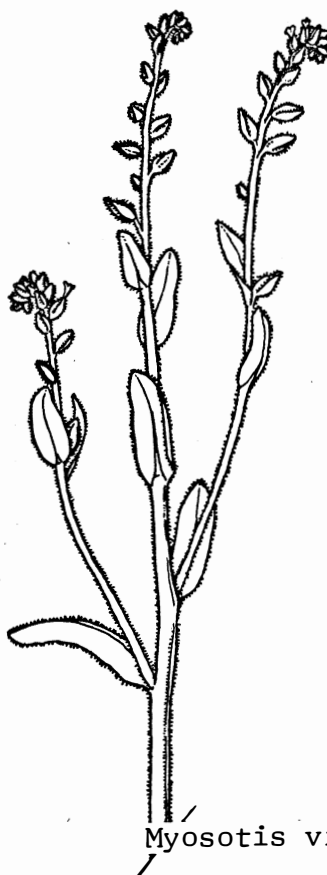
Lithospermum arvense



Lithospermum canescens



Mertensia virginica



Myosotis virginica

shorter than the 4 inner; ovary 2-celled; style simple; fruit a silique (much longer than wide) or silicle (less than twice as long as wide), consisting of 2 cells separated by a septum.

- a. Petals white, pink or purple, never yellow.
- b. Fruit a silicle (less than twice as long as wide).
 - c. Fruits obcordate-triangular; pubescence of branched hairs.....6. Capsella
 - c. Fruit ovate to nearly orbicular; plants glabrous or pubescent with simple hairs.
 - d. Plants glabrous; fruits 10-15 mm long.....16. Thlaspi
 - d. Plants pubescent; fruits less than 7 mm long.....
.....13. Lepidium
- b. Fruit a silique (more than three times as long as wide).
 - e. Leaves deeply palmately lobed; cauline leaves 3, in a single whorl.....8. Dentaria
 - e. Leaves entire or pinnatifid, in a basal rosette or alternate on the stem.
 - f. Petals less than 1.5 cm long, usually white.
 - g. Plants glabrous, or pubescent with only simple hairs.
 - h. Fruits 4-angled; leaves broadly ovate to deltoid.....1. Alliaria
 - h. Fruits terete or flattened; leaves various, but not as above.
 - i. Fruits less than 3 cm long.....7. Cardamine
 - i. Fruits more than 4 cm long.....3. Arabis

g. Plants pubescent with branched hairs (simple hairs may also be present).

j. Fruits less than 1 cm long, oblong to elliptical.....10. Draba

j. Fruits more than 1 cm long, linear.

k. Fruits terete; leaves entire, mostly basal, 1-4 cm, long, the cauline few, smaller and linear.....2. Arabidopsis

k. Fruits flattened; leaves mostly cauline and larger, entire to deeply pinnatifid.3. Arabis

a. Petals yellow.

1. Fruit a silicle.

m. Fruit ovoid to obovoid; plants pubescent with simple and branched hairs.....5. Camelina

m. Fruit linear-oblong; plants glabrous or nearly so.....14. Rorippa

1. Fruit a silique.

n. Plants pubescent with branched hairs (simple hairs may also be present).

o. Leaves bipinnately to tripinnately compound; fruits less than 3 cm long.....9. Descurainia

o. Leaves simple to pinnatifid, not compound; fruits 5-12 cm long.....11. Erysimum

n. Plants glabrous, or pubescent with simple hairs only.

p. Petals bright yellow, 4-7 mm long.....4. Barbarea

p. Petals pale yellow, less than 4 mm long.

q. Fruits appressed to the rachis; plants pubescent.....

.....16. Sisymbrium

q. Fruits divergent, not appressed to the rachis; plants

glabrous or nearly so.....14. Rorippa

1. ALLIARIA B. Ehrh. Garlic Mustard.

1. Alliaria officinalis Andz. Glabrous, biennial herb to 10 cm tall; leaves alternate, petioled, broadly ovate to deltoid, acute, cordate, coarsely dentate, 3-10 cm long; petals white, 5-7 mm long; siliques linear, 4-angled, 4-7 cm long, Rare in open woods, roadsides and waste places.

2. ARABIDOPSIS Heynh. Mouse-ear Cress.

1. Arabidopsis thaliana (L.) Heynh. Annual, pubescent herb to 4 cm tall; pubescence on leaves and basal part of stem of simple and branched hairs; basal leaves oblong to spatulate, 1-4 cm long, in a rosette; cauline leaves smaller and mostly linear; petals white, 2-3 mm long; siliques linear, terete, 1-2 cm long. Common in cultivated fields and waste places.

3. ARABIS L. Rockcress.

a. Siliques 4-9 cm long.

b. Leaves not auriculate; siliques 2-3 mm wide.....

.....1. A. canadensis

b. Leaves auriculate at base; siliques 1-2 mm wide.....

.....2. A. laevigata

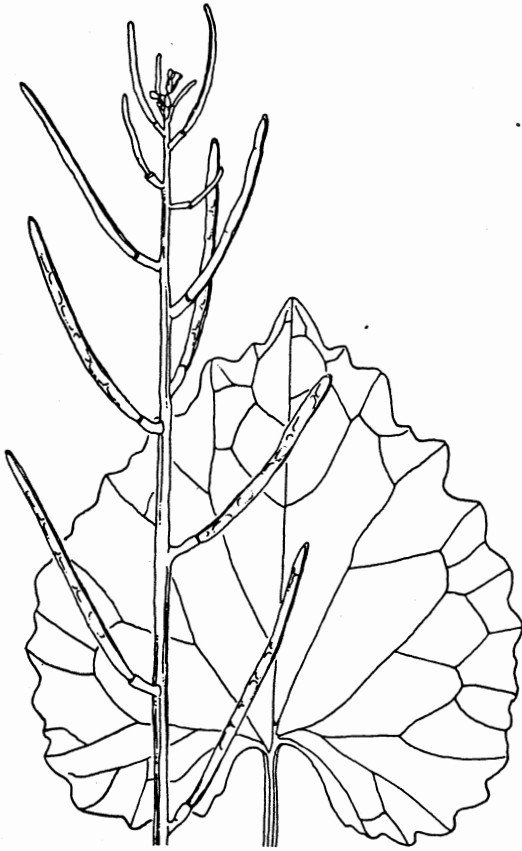
a. Siliques less than 3 cm long.

c. Leaves entire to remotely dentate, auriculate at base.....

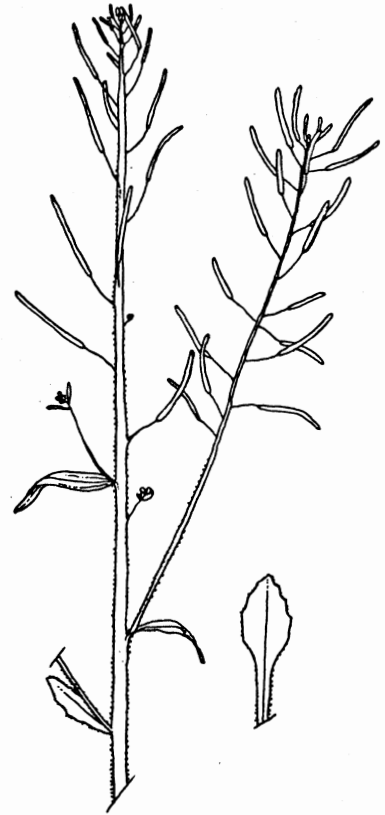
.....3. A. shortii

c. Leaves deeply pinnatifid, nor auriculate....4. A. virginica

1. Arabis canadensis L. Sicklepod. Perennial, sparsely pubescent herb to 1 m tall; pubescence mostly of simple hairs; leaves alternate, elliptic to lanceolate, serrate, 3-12 cm long; petals white, 3-6 mm long; siliques linear, flattened, pendant, curved, 5-10 cm long, 2-3 mm wide; seeds winged. Occasional in moist woods.



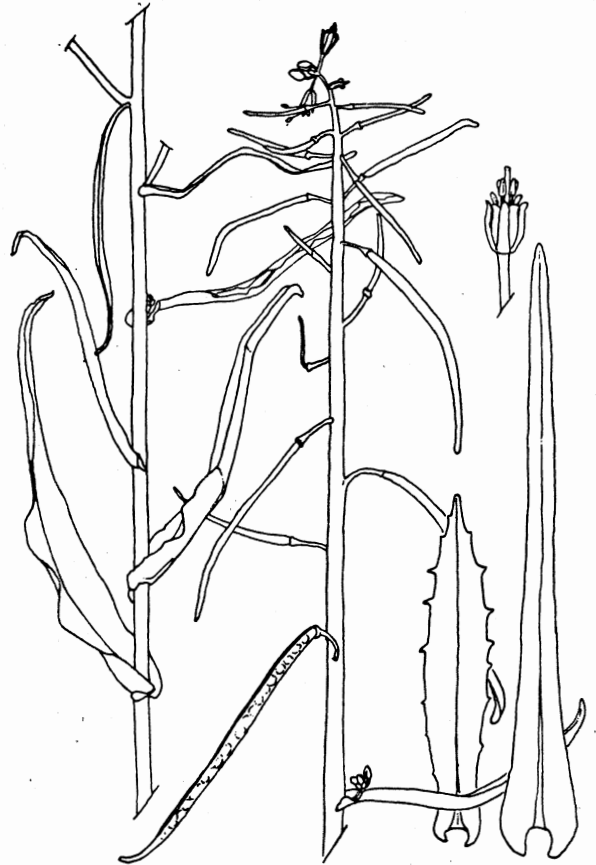
Alliaria officinalis



Arabidopsis thaliana



Arabis canadensis



Arabis laevigata

2. Arabis laevigata (Muhl.) Poir. Smooth Rockcress. Perennial, glabrous herb to 1 m tall; leaves alternate, narrowly lanceolate, auriculate, entire to coarsely toothed, 5-13 cm long; petals white, 3-5 mm long; siliques linear, flattened, divergent, curved, 4-10 cm long, 1-2 mm wide; seeds winged. Occasional in moist woods.

3. Arabis shortii (Fern). Gleason. Perennial, usually decumbent herb to 5 dm tall; pubescence mostly of branched hairs; basal leaves obovate, petioled, serrate; cauline leaves oblanceolate, sessile, auriculate, serrate, 2-6 cm long; petals white to pale violet, 2-3 mm long; siliques linear, flattened, 1.5-3 cm long, less than 1 mm wide; seeds wingless. Occasional in moist open areas and waste places.

4. Arabis virginica (L.) Poir. Perennial, sparsely pubescent herb to 3 dm tall; pubescence of simple and branched hairs; leaves alternate, 3-8 cm long, deeply pinnatifid, lobes linear to narrowly oblanceolate; petals white, 1-2 mm long; siliques ascending, linear, flattened, 2-2.5 cm long, 1-2 mm wide; seeds winged. Occasional in cultivated fields and waste places.

4. BARBAREA R. Br. Wintercress.

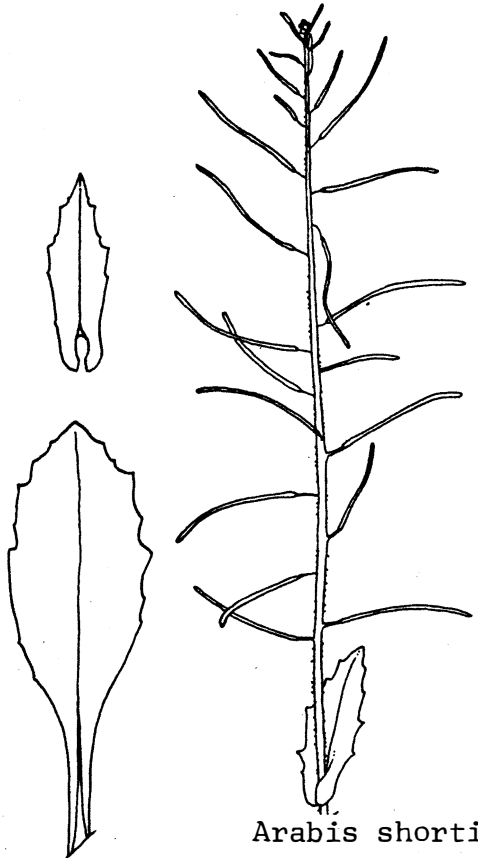
1. Barbarea vulgaris R. Br. Yellow Rocket; Common Wintercress. Glabrous, biennial, much branched herb to 6 dm tall; basal leaves deeply pinnately lobed, the lateral lobes 2-8, small, the terminal lobe larger, ovate; cauline leaves alternate, reduced upward, becoming sessile and lobed petals bright yellow, 4-7 mm long; siliques linear, terete, 1.5-3 cm long. Very common in fields, roadsides and waste places.

5. CAMELINA Crantz. False Flax.

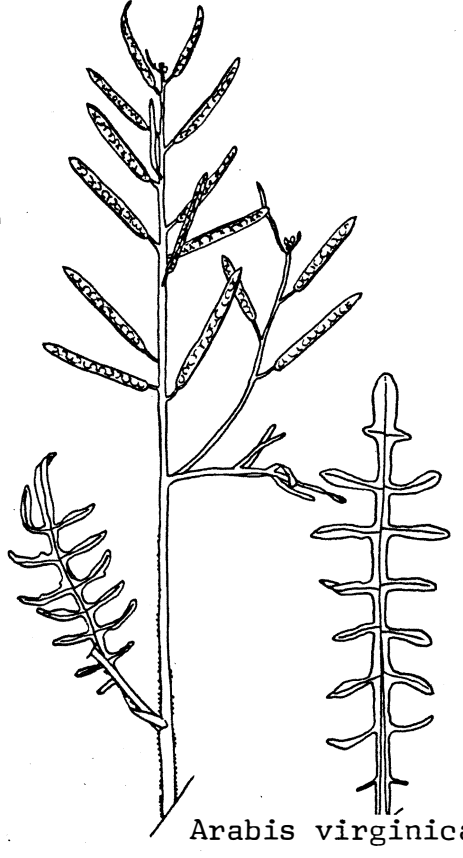
1. Camelina microcarpa Andz. Annual herb to 7 dm tall; pubescence of simple and branched hairs; leaves alternate, lanceolate, 2-5 cm long, sessile, auriculate, mostly entire; petals pale yellow, 4-6 mm long; silicle ovoid to obovoid, 5-8 mm long, 4-5 mm wide, capped by the persistent style. Occasional in fields and on roadsides.

6. CAPSELLA Medic. Shepherd's Purse.

1. Capsella bursa-pastoris (L.) Medic. Annual herb to 5 dm tall; lightly pubescent with branched hairs; basal leaves in a rosette, 5-13 cm long, pinnatifid; cauline leaves reduced, lanceolate to linear, sessile, auriculate, entire to remotely toothed; petals white, 2-4 mm long; silicles obcordate-triangular, 5-8 mm long, flattened at right angles to the septum. Common in cultivated fields and waste places.



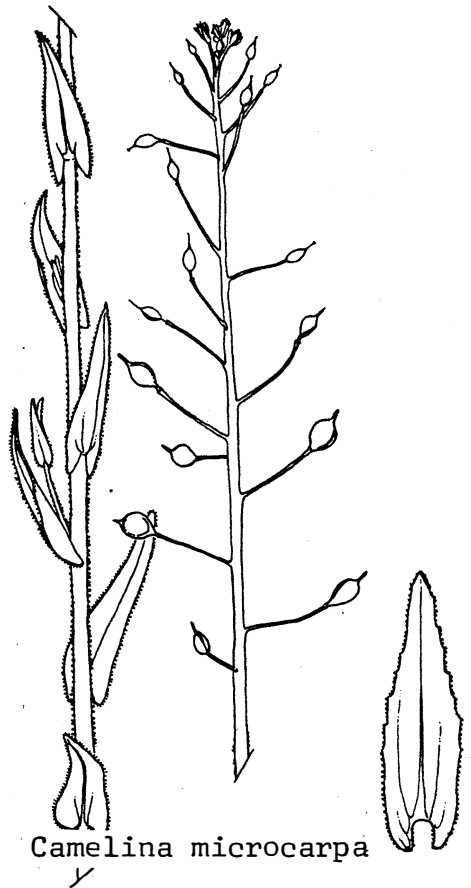
Arabis shortii



Arabis virginica



Barbarea vulgaris



Camelina microcarpa

7. CARDAMINE L. Bittercress.

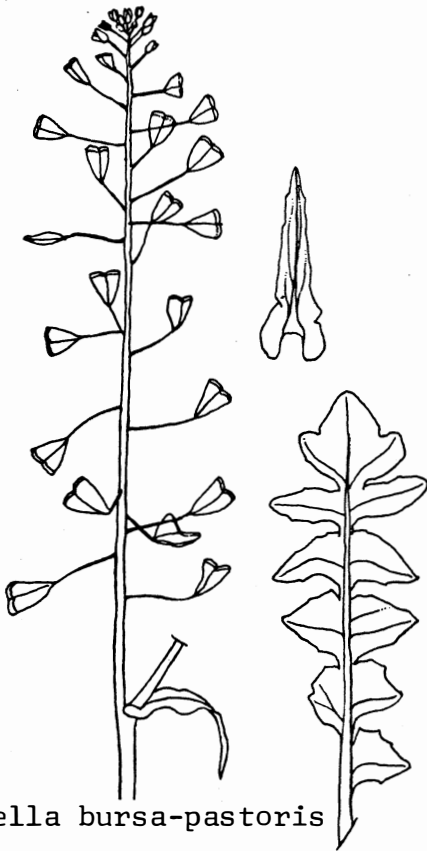
- a. Leaves simple, entire to variously toothed; petals more than 5 mm long.
- b. Petals white; stem glabrous except at the base.....
1. C. bulbosa
- b. Petals pink to purple; stem usually pubescent throughout....
2. C. douglassii
- a. Leaves pinnatifid to pinnately compound; petals 2-3 mm long.
- c. Leaflets and leaf segments all similar, the terminal and lateral linear.....3. C. arenicola
- c. Leaflets and leaf segments different, the terminal obovate to oblong, much wider than the lateral.....
4. C. pennsylvanica

1. Cardamine bulbosa (Schreb.) BSP. Perennial, usually glabrous herb to 5 dm tall; 1 to a few basal tubers present; basal leaves long petioled, ovate to orbicular, mostly entire; cauline leaves alternate, 4-8, ovate to lanceolate, coarsely toothed, sessile; petals white, 6-12 mm long; silique linear, terete, 15-25 mm long, short beaked. Occasional in wet open areas and moist woods.

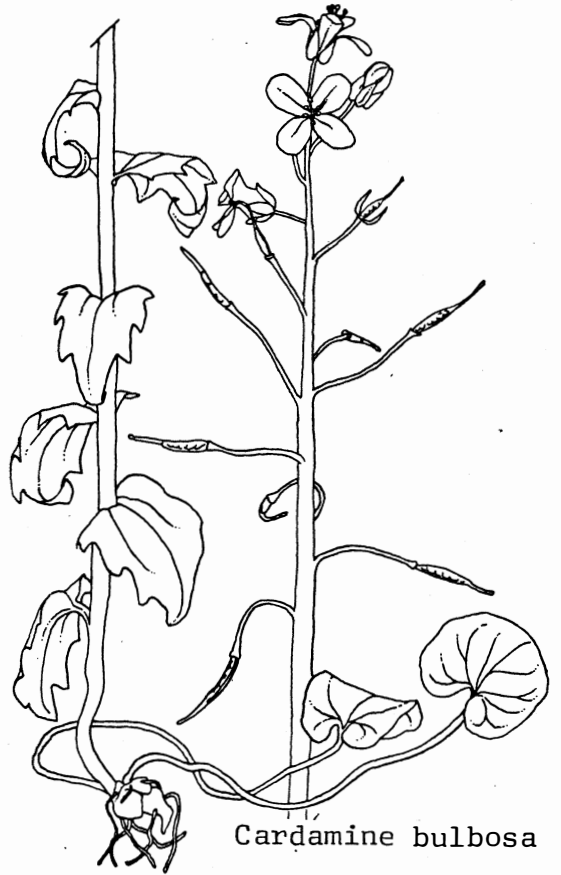
2. Cardamine douglassii (Torr.) Britt. Perennial, herb to 3 dm tall; lightly pubescent with simple hairs; small tubers present; basal leaves long petioled, broadly ovate to orbicular, coarsely toothed to entire; cauline leaves alternate, 2-5, ovate, coarsely toothed, sessile; petals pink to lavender, 10-15 mm long; silique linear, terete, 15-25 mm long, short beaked. Rare in moist woods.

3. Cardamine arenicola Britt. Annual or biennial herb to 3 dm tall; glabrous to sparsely pubescent with simple hairs; leaves alternate, pinnately compound to pinnatifid, the terminal and lateral leaflets similar, linear to oblong, entire; petals white, 2-3 mm long; silique linear, flattened, 2-3 cm long. Occasional in dry open woods and fields.

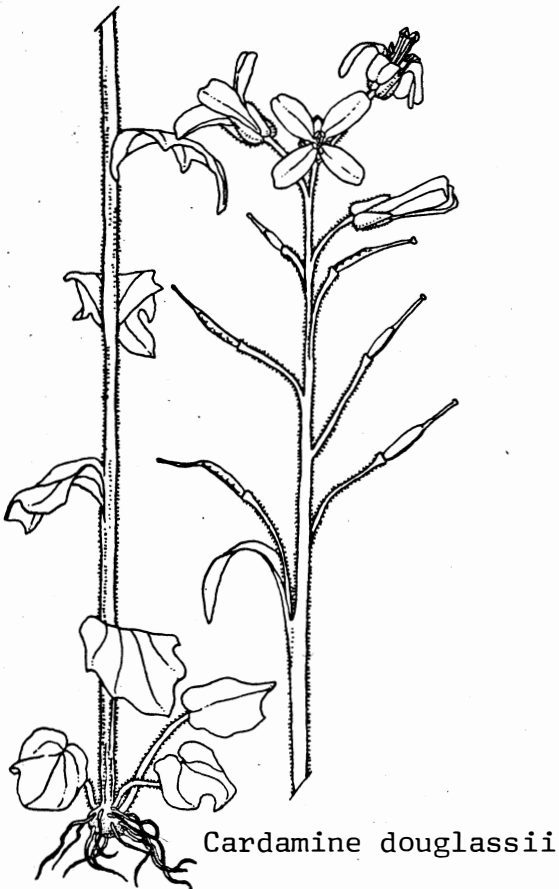
4. Cardamine pennsylvanica Muhl. Annual or biennial herb to 4 dm tall; glabrous to sparsely pubescent with simple hairs; leaves alternate, pinnately compound to pinnatifid, 4-8 cm long, terminal leaflets obovate to oblong, commonly toothed, lateral leaflets linear; petals white, 2-3 mm long; silique linear,



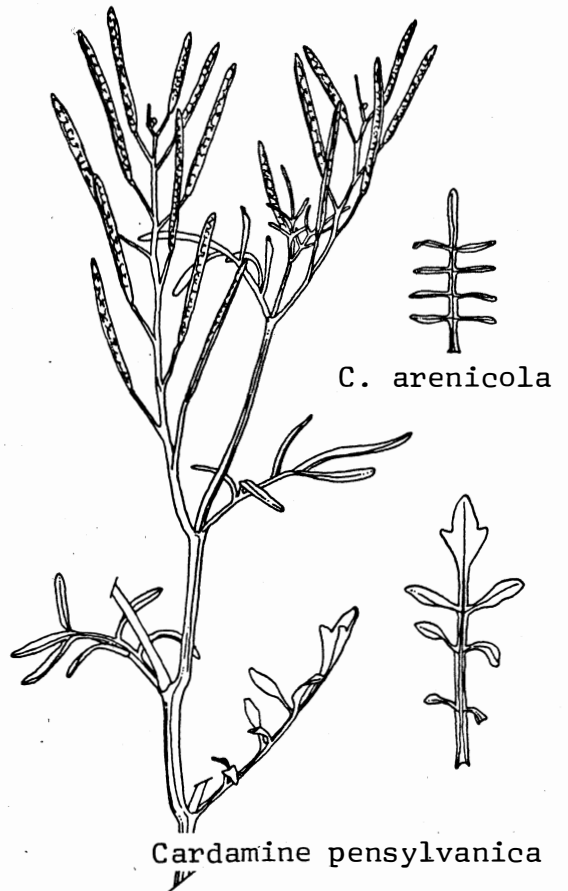
Capsella bursa-pastoris



Cardamine bulbosa



Cardamine douglassii



C. arenicola

Cardamine pensylvanica

flattened, 2-3 cm long. Fairly common in moist areas and cultivated fields.

8. DENTARIA L. Toothwort.

1. Dentaria laciniata Muhl. Perennial, sparsely pubescent herb to 4 dm tall; rhizomes constricted at intervals of 2-3 cm; cauline leaves 3, in a single whorl, deeply palmately lobed, the lobes 3-5, mostly linear, entire to laciniately toothed; petals white to violet, 1-2 cm long; siliques linear, nearly terete, including the long beak 3-5 cm long. Very common in moist woods.

9. DESCURAINIA Webb. & Berth. Tansy Mustard.

- a. Fruit 7-13 mm long; stem of the inflorescence glandular pubescent.....1. D. brachycarpa
- a. Fruit 15-25 mm long; stem of the inflorescence not glandular pubescent.....2. D. sophia

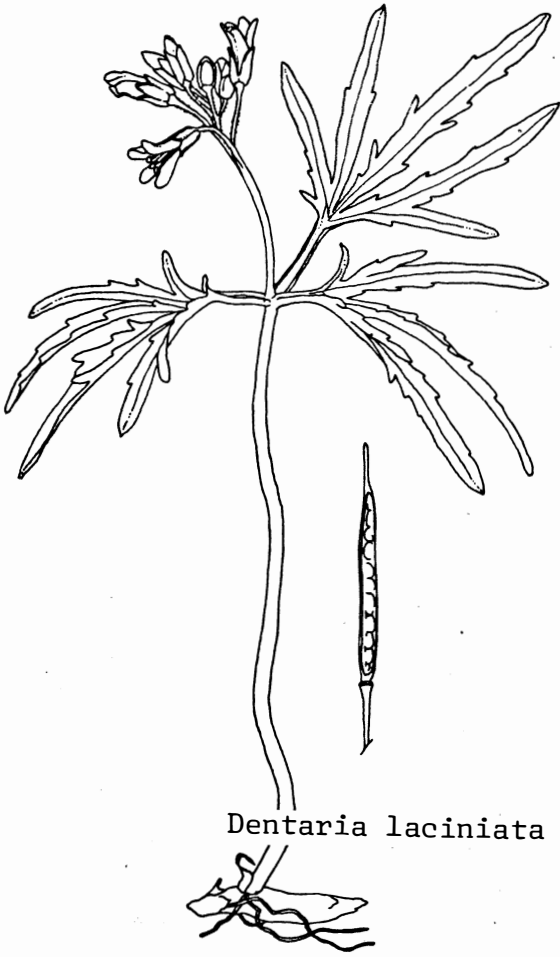
1. Descurainia brachycarpa (Richards.) O. E. Schulz. Annual, sparsely glandular pubescent herb to 6 dm tall; pubescence of branched hairs; leaves cauline, bipinnately to pinnately compound with the leaflets pinnatifid; flowers yellow, 1-2 mm long; siliques linear to clavate, 4 angled, 7-13 mm long. Occasional in prairies, waste places and roadsides.

2. Descurainia sophia (L.) Webb. Annual herb to 8 dm tall; pubescence of branched hairs; leaves cauline, bipinnately to tripinnately compound, the ultimate segments linear to narrowly oblanceolate; flowers yellow, 2-3 mm long; siliques linear, terete, 15-25 mm long. Rare in waste places.

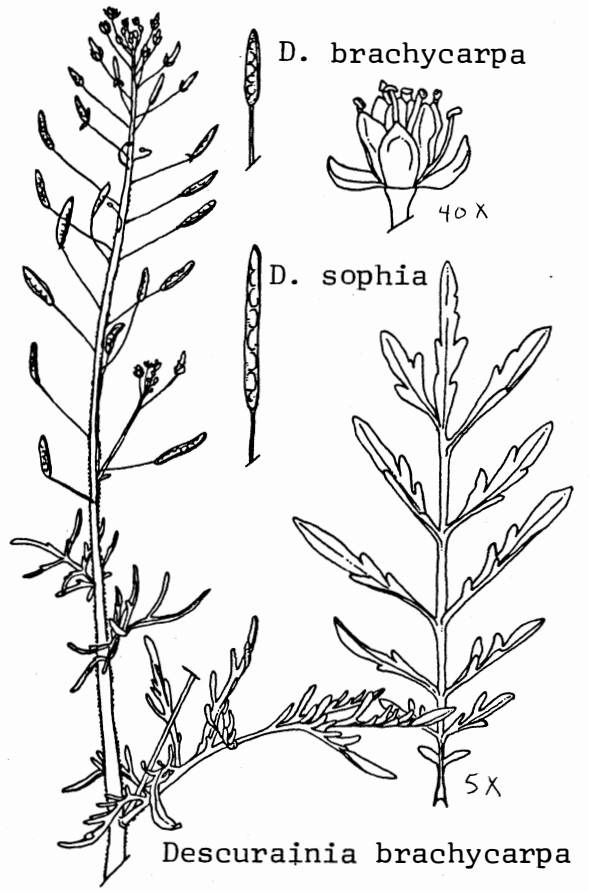
10. DRABA L. Whitlowcress.

- a. Leaves cauline and basal; petals entire.....1. D. brachycarpa
- a. Leaves all basal; petals bifid.....2. D. verna

1. Draba brachycarpa Nutt. Annual, branched, stellate-pubescent herb to 2 dm tall; basal leaves few, petioled, obovate, .5-2 cm long, entire; cauline leaves elliptic to linear, sessile; petals white, entire, 2-3 mm long (rarely absent); siliques oblong to elliptic, flattened, 2-5 mm long. Occasional in cultivated fields and waste places.



Dentaria laciniata



Descurainia brachycarpa



Draba brachycarpa



Draba verna

2. Draba verna L. Annual, scapose herb to 1.5 dm tall (rarely to 3 dm tall in fruit); leaves all basal, in a rosette, oblanceolate, 1-2 cm long, entire, pubescent with simple and branched hairs; flowers 2-3 mm wide in scapose racemes; petals white, bifid to about the middle; siliques elliptic, flattened, 4-10 mm long. Common in waste places, lawns, and cultivated fields.

11. ERYSIMUM L.

1. Erysimum repandum L. Annual, much branched herb to 4 dm tall; pubescent throughout with branched hairs; leaves alternate, linear to narrowly elliptic, sparsely toothed to pinnatifid, to 8 cm long; petals pale yellow, 5-9 mm long; siliques linear, 4-angled, 5-12 cm long. Occasional in waste places and cultivated fields.

12. HESPERIS L. Rocket.

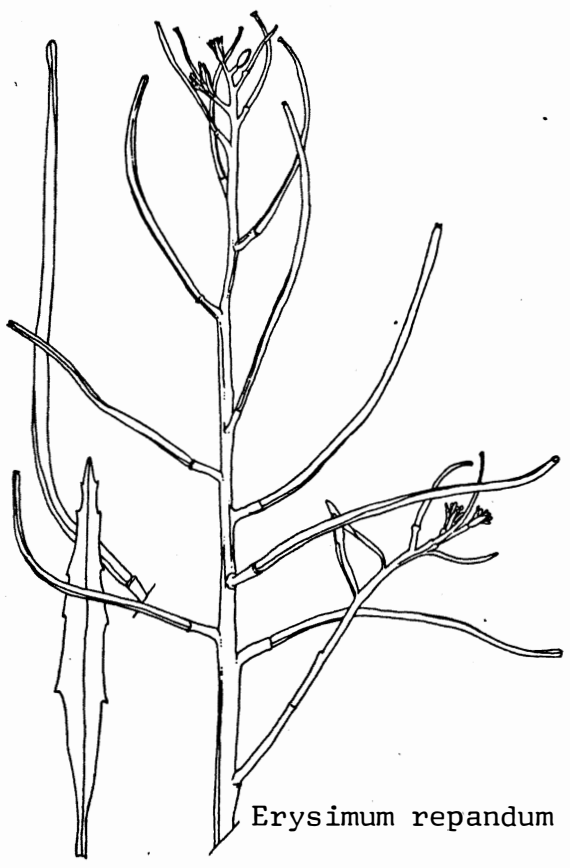
1. Hesperis matronalis L. Dame's Violet. Perennial herb to 1 m tall; leaves alternate, lanceolate, serrate, pubescent with simple hairs above, branched hairs below, to 14 cm long, short petioled to sessile; petals purple to white, 1.5-2.5 cm long; silique terete, 5-10 cm long, constricted between the seeds. Occasional in open woods and roadsides where it has escaped from cultivation.

13. LEPIDIUM L. Peppercress.

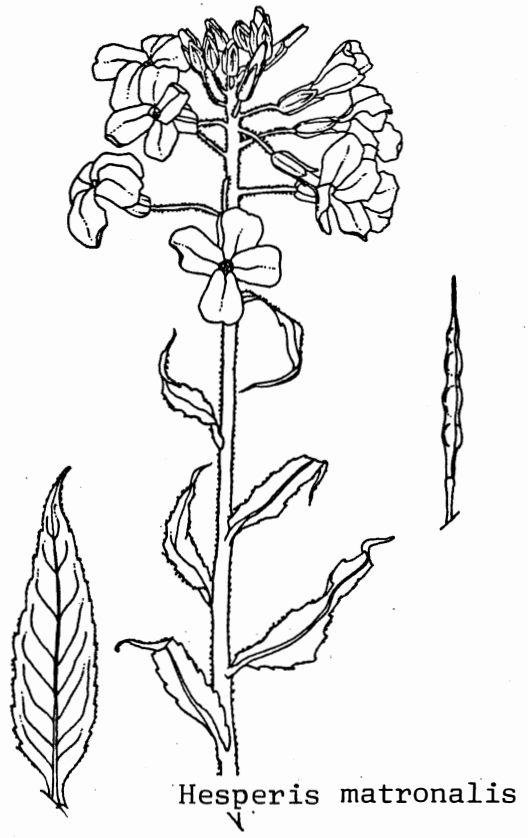
- a. Cauline leaves auriculate; fruits 5-7 mm long.....
1. L. campestre
- a. Cauline leaves not auriculate; fruits 2.5-4 mm.....
2. L. campestre

1. Lepidium campestre (L.) R. Br. Field Peppercress. Densely pubescent, annual herb to 5 dm tall; basal leaves petioled, oblanceolate, entire to pinnatifid; cauline leaves alternate, lanceolate, auriculate, sessile 2-4 cm long, denticulate; petals white, 2 mm long; silicle ovate, 5-7 mm long, winged, flattened at right angles to the septum. Common in fields and waste places.

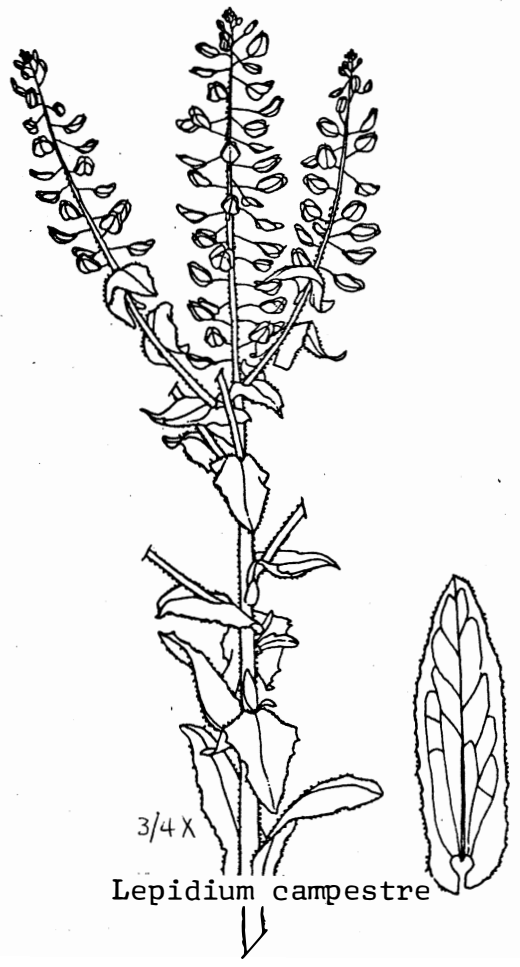
2. Lepidium virginicum L. Common Peppercress. Pubescent, annual herb to 5 dm tall; basal leaves toothed to pinnatifid, petioled, early deciduous; cauline leaves alternate, lanceolate to linear, serrate to entire, 1.5-5 cm long, mostly sessile; petals white, 1 mm long; silicle nearly orbicular, 2.5-4 mm long,



Erysimum repandum



Hesperis matronalis



Lepidium campestre



Lepidium virginicum

winged, flattened at right angles to the septum. Common in fields and waste places.

14. RORIPPA Scop. Yellow Cress; Marsh Cress.

- a. Fruiting pedicels 3 -7 mm long.....1. R. islandica
- a. Fruiting pedicels less than 2 mm long.....2. R. sessiliflora

1. Rorippa islandica (Oeder) Borbas. Glabrous, annual herb to 8 dm tall; leaves alternate, petioled, coarsely dentate to pinnatifid, auriculate; petals pale yellow, 1.5-2 mm long; siliques linear-oblong, terete, 3-6 mm long, 1-3 mm thick, on pedicels 3-7 mm long. Fairly common at the edge of ponds and other moist areas.

2. Rorippa sessiliflora (Nutt.) Hitchc. Glabrous, annual herb to 4 dm tall; leaves alternate, petioled, oblanceolate to oblong, coarsely dentate; petals pale yellow, 1-2 mm long; siliques linear-oblong, terete, 6-10 mm long, sessile or on short pedicels less than 2 mm long. Fairly common in moist areas and cultivated fields.

15. SISYMBRIUM L.

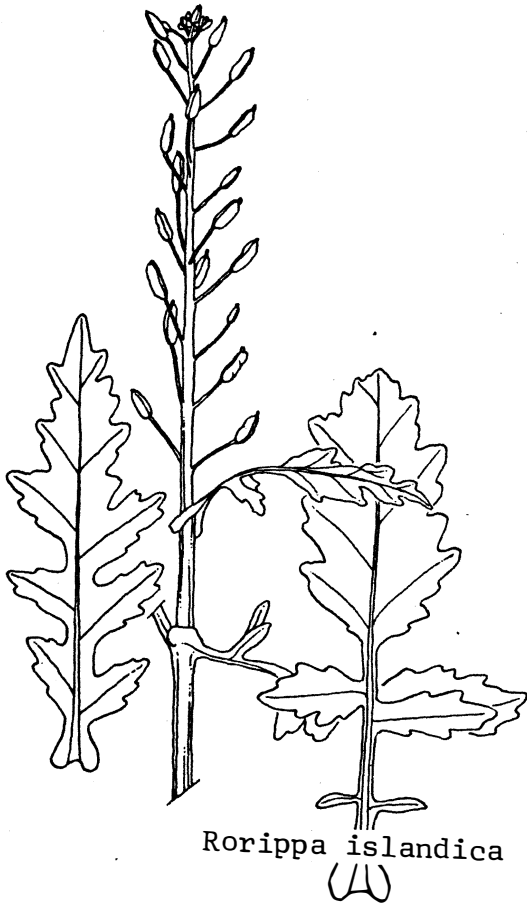
1. Sisymbrium officinale (L.) Scop. Hedge Mustard. Annual herb to 6 dm tall; pubescent with simple hairs; leaves alternate, the lower petioled, deeply pinnatifid with 5-13 coarsely toothed lobes, the upper reduced, with few lobes or entire, sessile; petals pale yellow, 2-3 mm long; siliques linear, terete, beaked, 1-2 cm long, closely appressed to the rachis. Occasional in waste places and field.

16. THLASPI L. Pennycress.

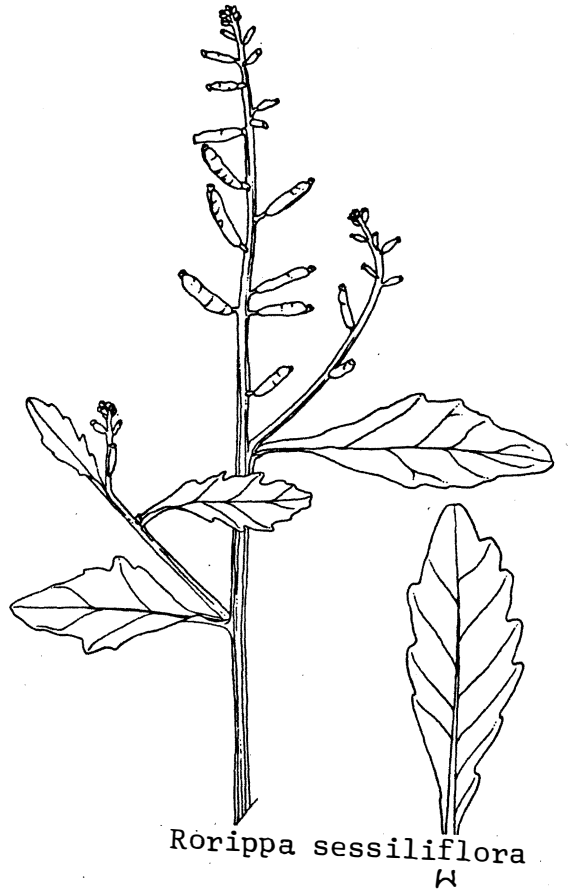
1. Thlaspi arvense L. Field Pennycress. Glabrous, annual herb to 6 dm tall; basal leaves absent; cauline leaves alternate, sessile, oblong to lanceolate, 3-7 cm long, entire to denticulate, auriculate; petals white, 2-3 mm long; silicles obovate to sub-orbicular, notched at the apex, winged, flattened at right angles to the septum, 10-15 mm long. Fairly common in fields and waste places.

17. CAMPANULACEAE Bellflower Family

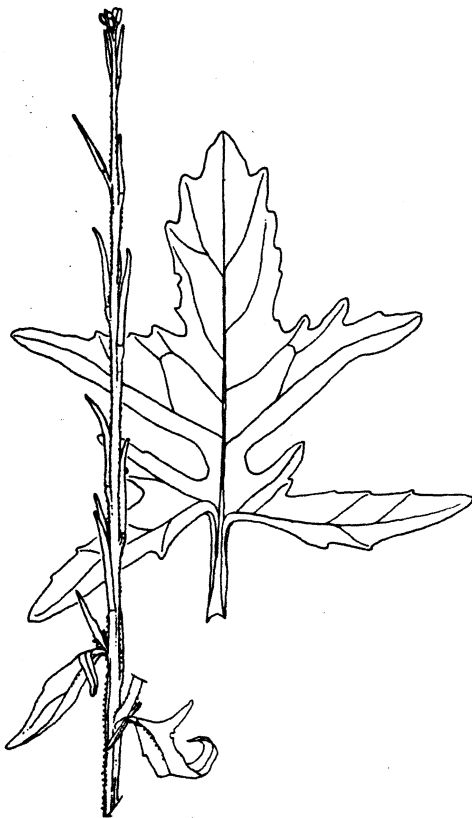
Annual and perennial herbs with alternate, simple, exstipulate leaves; flowers perfect, epigynous, complete, 5-merous,



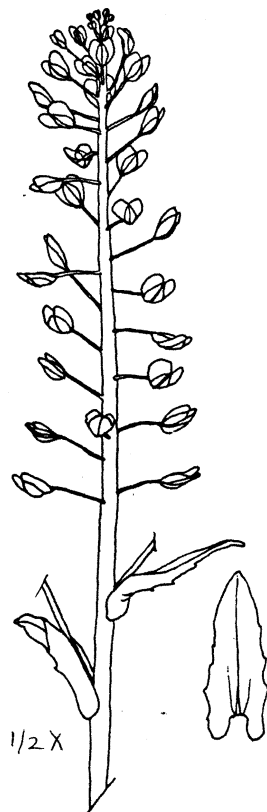
Rorippa islandica



Rorippa sessiliflora



Sisymbrium officinale



1/2 X

Thlaspi arvense

sympetalous, regular or irregular; calyx 5-lobed; corolla usually divided into 5 lobes; stamens 5, alternate with the corolla lobes; fruit a capsule that opens by pores or valves. Only one species is sometimes found growing in the spring in our area.

1. SPECULARIA Fabr. Venus' Looking-Glass.

1. Specularia perfoliata (L.) DC. Annual herb to 4 dm tall; leaves alternate, sessile, orbicular to broadly ovate, obtuse, cordate-clasping, pubescent, palmately-veined, margins serrate to crenate; stem usually unbranched; flowers solitary and sessile in the axil of most leaves; corolla rotate, dark blue to purple, 15 mm wide. Occasional in dry, open area.

18. CAPRIFOLIACEAE Honeysuckle Family

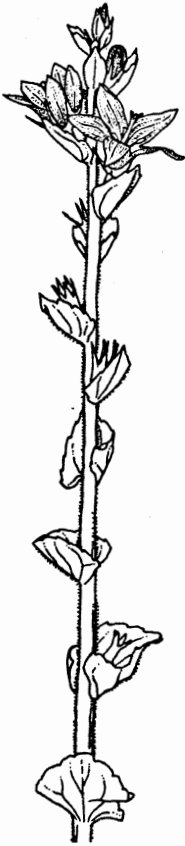
Mostly shrubs and vines, rarely perennial herbs; leaves opposite, simple or compound, mostly exstipulate; flowers perfect, epigynous, complete, usually 5-merous, sympetalous, regular to irregular; calyx small; stamens epipetalous and alternate with the lobes; ovary 1-5 celled; fruit commonly a berry, rarely a drupe or capsule.

1. TRIOSTEUM L. Horse-gentian.

1. Triosteum perfoliatum L. Perennial herb to 1 mm tall; stem pubescent; leaves opposite, sessile to perfoliate, obovate to oblanceolate, abruptly narrowing toward the base, 10-20 cm long, 5-10 cm wide, pubescent, margins entire; flowers axillary, regular; corolla tubular, reddish; fruit a red or orange drupe. Occasional in dry or moist woods and sometimes in open fields.

19. CARYOPHYLLACEAE Pink Family

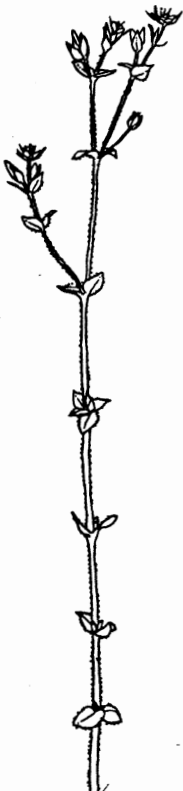
Annual or perennial herbs with opposite, simple, entire, mostly exstipulate leaves; flowers solitary or in cymes, mostly perfect, hypogynous, 4-5 merous, apetalous or polypetalous, regular; sepals free or fused; stamens 10 or fewer, distinct;



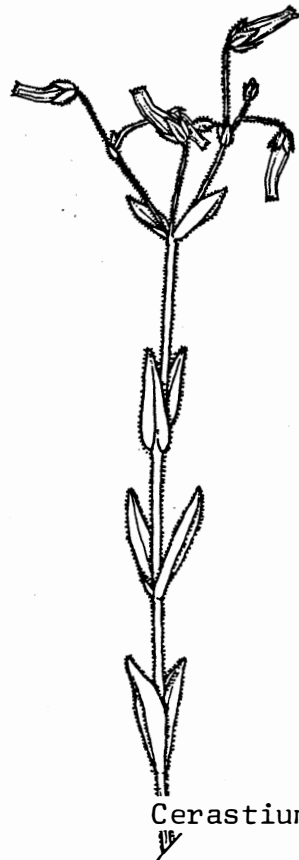
Specularia perfoliata



Triosteum perfoliatum



Arenaria serpyllifolia



Cerastium nutans

ovary 1-celled with free-central placentation; styles 3-5, usually distinct; fruit a capsule opening by valves or apical teeth.

a. Sepals united into a tubular calyx.

b. Styles 3; internode of stem with conspicuous glutinous zones.....5. Silene

b. Styles 5; internodes lacking glutinous zones.....4. Lychnis

a. Sepals separate or nearly so.

c. Petals entire.

d. Inflorescence a terminal umbel; stamens 3-5; capsule cylindrical.....3. Holosteum

d. Flowers solitary or in terminal cymes, not umbellate; stamens 10; capsule ovoid.....1. Arenaria

c. Petals bifid.

e. Capsule cylindrical, opening by 10 terminal teeth; styles normally 5.....2. Cerastium

e. Capsule ovoid, opening by valves that are separate to the base; styles normally 3.....6. Stellaria

1. ARENARIA L. Sandwort.

1. Arenaria serpyllifolia L. Thyme-leaved Sandwort. Small, wiry-stemmed, lightly pubescent annual herb to 2 dm tall; leaves ovate, sessile, 3-5 mm long, 1.5-4 mm wide; flowers solitary in the axils of the upper leaves or in few-flowered, terminal cymes; sepals 5, mucronate, 2.5-3.5 mm long; petals 5, white, usually shorter than the sepals; stamens 10; styles 3; fruit an ovoid capsule slightly longer than the sepals. Occasional in sandy soil of roadsides and waste places.

2. CERASTIUM L. Mouse-ear Chickweed.

a. Mature pedicels more than 5 mm long, longer than the sepals; inflorescence open; seeds .5-.8 mm long.

b. Annual; petals much longer than the sepals; mature pedicels

- 15-40 mm long.....1. C. nutans
- b. Perennial; petals equalling or shorter than the sepals;
pedicels 5-12 mm long.....2. C. vulgatum
- a. Mature pedicels 3-5 mm long, mostly shorter than the sepals; the
inflorescence compact; seeds less than .5 mm long.....
-3. C. viscosum

1. Cerastium nutans Raf. Nodding Mouse-ear Chickweed. Annual, viscid-pubescent herb to 4 dm tall; leaves opposite, narrowly oblong to oblanceolate, 1.5-5 cm long, 5-10 mm wide; flowers few in loose, terminal cymes, the pedicels 15-40 mm long; sepals 3-5 mm long, lightly viscid-pubescent with short, glandular hairs; petals 5, white, bifid, conspicuously longer than the sepals; stamens 10; styles 5; fruit a cylindrical, membranous capsule, 8-15 mm long; seeds .5-.7 mm long. Common in lawns, waste places and fields.

2. Cerastium vulgatum L. Common Mouse-ear Chickweed. Perennial, viscid-pubescent herb to 4 dm tall; leaves opposite, sessile, oblong to ovate, 1-2 cm long, 3-10 mm wide; flowers few in loose, terminal cymes, the pedicels 5-12 mm long; sepals 4-6.5 mm long, strongly pubescent with long, straight hairs; petals 5, white, bifid, about as long as the sepals; stamens 10; styles 5; fruit a cylindrical, membranous, usually curved capsule, 7-10 mm long; seed .5-.7 mm long. Common in lawns, fields and waste places.

3. Cerastium viscosum L. Annual, viscid-pubescent herb to 2 dm tall; leaves opposite, ovate to obovate, 1-2 cm long, 3-8 mm wide; inflorescence many-flowered, compact, the pedicels not longer than the sepals; sepals 3-5 mm long; petals 5, white, bifid, about as long as the sepals; stamens 10; styles 5; fruit a cylindrical, upwardly curved capsule 6-8 mm long; seeds less than .5 mm long. Occasional in lawns and waste places.

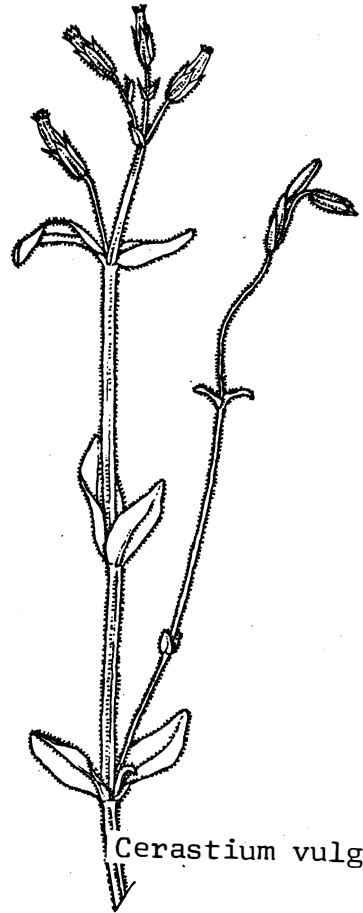
3. HOLOSTEUM L. Jagged Chickweed.

1. Holosteum umbellatum L. Annual herb to 3 dm tall; leaves opposite, ovate to oblanceolate, sessile, 1-2.5 cm long; flowers in a terminal umbel; sepals 5, scarious-margined; petals 5, white, 3-5 mm long; stamens 3-5; styles 3; fruit a cylindrical capsule opening by 6 apical teeth. Occasional on roadsides and in waste places.

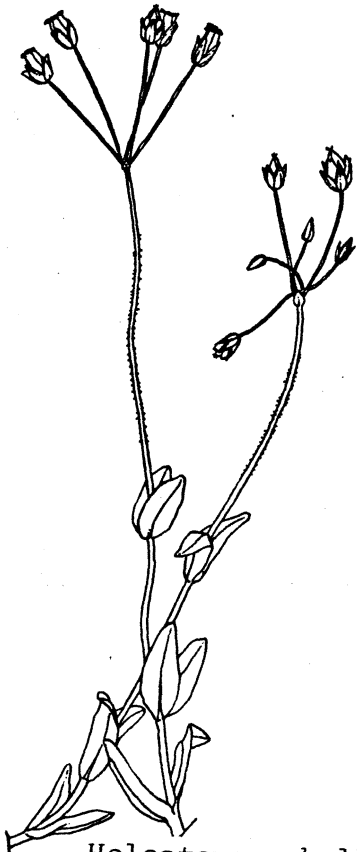
4. LYCHNIS L. Champion.



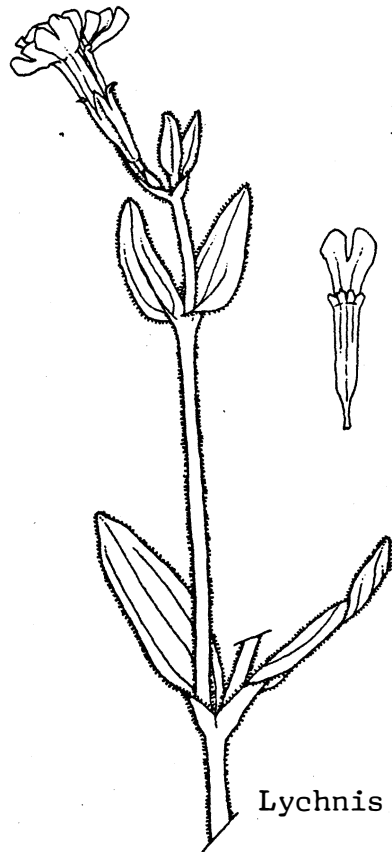
Cerastium viscosum



Cerastium vulgatum



Holosteum umbellatum



Lychnis alba

1. Lychnis alba Mill. Evening Campion; White Campion. Perennial, densely pubescent, dioecious herb to 1 m tall; leaves opposite, mostly sessile, lanceolate to elliptic, 3-10 cm long, 1-3 cm wide; flowers in terminal cymes; calyx tubular, 15-20 mm long, the lobes short; petals 5, white, bifid, appendages present; stamens 10; styles 5; fruit an ovoid capsule. Occasional on roadsides and in fields.

5. SILENE L. Catchfly; Campion.

1. Silene antirrhina L. Sleepy Catchfly. Annual herb to 7 dm tall; stem internodes with glutinous zones; leaves opposite, linear to oblanceolate, 2-6 cm long, to 8 mm wide; flowers in terminal cymes; calyx 5-10 mm long; petals 5, white to pink, bifid, equal to, or longer than, the calyx; stamens 10; styles 3; fruit an ovoid capsule enclosed by the calyx. Fairly common in waste areas and fields.

6. STELLARIA L. Chickweed, Starwort.

a. Leaves linear or narrowly lanceolate, sessile.....

.....1. S. longifolia

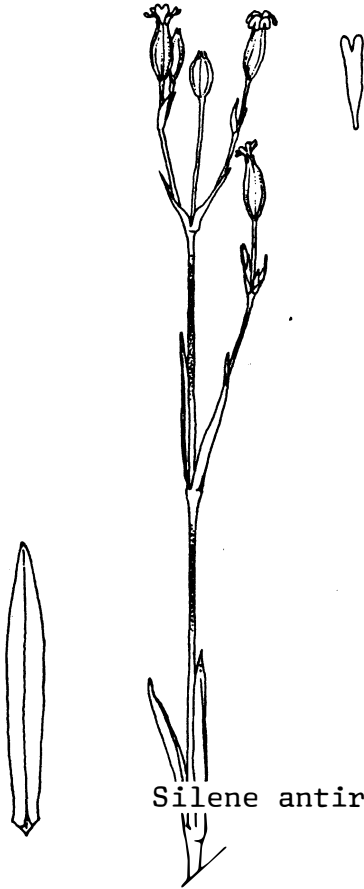
a. Leaves ovate to elliptic, the lower petioled.....2. S. media

1. Stellaria longifolia Muhl. Decumbent to erect, perennial herb to 5 dm tall; stem weakly 4-angled, glabrous; leaves opposite, sessile, linear to narrowly lanceolate, 2-5 cm long, 2-6 mm wide; flowers few in a terminal or lateral cyme; sepals separate, shorter than the petals; petals 5, white, bifid, 4-6 mm long; stamens mostly 10; styles 3; fruit a conical capsule, 5-10 mm long. Rare in moist woods and open areas.

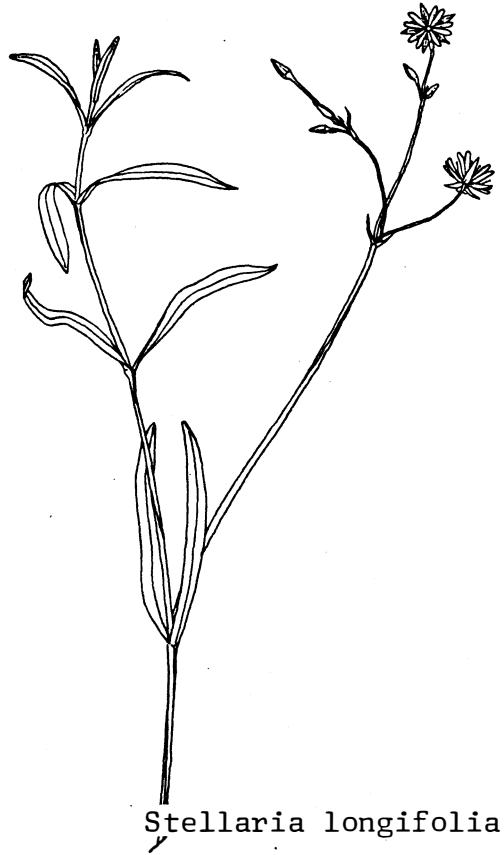
2. Stellaria media (L.) Vill. Common Chickweed. Decumbent, tufted, annual herb usually less than 2 dm tall; leaves opposite, ovate to elliptic, glabrous, 1-3 cm long, about 1 cm wide; flowers solitary or few in cymes; sepals separate, longer than the petals; petals 5, white, bifid, 3-5 mm long; stamens usually 10; styles 3; fruit an ovoid capsule 4-7 mm long. Extremely common in lawns, fields and waste places.

20. CRASSULACEAE Stonecrop Family

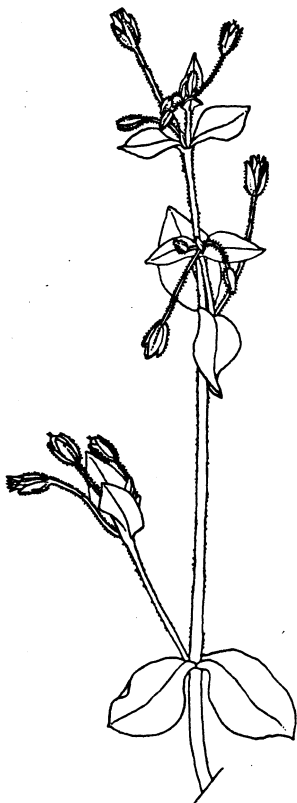
A family of mostly succulent herbs; leaves alternate, opposite, or whorled, simple, exstipulate; flowers in cymes, usually perfect, hypogynous, complete, 4-5 merous, polypetalous



Silene antirrhina



Stellaria longifolia



Stellaria media



Sedum ternatum

or sympetalous, regular; sepals free, or united at the base to form a tube; stamens separate, usually twice as many as the petals; pistils usually 5, 1-celled, each subtended by a gland; fruit a group of follicles.

1. SEDUM L. Stonecrop.

1. Sedum ternatum Michx. Wild Stonecrop. Succulent, creeping, perennial herb to 15 cm tall; lower leaves whorled, obovate, entire, 1-2 cm long; upper leaves alternate to opposite, oblanceolate to linear; inflorescence a cyme; flowers 4- or 5-merous, about 1 cm wide; petals white, distinct, lanceolate, nearly twice as long as the green sepals. Occasional in moist, rocky woods and ravines.

21. FABACEAE Pea Family

Annual and perennial herbs, shrubs, and trees; leaves usually alternate, compound, stipulate; flowers perfect, perigynous, complete, 5-merous, regular or irregular; hypanthium usually very small and short; calyx with 5 unequal lobes; corolla commonly papilionaceous, composed of a lower keel (of 2 fused petals), two lateral wings, and an upper standard; stamens 10 to numerous, often monadelphous or diadelphous; pistil of 1 carpel; fruit usually a legume or a loment.

a. Leaves terminating in a tendril, leaflets 2.....2. Lathyrus

a. Leaves lacking tendrils, trifoliolate.

b. Leaflets entire; petiole less than 5 mm long; stipules large, foliaceous, persistent.....1. Baptisia

b. Leaflets serrulate; petioles more than 5 mm long; stipules small.

c. Flowers in loose, elongated racemes that are many times longer than broad.....4. Melilotus

c. Flowers in capitate heads or short racemes that are usually less than 3 times longer than broad.

d. Corolla persistent in fruit; pod straight.....

.....5. Trifolium

d. Corolla deciduous after flowering; pods coiled.....

.....3. Medicago

1. BAPTISIA Vent. Wild Indigo.

1. Baptisia leucophaea Nutt. Perennial, pubescent herb to 6 dm tall; leaves trifoliolate; leaflets oblanceolate, entire, to 7 cm long; petiole 2-5 mm long; stipules foliaceous, lanceolate, persistent, to 4 cm long; flowers several, 2-3 cm long, in a bracteate raceme to 2 dm long; petals white; stamens 10, distinct; fruit pubescent, stipitate, 3-5 cm long. Fairly common in prairie areas and at edge of dry, upland woods.

2. LATHYRUS L. Wild Pea

1. Lathyrus latifolius L. Everlasting Pea. Perennial, climbing or trailing herb to 2 m long; stem winged, 5-10 mm wide; leaves with 2 lanceolate to elliptic leaflets to 8 cm long and a branched tendril extending from the petiole; petiole winged; stipules lanceolate, to 4 cm long; flowers 4-12 in long peduncled racemes; petals purple to pink, 1.5-2 cm long; stamens diadelphous. Commonly planted and occasionally escaping to roadsides and waste places.

3. MEDICAGO L.

1. Medicago lupulina L. Black Medic. Perennial, trailing and widely spreading herb; leaves petioled, trifoliolate, the terminal leaflet stalked; leaflets obovate to elliptic, 1-2 cm long, serrulate; stipules small, lanceolate; flowers in axillary heads with the peduncles much exceeding the subtending leaves; petals yellow, 2-4 mm long; fruit usually black, coiled. Common in lawns and waste places.

4. MELILOTUS Mill. Sweet Clover.

a. Flowers white.....1. M. alba

a. Flowers yellow.....2. M. officinalis

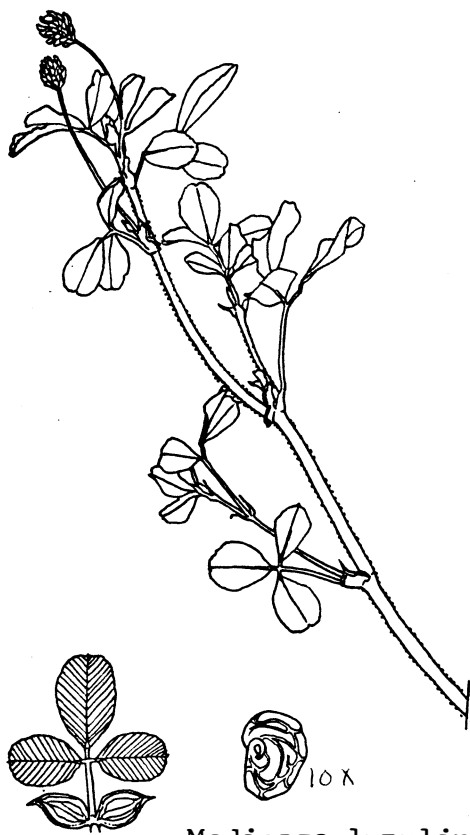
1. Melilotus alba Desr. White Sweet Clover. Annual herb to



Baptisia leucophaea



Lathyrus latifolius



Medicago lupulina



Melilotus officinalis

to 2 m tall; leaves trifoliolate, petioled, the terminal leaflet stalked; leaflets variable, usually oblanceolate to elliptic, 1-2.5 cm long, serrate; stipules small, setaceous; flowers 3-5 mm long, numerous in axillary racemes; petals white; stamens diadelphous. Common in waste places and roadsides. (Not illustrated.)

2. Melilotus officinalis (L.) Lam. Yellow Sweet Clover. Annual herb to 1.5 m tall; leaves trifoliolate, petioled, the terminal leaflet stalked; leaflets oblanceolate to obovate, 1-2.5 cm long, serrate; stipules small, setaceous; flowers 5-7 mm long, numerous in axillary racemes; petals yellow; stamens diadelphous. Common in fields, waste places and roadsides.

5. TRIFOLIUM L. Clover.

a. Flowers pink to red in heads 2-3 cm wide.....1. T. pratense

a. Flowers white or yellow in heads less than 1.5 cm wide.

b. Flowers yellow.....2. T. procumbens

b. Flowers white.....3. T. repens

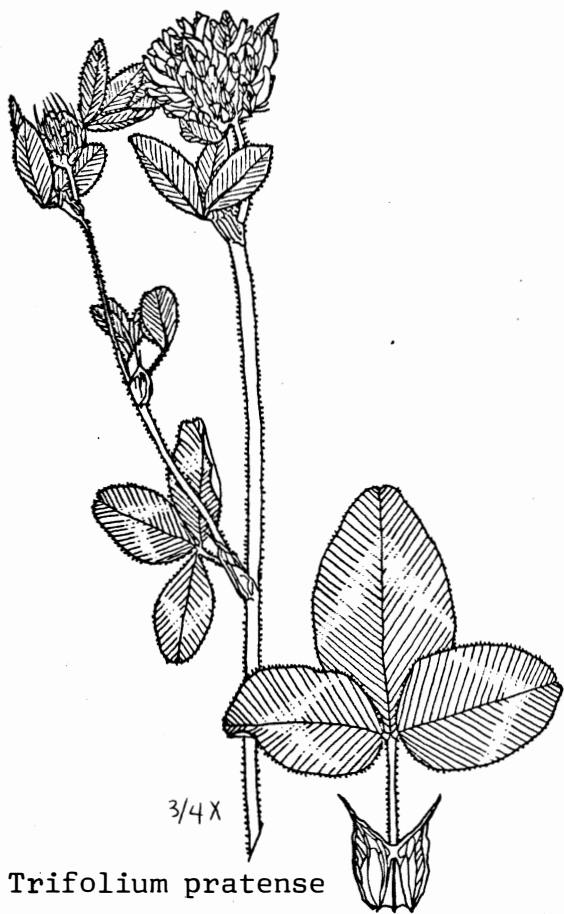
1. Trifolium pratense L. Red Clover. Perennial, erect herb to 8 dm tall; leaves trifoliolate, the lower long petioled the upper sessile; leaflets oblong to ovate, serrulate, 2-5 cm long, the terminal leaflet stalked; flowers 12-18 mm long, sessile in densely globose heads to 3 cm long; calyx nearly regular; petals deep red to pink, rarely white; stamens diadelphous. Commonly cultivated and escaping to roadsides, fields and waste places.

2. Trifolium procumbens L. Low Hop-Clover. Annual herb with erect or creeping, pubescent stem to 3 dm long; leaves trifoliolate, petioled, the terminal leaflet stalked; leaflets obovate, 8-15 mm long, serrulate; flowers 3-4 mm long, in axillary, globose heads, 8-15 mm long; calyx bilabiate; petals yellow; stamens diadelphous. Common in waste places.

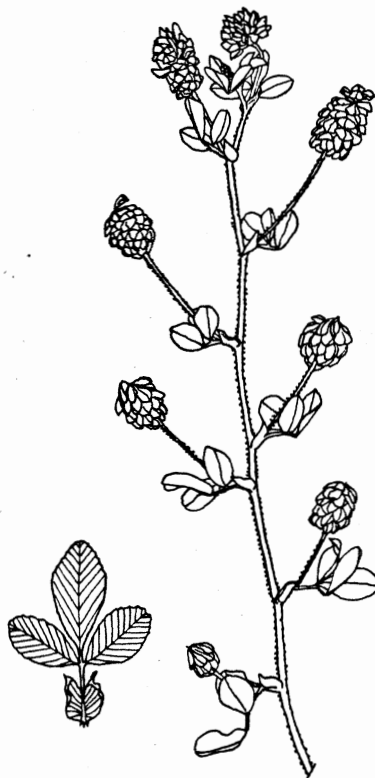
3. Trifolium repens L. White Clover. Perennial herb with creeping stem, rooting at the nodes; stems sending up long petioled leaves and long peduncled heads; leaves trifoliolate, the terminal leaflet nearly sessile; leaflets obovate, 1-2 cm long, serrulate; flowers 7-10 mm long, pediceled, in dense, globose heads, 15-25 mm across; calyx nearly regular; petals white; stamens diadelphous. Common in pastures, lawns, roadsides and waste places.

22. FUMARIACEAE Fumitory Family

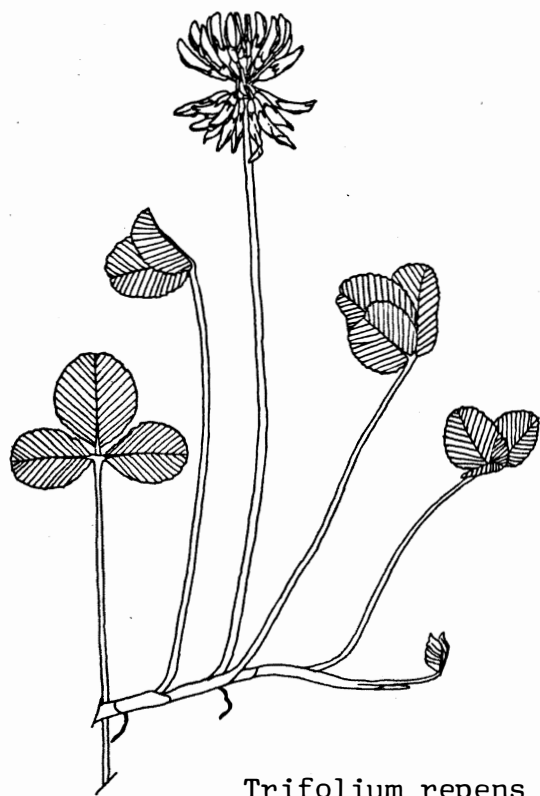
Mostly perennial herbs with basal or alternate, compound and highly dissected, exstipulate leaves; flowers usually in



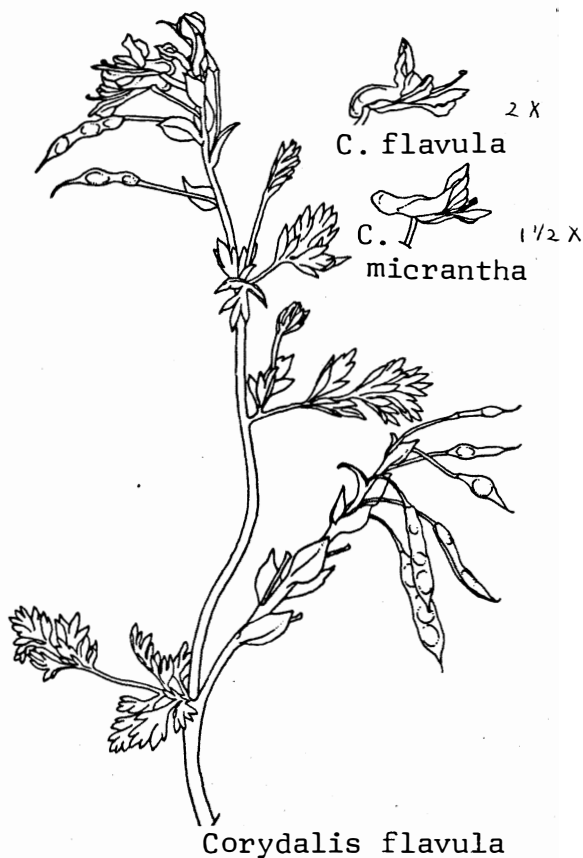
Trifolium pratense



Trifolium procumbens



Trifolium repens



Corydalis flavula

racemes, perfect, hypogenous, complete, 4-merous, polypetalous, irregular; sepals 2, inconspicuous; petals 4, in 2 pairs, connivent, the outer 2 petals spurred or saccate at the base, the inner 2 smaller; stamens 4-6, usually opposite the petals; pistil 2-celled; fruit usually a 2-valved capsule.

a. Leaves cauline; only 1 petal spurred.....1. Corydalis

a. Leaves basal; the 2 outer petals spurred.....2. Dicentra

1. CORYDALIS Vent. Corydalis.

a. Flowers 5-7 mm long; fruiting pedicels 10-15 mm long.....

.....1. C. flavula

a. Flowers 7-9 mm long; fruiting pedicels 2-4 mm long.....

.....2. C. micrantha

1. Corydalis flavula (Raf.) DC. Pale Corydalis. Much-branched, annual herb to 4 dm tall; leaves alternate, bipinnately compound; leaflets small, lobed; flowers irregular, in short racemes exceeded by the leaves; bracts ovate, 5-8 mm long; pedicels 1-1.5 cm long; petals pale yellow, 5-7 mm long, the upper with a 2-4 toothed crest and an incurved spur 1-2 mm long; capsule 1-2 mm long. Rare at edge of roads and in moist fields.

2. Corydalis micrantha (Englem.) Gray. Small-flowered Corydalis. Much-branched, annual herb to 3 dm tall; leaves alternate, bipinnately compound; leaflets small, lobed; flowers irregular, in short racemes that surpass the leaves; bracts narrowly lanceolate 3-5 mm long; pedicels 2-4 mm long; petals yellow, 7.5-9 mm long, the upper with an entire crest and a straight spur 2.5-4 mm long; capsule 1-2 cm long. Rare at edge of roads and in moist fields.

2. DICENTRA Bernh.

a. Spur rounded, less than 5 mm long.....1. D. canadensis

a. Spurs elongated, about 10 mm long.....2. D. cucullaria

1. Dicentra canadensis (Goldie) Walp. Squirrel-corn. Perennial herb from a cluster of small dark yellow tubers about 1 cm across; leaves basal, 1-3 dm long, highly dissected, ultimate segments linear, long petioled; scape 1-3 dm long, terminating in a raceme of 5-10 nodding, irregular, heart-shaped, fragrant

flowers; sepals 2, pink; petals white, tinted with pink, the outer 2, 15-20 mm long, with rounded spurs less than 5 mm long, crest yellow, the inner 2 clawed, inflated, and coherent at the summit. Rare in moist woods and thickets.

2. Dicentra cucullaria (L.) Bernh. Dutchman's-breeches. Perennial herb from a dense cluster of small, white corms; leaves basal, 1-3 dm long, highly dissected, the ultimate segments linear, long petioled; scape 1-3 dm long, terminating in a raceme of 5-12 nodding, irregular flowers; sepals 2, white; petals white, yellowish at the summit, the outer 2, 15-20 mm long, with divergent spurs about 10 mm long, crest yellow, the inner 2, clawed, slightly inflated, coherent at the summit. Common in moist woods and thickets.

23. GERANIACEAE Geranium Family

Annual or perennial herbs with usually opposite, stipulate, palmately lobed leaves; flowers perfect, hypogynous, complete, 5-merous, polypetalous, mostly regular; sepals; separate; stamens 10-15, often united at the base; ovary with 5 carpels; stigma 5 lobed, persistent; fruit a beaked capsule.

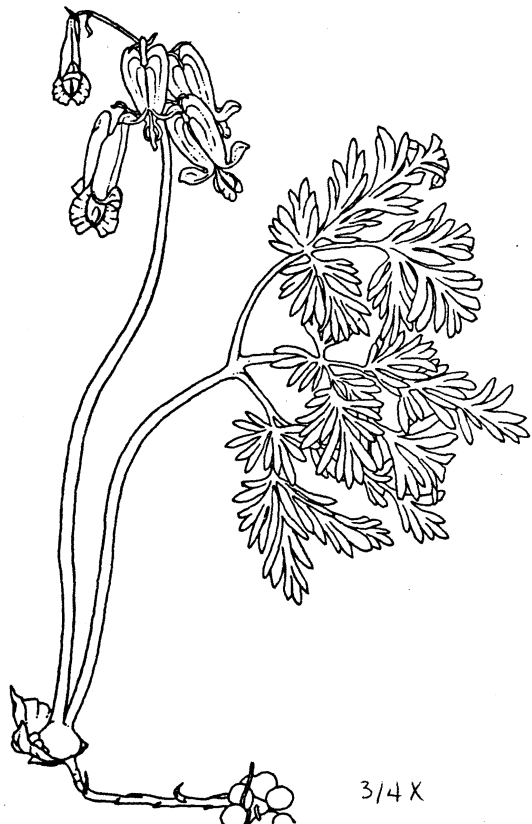
1. GERANIUM L. Wild Geranium, Cranesbill.

a. Petals pale pink, less than 1 cm long.....1. G. carolinianum

a. Petals purple, 2 cm long.....2. G. maculatum

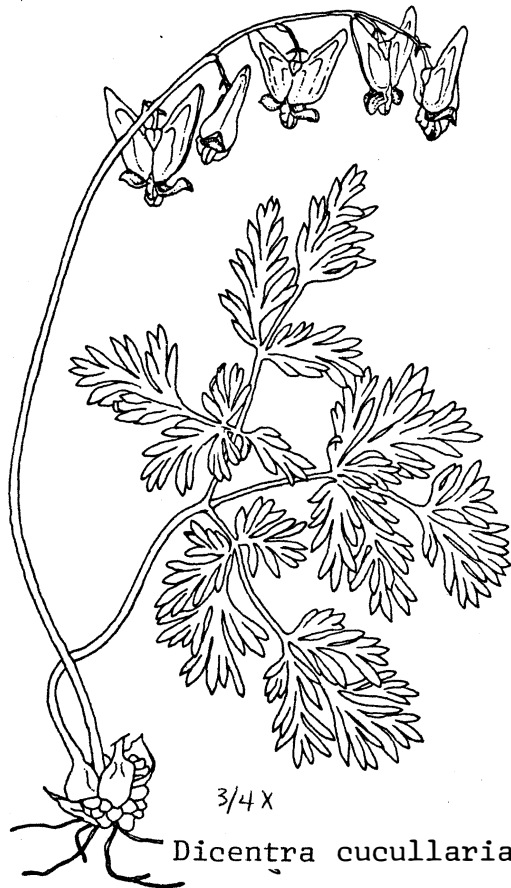
1. Geranium carolinianum L. Annual herb to 4 dm tall; stems much branched, pubescent; leaves opposite, palmately divided into 5-9 deeply toothed lobes, reniform in general outline, 4-7 cm wide; flowers in compact umbels, the peduncles mostly two flowered; sepals 5, up to 1 cm long; petals 5, light pink, 2-lobed, about as long as the sepals; fruit about 2.5 cm long, black when mature. Occasional in dry, usually sandy waste areas.

2. Geranium maculatum L. Wild Geranium. Perennial herb to 7 dm tall from a thick rhizome; basal leaves long petioled, palmately 5-7 lobed, 7-15 cm wide; cauline leaves a single, opposite pair, resembling the basal leaves; stem pubescent; flowers few to several in loose corymbs; petals 5, purple, shallowly lobed, about 2 cm long, twice as long as the sepals; fruit 2-3 cm long. Occasional in moist woods.



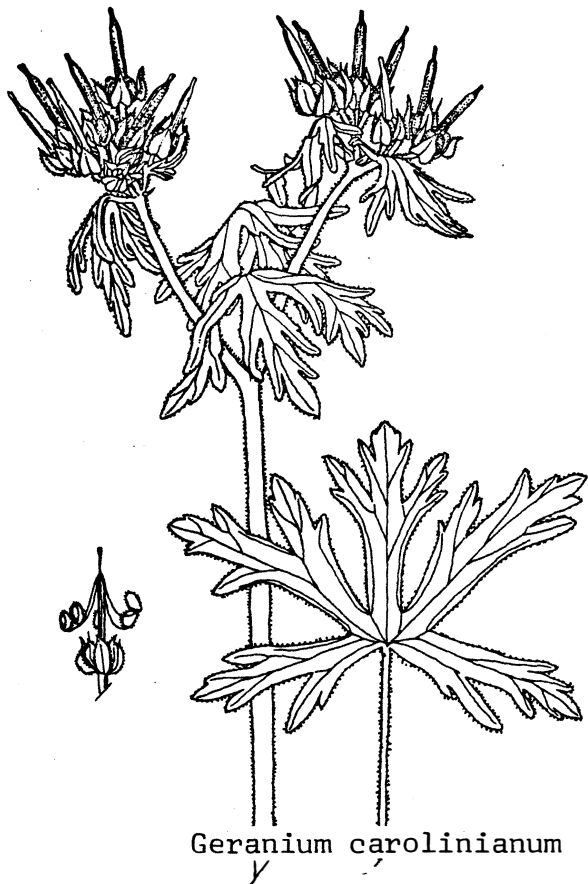
3/4 X

Dicentra canadensis

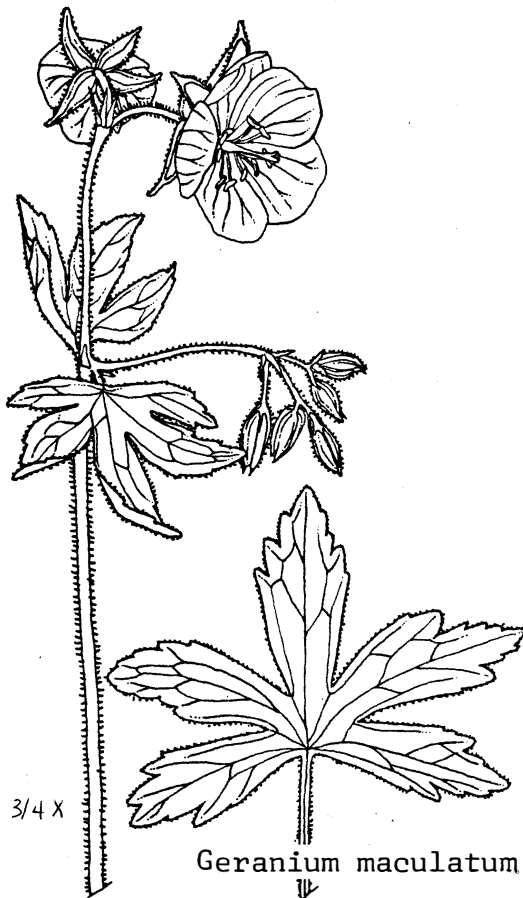


3/4 X

Dicentra cucullaria



Geranium carolinianum



3/4 X

Geranium maculatum

24. HYDROPHYLLACEAE Waterleaf Family

Annual biennial and perennial herbs; leaves alternate, simple or compound, exstipulate, usually pubescent; inflorescence often a coiled cyme; flowers usually perfect, hypogynous, complete, 5-merous, sympetalous, regular; corolla usually rotate, 5-lobed, appendages usually inserted at the base of the corolla; stamens 5, epipetalous; ovary 2-celled; fruit a capsule.

a. Flowers solitary.....1. Ellisia

a. Flowers several in terminal cymes.

b. Cymes repeatedly branched, not elongating in fruit; basal leaves long petioled.....2. Hydrophyllum

b. Cymes usually unbranched, becoming elongated in fruit; basal leaves sessile or short petioled.....3. Phacelia

1. ELLSIA L. Waterpod.

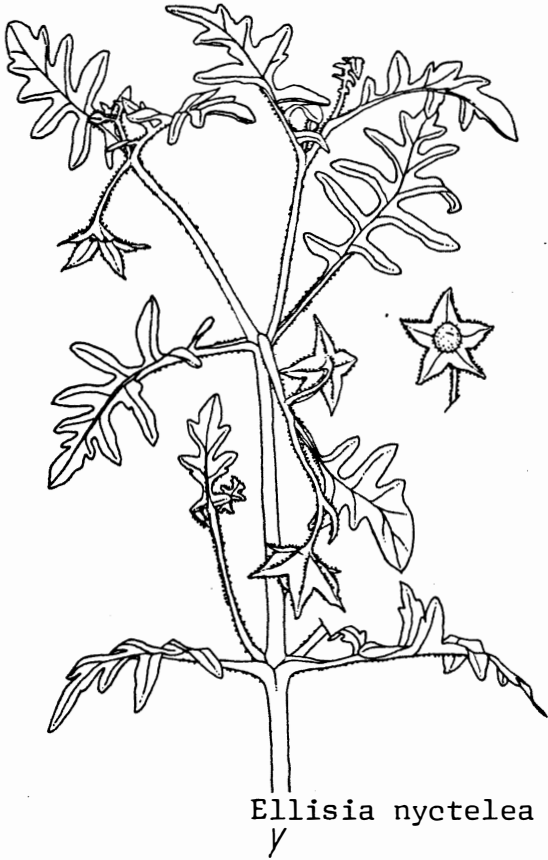
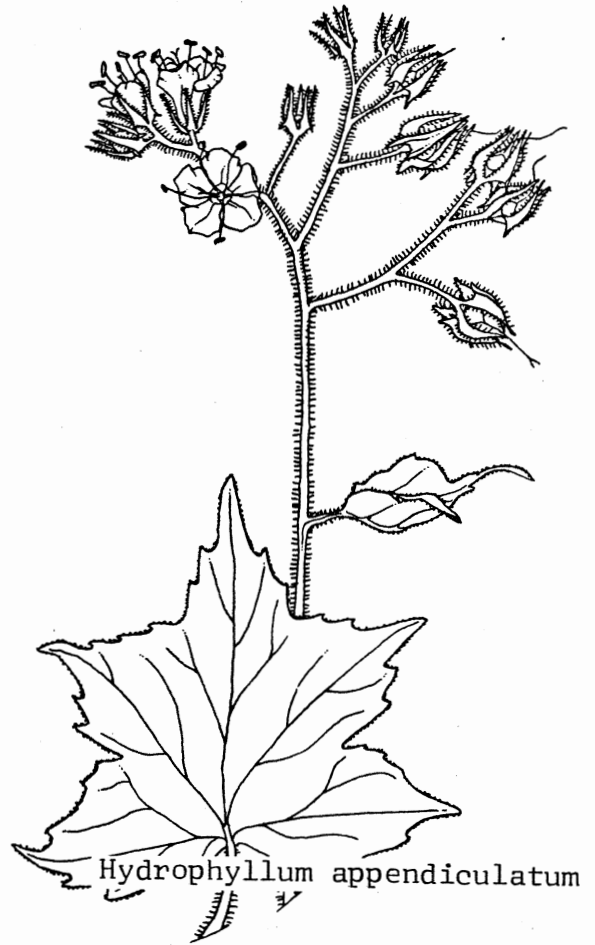
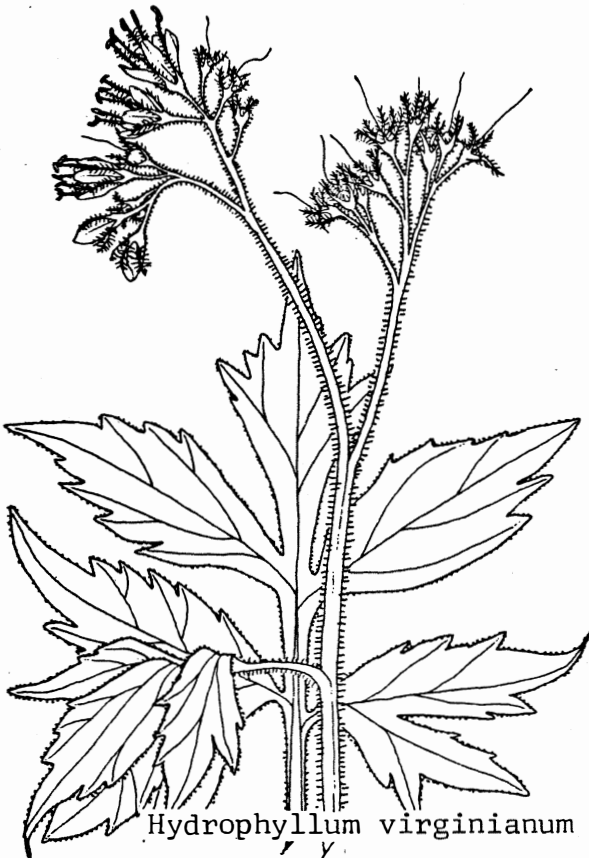
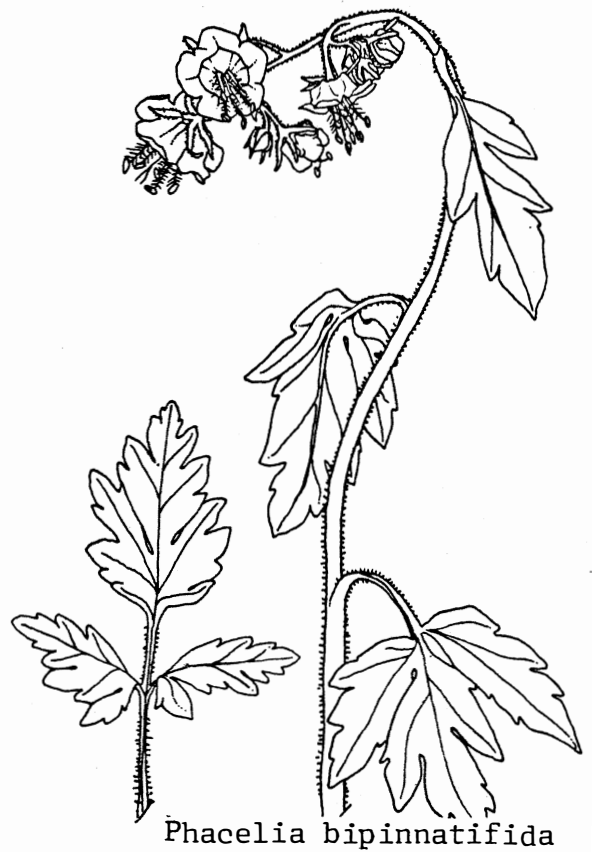
1. Ellisia nyctelea L. Annual, much branched herb to 3 dm tall; stem mostly glabrous; leaves pinnatifid with 7-13 spreading lobes, the lobes oblong, coarsely toothed, pubescent; flowers solitary on pedicels arising opposite the leaves; corolla white, 5-8 mm long; stamens glabrous, inserted on the tube, not exerted; capsule globose, subtended by the star-shaped calyx, to 2 cm wide. Occasional in moist floodplains, and waste places.

2. HYDROPHYLLUM L. Waterleaf.

a. Leaves shallowly 5-7 lobed; sepals with reflexed appendages....
.....1. H. appendiculatum

a. Leaves deeply pinnatifid; sepals lacking appendages.....
.....2. H. virginianum

1. Hydrophyllum appendiculatum Michx. Pubescent, erect, perennial herb to 5 dm tall; leaves simple, shallowly 5-7 lobed, the lobes usually broader than long, 6-15 cm wide, petioled, coarsely serrate; flowers in compact, branched cymes; sepals lanceolate, alternate with reflexed appendages, appearing hastate;

*Ellisia nyctelea**Hydrophyllum appendiculatum**Hydrophyllum virginianum**Phacelia bipinnatifida*

corolla lavender to pink, 9-13 mm long; filaments smooth, not exerted. Occasional in moist woods and floodplains.

2. Hydrophyllum virginianum L. Common Waterleaf. Pubescent, erect, perennial to 6 dm tall; leaves petioled, deeply pinnatifid to pinnately compound, 1-2 dm long, the lobes ovate to elliptic, coarsely serrate; flowers in compact, branched cymes; sepals linear, lacking appendages; corolla white to lavender, 7-10 mm long; filaments villous, exerted. Common in moist, usually lowland woods.

3. PHACELIA Juss. Phacelia.

a. Corolla lobes entire.....1. P. bipinnatifida

a. Corolla lobes conspicuously fringed.....2. P. purshii

1. Phacelia bipinnatifida Michx. Common Phacelia. Erect, biennial herb to 4 dm tall; leaves pinnately compound, petioled; leaflets ovate, dentate, pubescent; inflorescence a simple compact cyme, becoming elongate in fruit; sepals linear; corolla rotate, 10-15 mm wide, light blue to almost white, basal appendages present, filaments villous, long, exerted. Fairly common in moist, lowland woods.

2. Phacelia purshii Buckl. Miami Mist. Erect, annual herb to 4 dm tall; lower leaves sometimes pinnately compounded, petioled, the upper coarsely pinnately lobed, sessile and clasping, pubescent; inflorescence a simple compact cyme, becoming elongate in fruit; sepals oblong to linear; corolla rotate, 8-12 mm wide, light blue, the lobes conspicuously fringed; filaments villous, not exerted. Occasional in moist lowland woods, and moist roadsides.

25. LAMIACEAE Mint Family

Mostly aromatic annual or perennial herbs with square stems and opposite, simple, exstipulate leaves; flowers perfect, hypogynous, complete, 5-merous; calyx tubular, usually with acuminate lobes, regular or bilabiate; corolla sympetalous, usually irregular and bilabiate; stamens 2-4, epipetalous and alternate with the lobes; ovary deeply 4-lobed; style 2-branched; fruit of four, 1-seeded nutlets.

a. Flowers axillary in the upper leaves.

- b. Stem creeping; flowers pediceled, forming 3-flowered cymules.....1. Glechoma
- b. Stem erect; flowers sessile in small cymules.....2. Lamium
- a. Flowers in a terminal capitate cluster subtended by broad foliaceous bracts.....3. Monarda

1. GLECOMA L. Ground-ivy.

1. Glechoma hederacea L. Creeping, perennial herb with long stolons; leaves opposite, petioled, broadly ovate to reniform, 1-4 cm wide, crenate, base cordate; flowers pedicelled, in 3-flowered axillary cymules; calyx tubular, 15-nerved, lobes aristate; corolla blue to purplish, 1-2 cm long. Occasional in moist lowland woods, roadsides and cemeteries.

2. LAMIUM L. Dead-nettle.

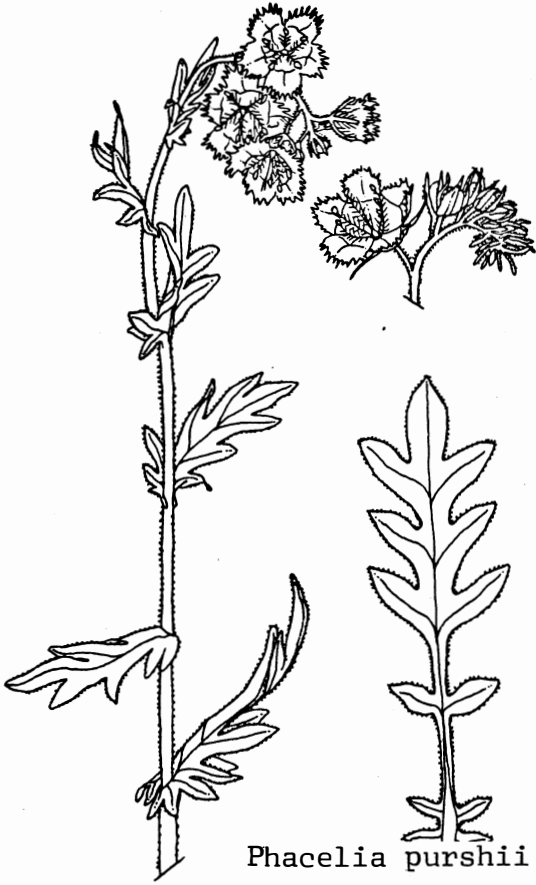
- a. Upper leaves sessile, broadly reniform.....1. L. amplexicaule
- a. Upper leaves petioled, ovate.....2. L. purpureum

1. Lamium amplexicaule L. Henbit Dead-nettle. Much branched annual herb to 4 dm tall; stem ascending or decumbent, lower internodes greatly elongated, the upper much reduced; leaves opposite, pubescent, broadly reniform, 1-3 cm wide, deeply crenate, the basal long petioled, the upper sessile; flowers sessile in the axils of the upper leaves; calyx 5-nerved, lobes with a long slender tip; corolla villous, pale to dark purple, 12-18 mm long. Common in moist open areas, yards and cultivated ground.

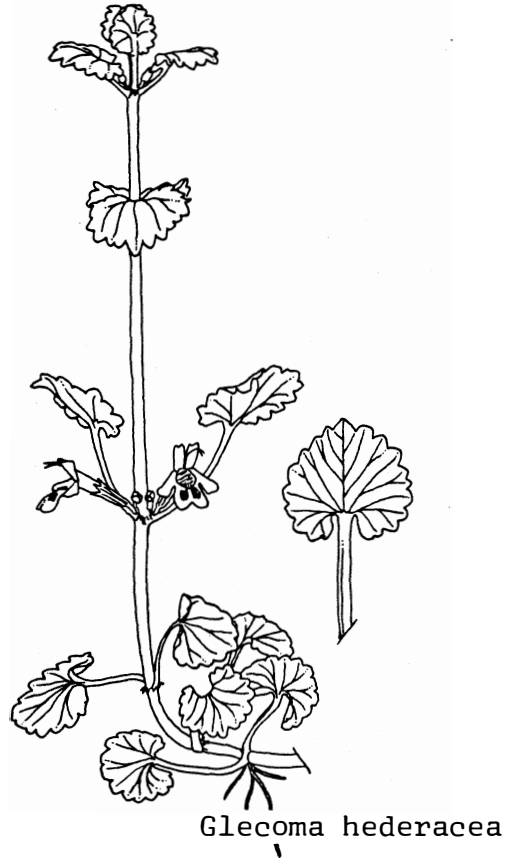
2. Lamium purpureum L. Purple Dead-nettle. Annual herb to 4 dm tall; stem erect, lower internodes greatly elongated, the upper much reduced; leaves opposite, all petioled, ovate, pubescent, crenate, base cordate; flowers sessile in the axils of the upper leaves; calyx 5-nerved, lobes long and stiff; corolla light purple, pubescent, 11-15 mm long. Common in moist open areas, yards and cultivated ground.

3. MONARDA L. Bergamot Mint.

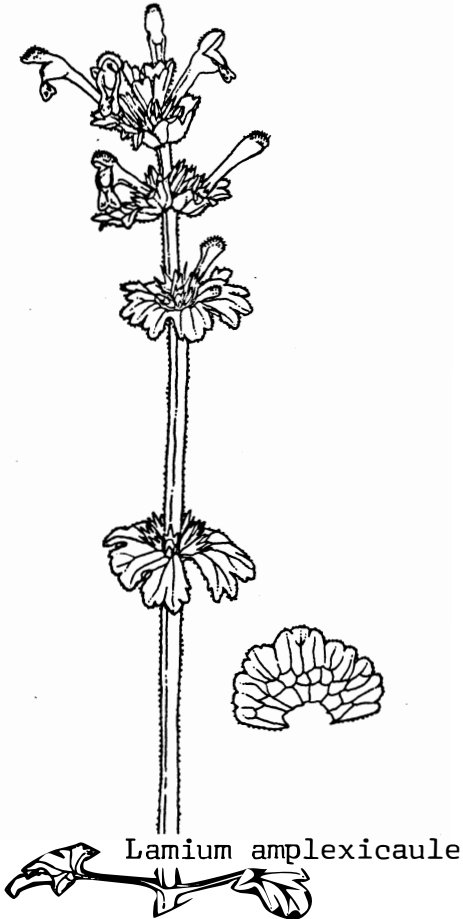
1. Monarda bradburiana Beck. Horse Mint. Erect, perennial herb to 7 dm tall; stem usually not branched; leaves opposite, sessile, lanceolate to ovate, serrate; flowers in a terminal capitate cluster subtended by foliaceous bracts usually tinted with pink or purple; corolla pale pink to rose-purple, spotted with purple. 2.5-3.5 cm long. Fairly common in open woods & thicket.



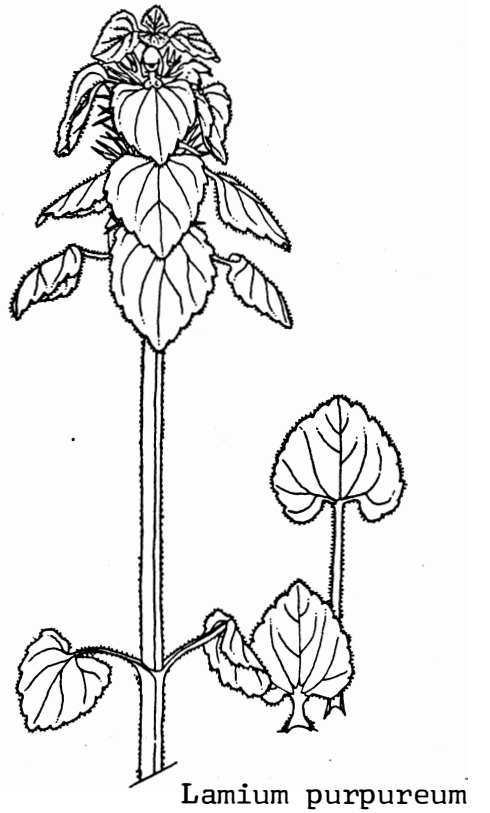
Phacelia purshii



Glecoma hederacea



Lamium amplexicaule



Lamium purpureum

26. LIMNANTHACEAE False Mermaid Family

Annual herbs with alternate, pinnately compound, exstipulate leaves; flowers solitary, axillary, perfect, hypogynous, complete 3-6 merous, polypetalous, regular; sepals 3, distinct; stamens distinct, 6-10 in 2 rows; ovary deeply divided into 2-5 cells, style 1; fruit a fleshy achene.

1. FLOERKEA Willd. False Mermaid.

1. Floerkea proserpinacoides Willd. Decumbent annual herb to 3 dm long; leaves pinnately compound with 3-7 linear to oblanceolate leaflets; flowers axillary; sepals 3, larger than the petals; petals 3, white, 1-2 mm long; stamens 6; ovary deeply 2 or 3 lobed, united only at the base; fruit of 1 to 3 fleshy achenes. Locally abundant in moist woods.

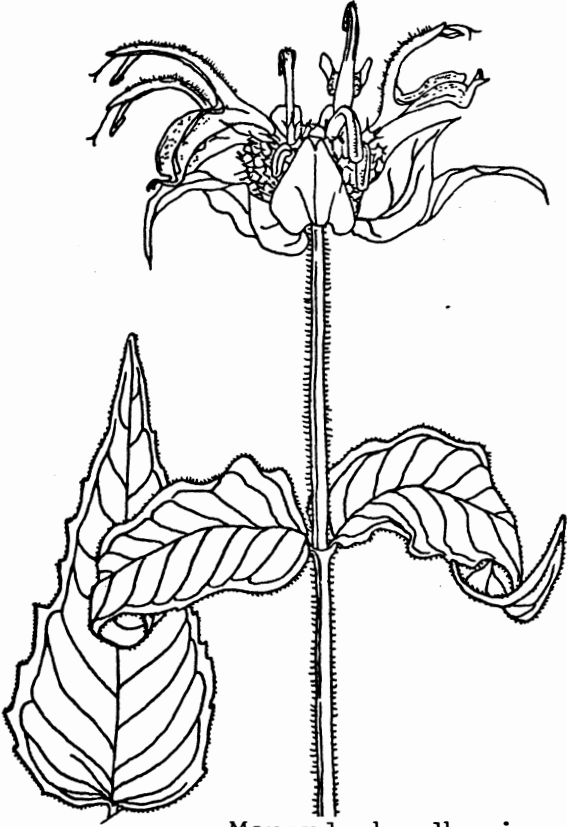
27. MALVACEAE Mallow Family

Mostly annual and perennial herbs; leaves alternate, simple, usually palmately-veined, stipulate; flowers perfect, hypogynous, complete 5-merous, polypetalous, regular; calyx with 5 lobes, often subtended by an involucre; stamens numerous, monadelphous, united to the base of the corolla; ovary of 5 to many carpels, united into a compound ovary, or separate at maturity; style as many as the carpels; fruit a schizocarp or capsule.

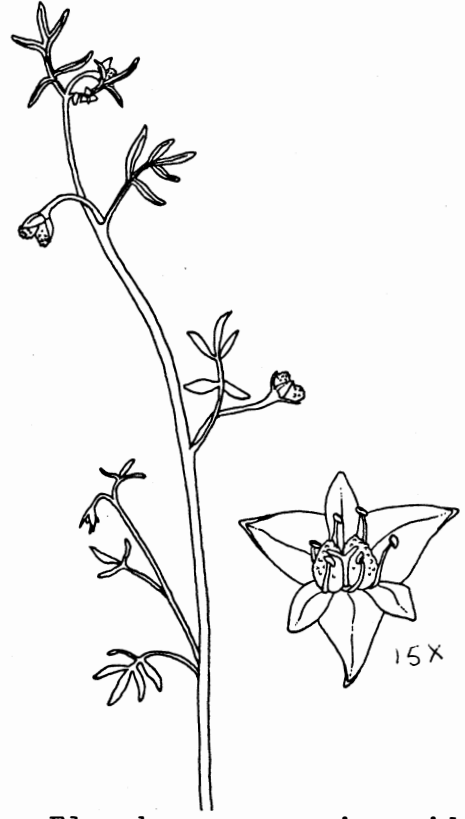
1. MALVA L. Mallow

1. Malva neglecta Wallr. Common Mallow. Much branched, procumbent to ascending, biennial herb to 4 dm tall; leaves long-petioled, broadly ovate to reniform, 3-6 cm wide, shallowly 5-9 lobed, margins crenate, base cordate; flowers axillary on pedicels to 4 cm long; petals white, pink, or purple, to 12 mm long; ovary to 10-15 carpels; fruit a pubescent schizocarp. Common weed in gardens and waste places.

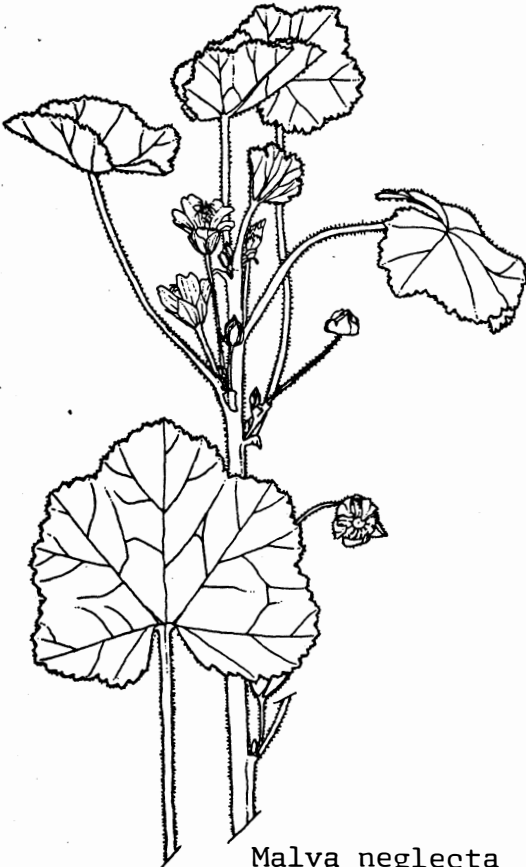
28. ONAGRACEAE Evening-Primrose Family



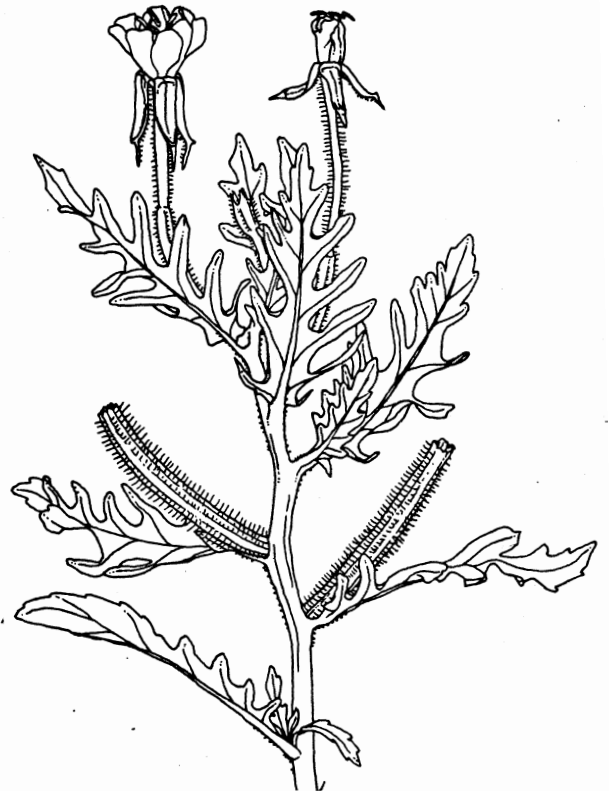
Monarda bradburiana



Floerkea proserpinacoides



Malva neglecta



Oenothera laciniata

Mostly herbs with alternate, simple to deeply-lobed leaves; flowers perfect, epigynous, complete, usually 4-merous, regular, polypetalous; hypanthium present; sepals, separate; stamens 4, separate; stigma 4-lobed; fruit usually a capsule.

1. OENOTHERA L. Evening-Primrose.

1. Oenothera laciniata Hill. An annual herb to 3 dm tall; leaves alternate, deeply pinnatifid, lightly pubescent; flowers solitary in the axils of the leaves; sepals reflexed; petals yellow, 1 cm long; hypanthium tube elongated, pubescent; capsule linear, 1.5-3 cm long, longitudinally-ridged, pubescent. Occasional, found in disturbed habitats.

29. OROBANCHACEAE Broomrape Family

Perennial, non-chlorophyllous herbs, parasitic on the roots of other plants; leaves reduced to scales; flowers solitary or in spikes or racemes, perfect, hypogynous, complete, 4-5-merous, sympetalous, irregular; calyx slightly bilabiate with 2-5 lobes; corolla bilabiate; stamens 4, epipetalous, didynamous; ovary 1-celled; fruit a many-seeded capsule.

a. Flowers white to pale violet, solitary on long pedicels.....

.....1. Orobanche

a. Flowers yellow, in a thick, scaly spike.....2. Conopholis

1. OROBANCHE L. Broomrape.

1. Orobanche uniflora L. Cancer-root; Ghost-pipes. Stem 1-3 cm long, usually completely subterranean and bearing a few overlapping scales; pedicels finely glandular-pubescent, erect, 6-20 cm long, arising from the axils of the scales, bearing at their apex a single flower; calyx with 5, nearly equal, acuminate lobes; corolla pubescent, white to violet, slightly bilabiate, 2 cm long. Rarely encountered in open woods.

2. CONOPHOLIS Wallr. Squaw-root.

1. Conopholis americana (L. f.) Wallr. Unbranched, pale brown to yellowish herb, to 2 dm tall; leaf scales ovate, to 2 cm long; flowers in a spike that covers the upper half of the stem; calyx 8-13 mm long, irregularly toothed, split down the lower side; corolla tubular, yellowish, strongly irregular, 10-15 mm long. Rarely encountered in moist, wooded ravines.

30. OXALIDACEAE Wood-sorrel Family

Usually perennial, scapose or leafy-stemmed herbs from scaly bulbs or rhizomes; leaves commonly trifoliate, alternate or basal; flowers perfect, hypogynous, complete, 5-merous, polypetalous, regular; sepals separate; stamens usually 10, of 2 lengths, monodelphous; pistil with 5 styles; fruit a capsule.

1. OXALIS L. Wood-sorrel.

- a. Flowers yellow; leaves alternate on the stem.....1. O. dillenii
 a. Flowers violet; leaves basal.....2. O. violacea

1. Oxalis dillenii Jacq. Yellow Wood-sorrel. Usually perennial herb to 4 dm tall; stem erect or sometimes decumbent, pubescent; leaves alternate, long-petioled; leaflets 1-2 cm wide, obovate; flowers yellow, 5-10 mm long, in loose, few-flowered, axillary umbels; styles 1-2 mm long; capsules erect, lightly pubescent, 1-3 cm long. Common in open habitats.

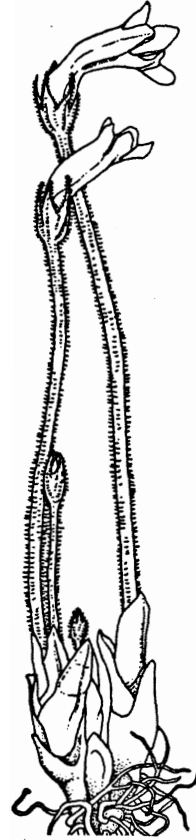
2. Oxalis violacea L. Violet Wood-sorrel. Perennial herb with scaly bulbs; leaves basal, glabrous; flowers violet, 1-2 cm long, on erect scapes 1-2 dm long, the inflorescence a few-flowered umbel. Occasional in upland, open woods.

31. PAPAVERCEAE Poppy Family

Mostly annual and perennial herbs with milky or colored sap; leaves usually alternate or basal, simple or compound, exstipulate; flowers usually solitary, mostly large and showy, perfect, hypogynous, complete, polypetalous, regular; sepals 2 or 3,



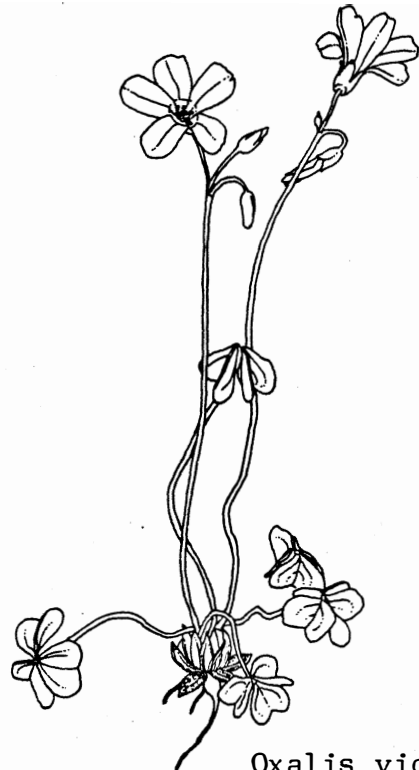
Conopholis americana



Orobanche uniflora



Oxalis dillenii



Oxalis violacea

usually caducous; petals 4-12, conspicuous; stamens numerous, separate; pistil 1; fruit a capsule dehiscing by a ring of pores under the stigma, or by valves.

- a. Flowers white; leaves basal.....1. Sanguinaria
 a. Flowers yellow; cauline leaves present.....2. Stylophorum

1. SANGUINARIA L. Bloodroot.

1. Sanguinaria canadensis L. Glabrous perennial to 3 dm tall; sap red; rhizome present; leaves basal, orbicular in outline, 3-9 lobed, 5-15 cm wide; flower 3-5 cm wide, solitary on a scape to 15 cm long; sepals 2, caducous; petals usually 8, white to light-pink; fruit a capsule, 3-5 cm long. Common in moist woods.

2. STYLOPHORUM Nutt. Celandine Poppy.

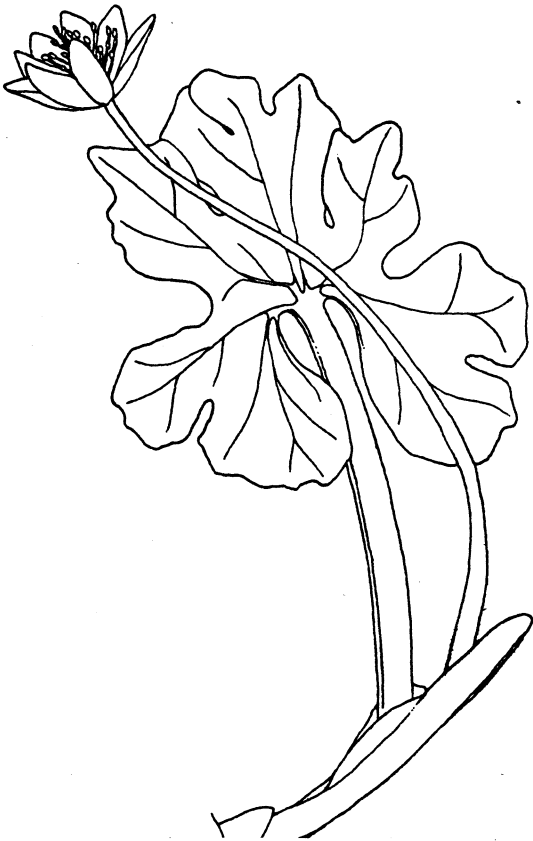
1. Stylophorum diphyllum (Michx) Nutt. Pubescent perennial herb to 4 dm tall; sap yellow; rhizomes present; leaves mostly basal, long petioled, pinnately divided into 5-7 oblong to obovate lobes, cauline leaves usually a single pair that are similar to the basal leaves but smaller; flowers solitary or in a few-flowered umbel, 3-5 cm wide; sepals 2, caducous, pubescent; petals 4, yellow, 2-3 cm long; fruit a pubescent capsule, 2-3 cm long. Extremely rare in moist ravines.

32. PLANTAGINACEAE Plantain Family

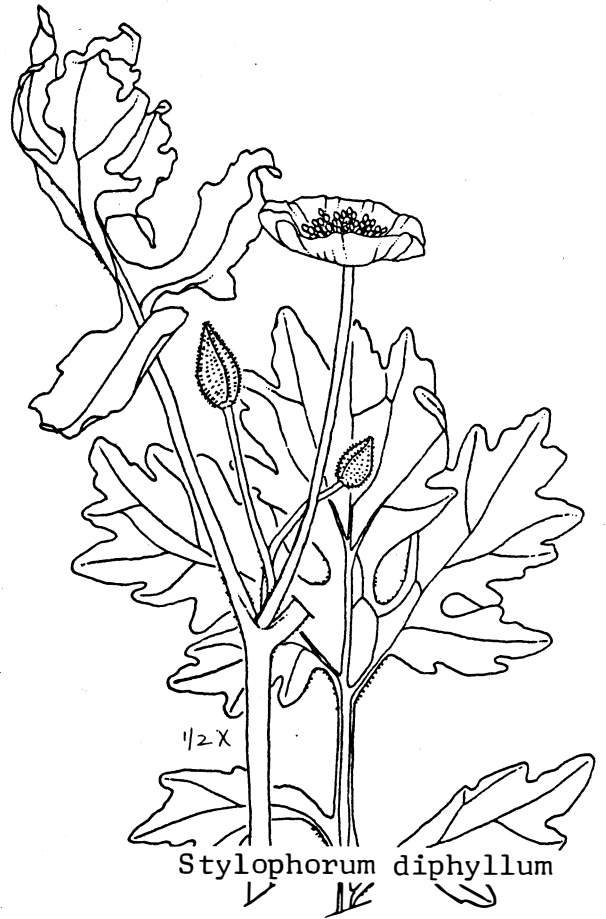
Annual and perennial herbs with mostly basal simple leaves; flowers small, sessile in the axils of bracts, arranged on a spike, usually perfect, hypogynous, complete, 4-merous, sympetalous, regular; sepals distinct, persistent; corolla tubular, papery; stamens 4, epipetalous; ovary 2-celled fruit usually a capsule.

1. PLANTAGO L. Plantain.

- a. Flowers in a dense ellipsoid spike covering less than the upper 1/4 of the scape; stamens exerted.....1. P. lanceolata



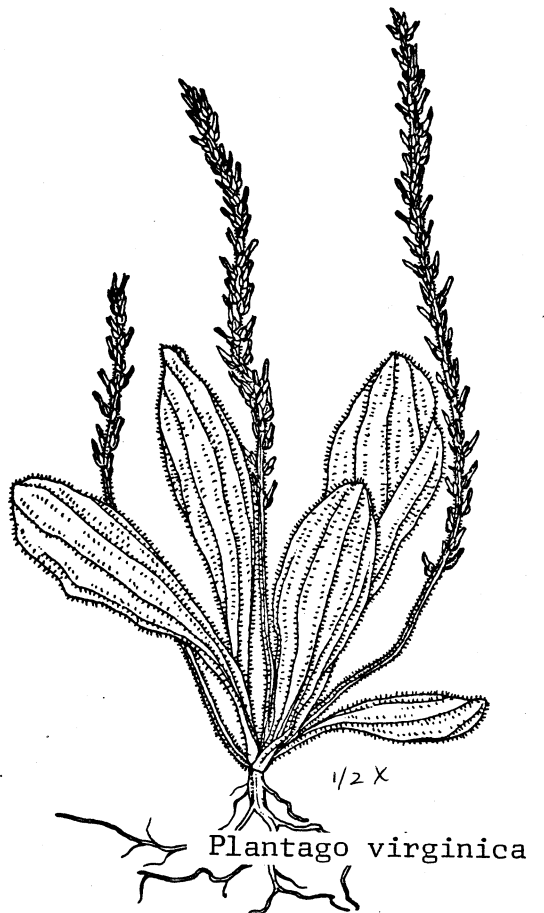
Sanguinaria canadensis



Stylophorum diphyllum



Plantago lanceolata



Plantago virginica

- a. Flowers in a loose, cylindrical spike covering 1/3 to 2/3 of the scape; stamens not exerted.....2. P. virginica

1. Plantago lanceolata L. English Plantain; Buckhorn Plantain. Perennial herb to 4 dm tall; leaves basal, pubescent, narrowly lanceolate to oblanceolate, to 3 dm long, entire to remotely serrate, veins parallel; flowers small, in dense spikes 1-5 cm long, covering less than the upper 1/4 of the scape; anthers exerted. Common weed of lawns, roadside and waste places.

2. Plantago virginica L. Annual herb to 2 dm tall; leaves basal, pubescent, oblanceolate to obovate, 5-10 cm long, entire to remotely serrate, flowers small, in loose spikes 3-8 cm long, covering 1/3 to 2/3 of the scape; anthers not exerted. Fairly common in lawns, fields and waste places.

33. PODOPHYLLACEAE Mayapple Family

Perennial herbs; leaves alternate or basal, simple or compound; flowers solitary or in panicles, perfect, hypogynous, complete, usually 3-merous, polypetalous, regular; sepals 4-6, commonly petaloid, caducous; petals sometimes lacking; stamens mostly as many as the petals and opposite them; ovary 1-celled; fruit a berry or capsule.

- a. Flowers yellow-green, in terminal panicles.....1. Caulophyllum
- a. Flowers white, solitary.
 - b. Leaves basal, 2-cleft.....2. Jeffersonia
 - b. Flowering stem with two leaves divided into 5-9 lobes.....
.....3. Caulophyllum

1. CAULOPHYLLUM Michx. Blue Cohosh.

1. Caulophyllum thalictroides (L.) Michx. Glabrous perennial herb to 6 dm tall; leaves 2, a larger lower one and another subtending the inflorescence that is smaller, both tripinnately compound; leaflets obovate-oblong, 2-5 lobed above the middle, 5-8 cm long; inflorescence a panicle; sepals 6, petaloid, yellowish-green, subtended by 3 or 4 sepal-like bracts; petals

6, reduced to greenish-purple glands; stamens 6, seeds 2, bluish-purple, rupturing the ovary. Occasional in moist, lowland woods and ravines.

2. JEFFERSONIA Bart. Twinleaf.

1. Jeffersonia diphylla (L.) Pers. Glabrous, perennial herb to 3 dm tall; leaves basal, long petioled, the blade 2-cleft, 8-15 cm long; flowers solitary on a long scape; sepals 4, caducous; petals 8, white; stamens 8; fruit an ovoid capsule, 2-3 cm long. Rare in moist, lowland woods.

3. PODOPHYLLUM L. Mayapple; Mandrake.

1. Podophyllum peltatum L. Aromatic, perennial herb to 4 dm tall; rhizomes present; leaves 1 in sterile plants, 2 and opposite in flowering plants, peltate, orbicular, palmately dissected into 5-9 lobes that are coarsely serrate; flowers solitary, 3-5 cm wide; sepals caducous; petals 6-9, white; stamens twice as many as the petals; fruit a large ovoid, yellow berry. Common in moist, open woods.

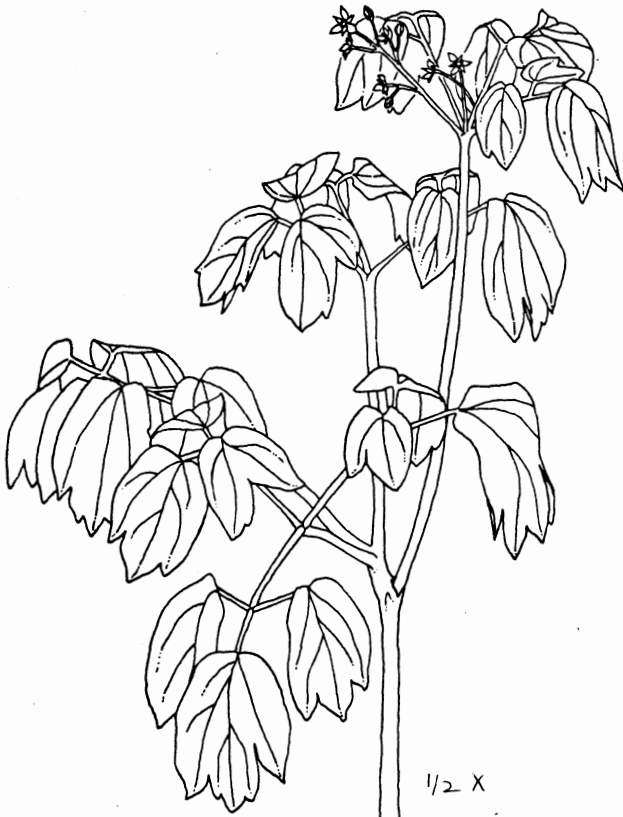
34. POLEMONIACEAE Phlox Family

Annual and perennial herbs with mostly opposite, simple or compound, exstipulate leaves, flowers perfect, hypogynous, complete, 5-merous, sympetalous, regular; calyx lobes usually separated by scarious margins; corolla usually campanulate or salverform; stamens 5, epipetalous, alternating with the corolla lobes; ovary 3-celled; fruit a capsule.

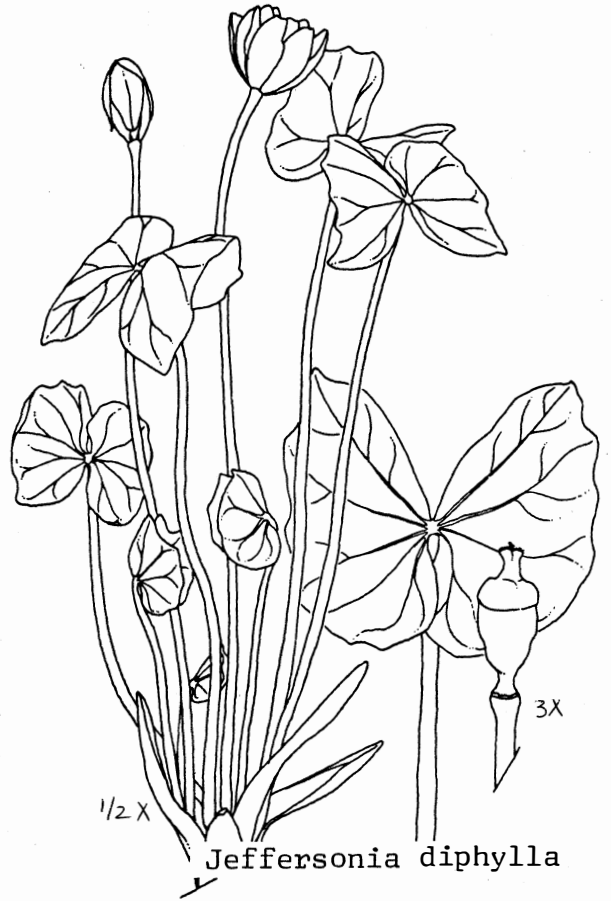
- a. Leaves opposite, simple.....1. Phlox
- a. Leaves alternate, compound.....2. Polemonium

1. PHLOX L. Phlox.

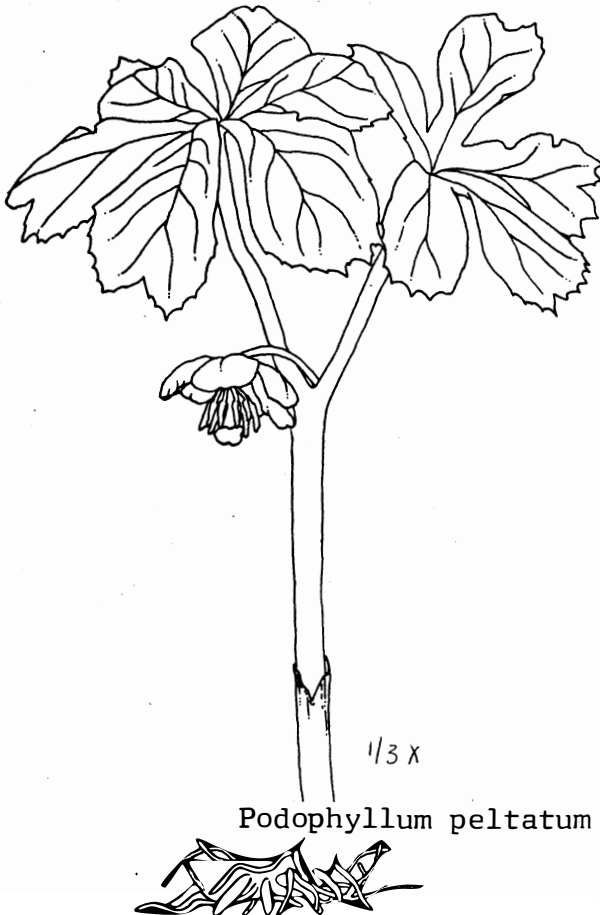
- a. Corolla lobes deeply notched.....1. P. bifida
- a. Corolla lobes entire.
 - b. Leaves lanceolate; corolla 2-3 cm wide.....2. P. divaricata
 - b. Leaves linear to linear-lanceolate; corolla 1.5-2 cm wide...
.....3. P. pilosa



Caulophyllum thalictroides



Jeffersonia diphylla



Podophyllum peltatum



Rumex acetosella

1. Phlox bifida Beck. Sand Phlox. Prostrate or ascending, much-branched; pubescent, perennial herb to 2 dm long; leaves opposite, linear to linear-lanceolate, 2-4 cm long, long attenuate, 1-nerved; flowers in few-flowered cymes; calyx stipitate-glandular; corolla salverform, light-blue to white, 14-20 mm wide, the lobes deeply notched. Occasionally planted and rarely encountered in dry, sandy and rocky areas.

2. Phlox divaricata L. Woodland Phlox. Erect, pubescent, perennial to 4 dm tall; basal stolons present; leaves opposite, lanceolate to oblong, 3-5 cm long, apex obtuse to acute; inflorescence a loosely-branched, many-flowered cyme; calyx stipitate-glandular; corolla salverform, light-blue to pink, or occasionally white, 2-3 cm wide, the lobes entire. Common in moist woods.

3. Phlox pilosa L. Downy Phlox. Erect, pubescent, perennial herb to 5 dm tall; stolons absent; leaves opposite, mostly linear to linear-lanceolate, 3-8 cm long, the apex with a sharp tip; inflorescence a loosely-branched, many-flowered cyme; calyx stipitate-glandular; corolla salverform, light-pink to violet, rarely white, 1.5-2 cm wide, the lobes entire. Occasional in prairies and dry, open woods.

2. POLEMONIUM L. Jacob's-ladder.

1. Polemonium reptans L. Much-branched, perennial herb to 4 dm tall; rhizomes present; leaves pinnately compound with up to 17 leaflets, the basal leaves long-petioled the cauline short-petioled to sessile; leaflets lanceolate to oblong, 2-5 cm long, acute; inflorescence a loose, few-flowered panicle; corolla blue, campanulate, 10-16 mm long, lobed to about the middle; filaments pubescent at the base; fruit to 6 mm long, enclosed by the persistent, enlarged calyx. Fairly common in moist thickets and open woods.

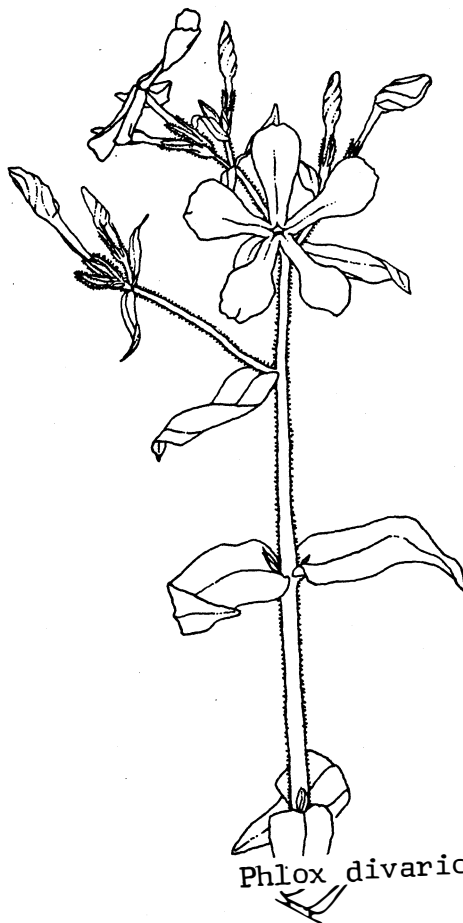
35. POLYGONACEAE Buckwheat Family

Mostly perennial or annual herbs with alternate, simple, usually entire leaves; stipules (ocreae) sheathing the stem above the usually enlarged nodes; flower perfect or unisexual, hypogynous, small, regular, 3-merous; calyx 3-6 lobed; corolla absent; stamens 4-9, separate, attached to the base of the calyx; pistil with 2-3 styles; fruit an achene.

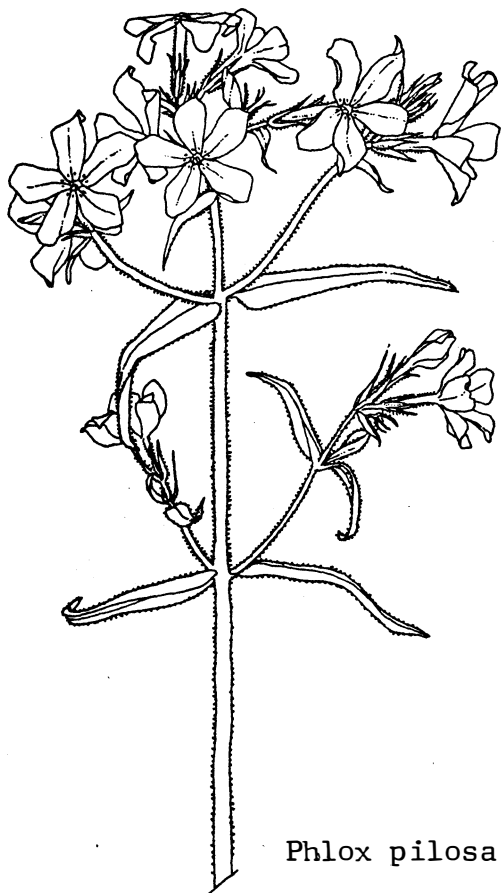
1. RUMEX L. Dock; Sorrel.



Phlox bifida



Phlox divaricata



Phlox pilosa



Polemonium reptans

1. Rumex acetosella L. Field Sorrel; Sour Dock; Sheep Sorrel. Perennial, dioecious herb to 4 dm tall; rhizomes present; leaves alternate, base hastate, lower leaves long-petioled, upper sessile and clasping; inflorescence a panicle, about half as long as the plant; flowers small, unisexual; calyx red in staminate flowers, yellow in pistillate flowers; achenes about 1.5 mm long. Commonly found in fields, lawns, and waste places.

36. PORTULACACEAE Purslane Family

Mostly perennial herbs with opposite, simple, exstipulate, usually succulent leaves; flowers perfect, hypogynous, complete, polypetalous, regular; sepals 2; petals 5; stamens usually 5, separate, and opposite the petals; ovary 1-celled; fruit a capsule.

1. CLAYTONIA L. Spring Beauty.

1. Claytonia virginica L. Spring Beauty. Perennial herb with a thickened corm, leaves usually 2, opposite, linear, 2-10 mm wide and usually more than 7 cm long, green to reddish; flowers in an elongated raceme; sepals 2, green, persistent; petals white to pink, fruit an ovoid capsule. Extremely common in moist woods and other undisturbed areas.

37. PRIMULACEAE Primrose Family

Annual and perennial herbs with simple, exstipulate, usually entire leaves; flowers perfect, hypogynous, complete, 5-merous, sympetalous, regular; corolla shallowly to deeply 5-lobed; calyx deeply 5-lobed; stamens 5, epipetalous and opposite the lobes; ovary 1-celled; stigma 1; fruit a capsule.

- a. Plant erect; leaves basal; flowers terminal on a scape.....
1. Dodecatheon
- a. Plants creeping, leaves opposite; flowers axillary.....
2. Lysimachia



Claytonia virginica

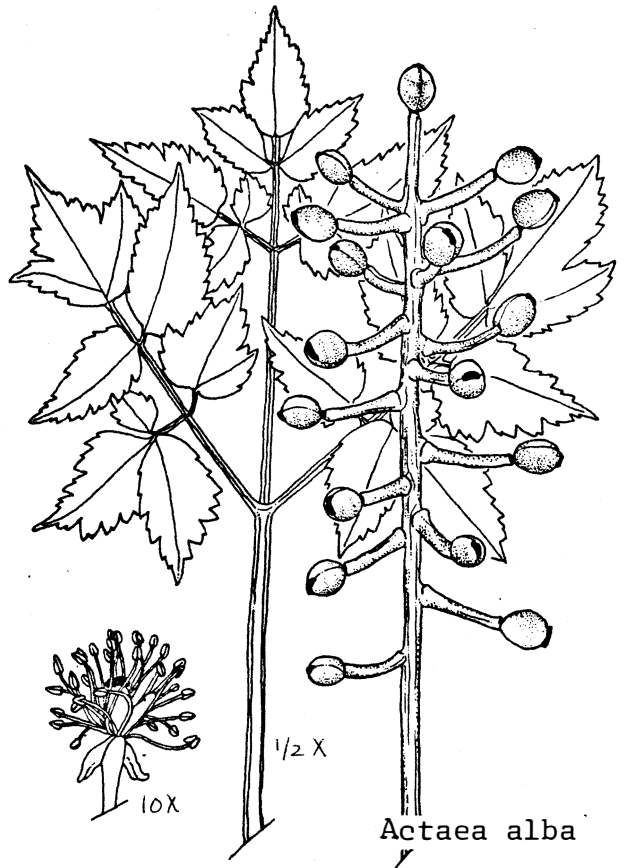


Dodecatheon meadia

3/4 X



Lysimachia nummularia



Actaea alba

1/2 X

10X

1. DODECATHEON L. Shooting Star.

1. Dodecatheon meadia L. Perennial herb to 5 dm tall; leaves basal, oblanceolate, obtuse, to 20 cm long; flowers several in an umbel terminating a scape; corolla lobes linear, reflexed, lavender to white, 15-25 mm long; filaments fused, anthers free and connivent around the style; capsule reddish-brown, 8-20 mm long. Occasional in moist woods and prairie areas.

2. LYSIMACHIA L. Loosestrife.

1. Lysimachia nummularia L. Moneywort. Perennial, creeping herb; leaves opposite, broadly ovate to orbicular, 1-3 cm long; flowers solitary, axillary, 2-2.5 cm broad; corolla rotate, yellow, usually speckled with red; calyx lobes ovate, cordate; filaments fused at base, anthers free. Occasional in wet shaded areas.

38. RANUNCULACEAE Buttercup Family

Annual and perennial herbs with mostly alternate or basal, simple or compound leaves; flowers mostly perfect, hypogenous, polypetalous, mostly regular; sepals 3 or more, often petal-like; petals present or absent; stamens numerous, spirally arranged; ovaries, simple, 1 to usually numerous, spirally arranged; fruit a berry, follicle, or achene.

a. Perianth bright yellow.

b. Leaves all simple and crenate; sepals yellow and petaloid;

fruit a follicle.....5. Caltha

b. At least the cauline leaves deeply lobed or compound;

sepals greenish; petals yellow; fruit an achene.....

.....11. Ranunculus

a. Perianth with various colored sepals and/or petals, not bright yellow.

c. Plants scapose, bearing solitary flowers at the ends of elongated peduncles.

- d. Leaves entire; receptacle becoming elongated.....
.....10. Myosurus
- d. Leaves 3-lobed; receptacle not elongated in fruit.....
.....7. Hepatica
- c. Plants with a leafy stem; flowers solitary from the axils of
the leaves or in racemes or panicles.
- e. Flowers unisexual; plants dioecious.....12. Thalictrum
- e. Flowers perfect.
- f. Perianth red or blue.
- g. Perianth regular, red, tinted with yellow.....
.....4. Aquilegia
- g. Perianth irregular, deep blue.....6. Delphinium
- f. Perianth white or light pink, not red or blue.
- h. Flowers in racemes, pistil 1 in each flower.....
.....1. Actaea
- h. Flowers solitary or in umbels; pistils 2 or more
in each flower.
- i. Leaves palmately lobed or divided, the leaflets
sessile.
- j. Sepals 3, petaloid; fruit a berry.....
.....8. Hydrastis
- j. Sepals 5, petaloid; fruit an achene.....
.....2. Anemone
- i. Leaves ternately compound, the leaflets stalked.
- k. Flowers solitary; leaflets mucronate; fruit
a follicle.....9. Isopyrum
- k. Flowers in a umbel of 3-5 flowers; leaflets
not mucronate; fruit an achene..3. Anemonella

1. ACTAEA L. Baneberry.

1. Actaea alba (L.) Mill. White Baneberry; Doll's Eyes. Glabrous, perennial herb to 8 dm tall; leaves 2-3 ternately compound, alternate; leaflets ovate, incised to coarsely serrate; flowers in a terminal raceme, white; sepals 3-5, petaloid, caducous; petals 4-10; stamens numerous; pistil 1; fruit a white berry borne on a red pedicle 1-2 mm thick. Fairly common in moist woods.

2. ANEMONE L. Anemone; Windflower.

1. Anemone canadensis L. Meadow Anemone. Pubescent, perennial herb to 8 dm tall; rhizomes present; basal leaves long petioled, palmately 3-7 lobed, the lobes coarsely toothed; cauline leaves alternate, similar, sessile; flowers solitary, 2.5-4 cm wide; sepals usually 5, unequal, white, petaloid; petals absent; stamens numerous; pistils numerous; achenes flattened, 3-5 mm long. Occasional along railroads and in open woods.

3. ANEMONELLA Spach. Rue-anemone.

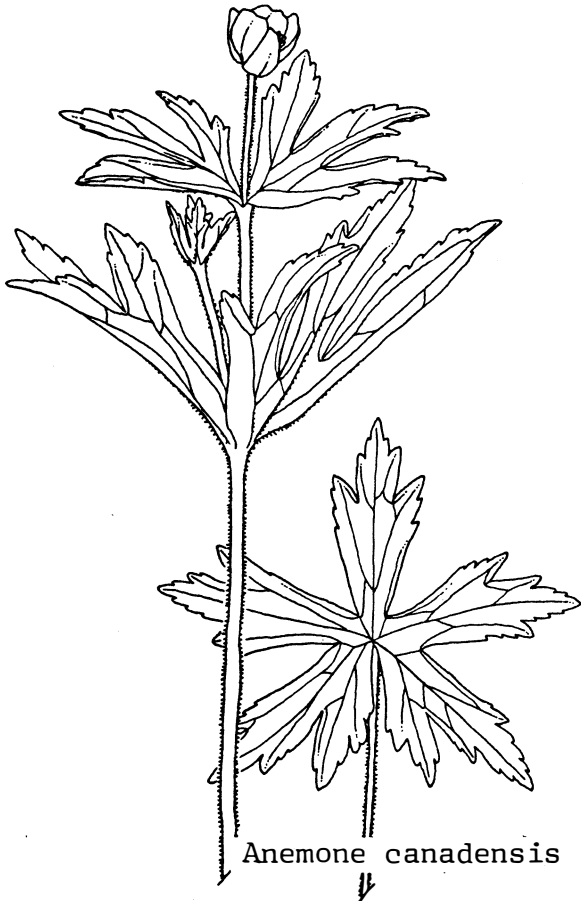
1. Anemonella thalictroides (L.) Spach. Glabrous, perennial herb to 2 dm tall; roots tuberous thickened; basal leaves petioled, 2-3 ternately compound, the leaflets 3-lobed, cordate, ovate, petiolulate; cauline leaves similar, smaller, subtending a 2-5 flowered umbel; sepals 5-10, petaloid, white to light pink; petals absent; stamens numerous; pistils 8-12; achenes strongly ribbed, about 1 cm long. Rare in moist woods.

4. AQUILEGIA L. Columbine.

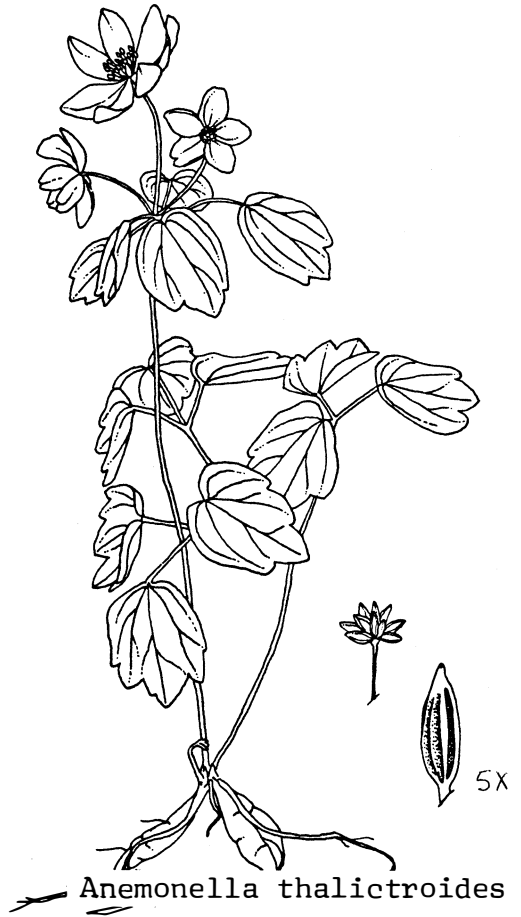
1. Aquilegia canadensis L. Perennial, glabrous herb to 15 dm tall; rhizomes short; basal leaves 2-3 ternately compound, the leaflets ovate to obovate, deeply lobed; cauline leaves alternate, similar, gradually reduced upwards; flowers nodding, 4-6 cm long; sepals 5, red, ovate; petals 5, the blade yellow, the spur red; stamens numerous, exserted; pistils usually 5; follicles erect, 1.5-2 cm long, tapering to the persistent style. Occasional in open wooded ravines and moist shaded roadsides.

5. CALTHA L. Marsh-marigold.

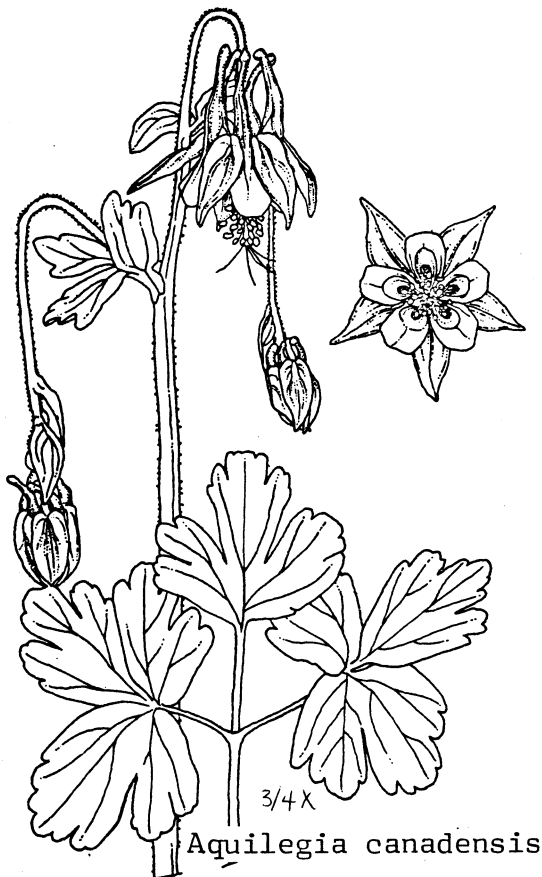
1. Caltha palustris L. Glabrous, perennial herb to 7 dm tall; stem hollow, furrowed; basal leaves petioled, simple, deeply cordate, crenate, apex rounded; cauline leaves alternate, similar, the upper nearly sessile; flower 2-4 cm wide, axillary and terminal; sepals 5-9, petaloid, yellow; petals absent; stamens numerous; pistils 4 to many; follicles flattened, 10-15 mm long. Rare in wet area.



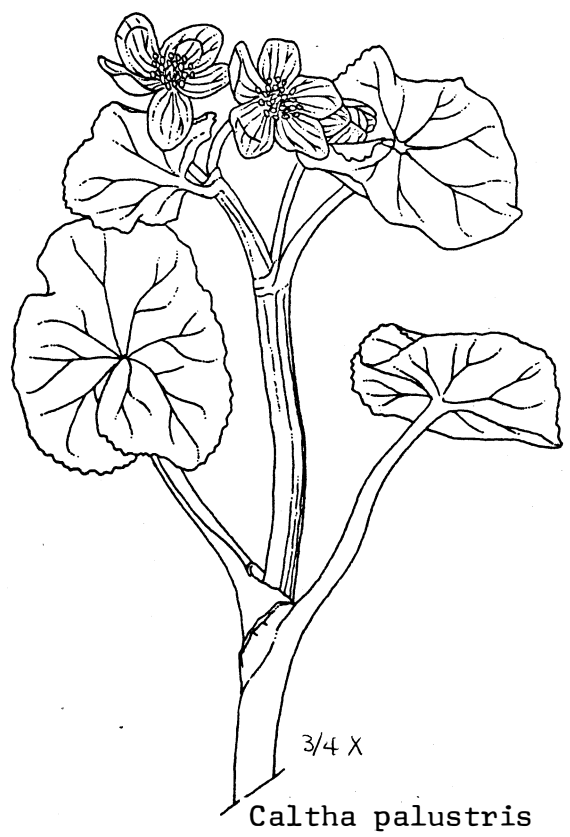
Anemone canadensis



Anemonella thalictroides



Aquilegia canadensis



Caltha palustris

6. DELPHINIUM L. Larkspur.

1. Delphinium tricornes Michx. Dwarf Larkspur. Pubescent, perennial herb to 5 dm tall; basal leaves petioled, palmately divided into usually 5, oblanceolate, coarsely toothed to incised lobes; cauline leaves alternate, similar; flowers irregular, 2-3.5 cm long, in a terminal raceme; sepals 5, petaloid, blue, the upper one prolonged into a spur; petals 4, blue, small, irregular; stamens numerous; pistils 3; follicles 10-15 mm long. Fairly common in moist woods.

7. HEPATICA Hill. Heptica, Liverleaf.

1. Hepatica acutiloba DC. Perennial, pubescent, scapose herb to 15 cm long; leaves appearing after anthesis. Petioled, cordate at base, mottled with purple, 3-lobed, the lobes ovate, acute; flowers 15-30 mm wide, subtended by 3 sepaloid bracts, solitary on a scape to 15 cm long; sepals 5-12, petaloid, white to light purple; petals absent; stamens numerous; pistils numerous; achenes flattened, pubescent, about 6 mm long. Common on moist, wooded hillsides.

8. HYDRASTIS Ellis. Goldenseal.

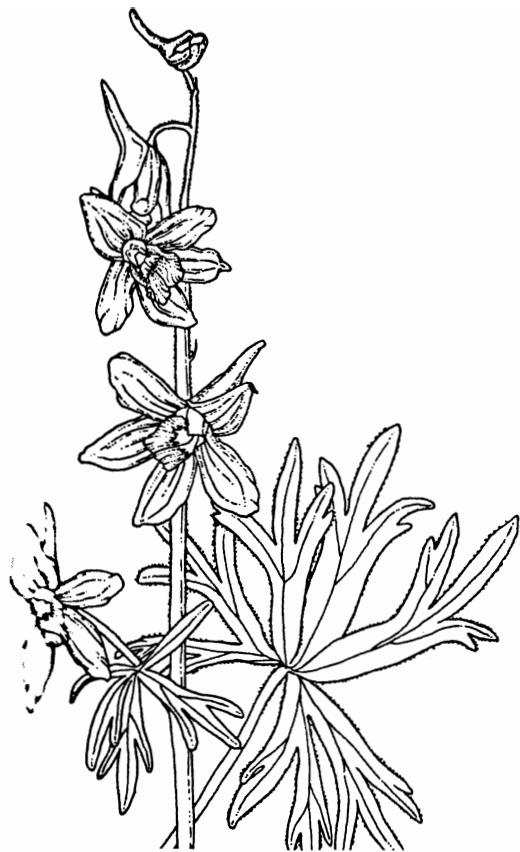
1. Hydrastis canadensis L. Pubescent, perennial herb to 5 dm tall; rhizome thick and knotted, yellow; basal leaf petioled, simple, palmately lobed, incised and coarsely serrate, to 2.5 dm wide in fruit; cauline leaves 2, alternate, similar but smaller, the upper sessile and subtending the solitary, terminal flower; sepals 3, petaloid, greenish white, caducous; petals absent; stamens numerous; pistils numerous; fruit a red berry. Occasional in moist woods.

9. ISOPYRUM L. False Rue Anemone.

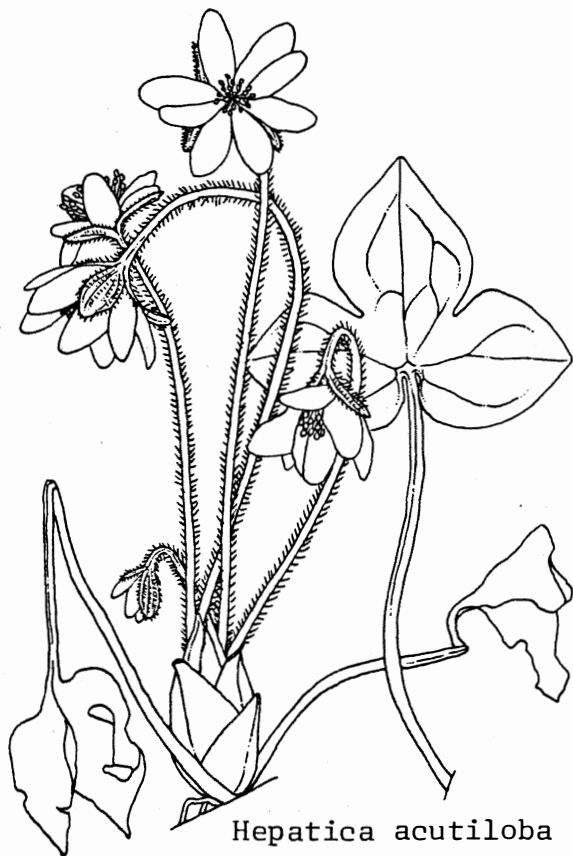
1. Isopyrum biternatum (Raf.) Torr. & Gray perennial glabrous, herb to 4 dm tall; roots with thickened areas; basal leaves 2-3 ternately compound; cauline leaves biternate to trifoliate; leaflets ovate, lobed, mucronate; flowers 1.5-2 cm wide, white, petaloid; petals absent; stamens 10-30; pistils usually 3-4; fruit a follicle about 1 cm long. Common in moist woods.

10. MYOSURUS L. Mousetail.

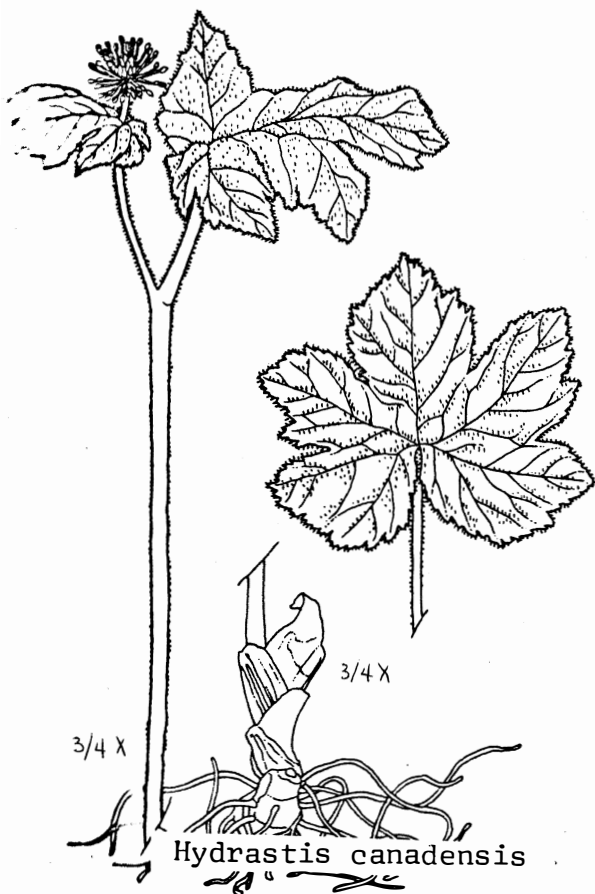
1. Myosurus minimus L. Annual, glabrous, scapose herb to 15 cm tall; leaves linear, entire; sepals 5, yellowish green, 3-5 mm long, spurred; petals equalling the sepals; stamens 5-20; pistils numerous; achenes diamond shaped, arranged on an elongated receptacle to 5 cm long. Common in moist cultivated fields and waste places.



Delphinium tricorne



Hepatica acutiloba



Hydrastis canadensis



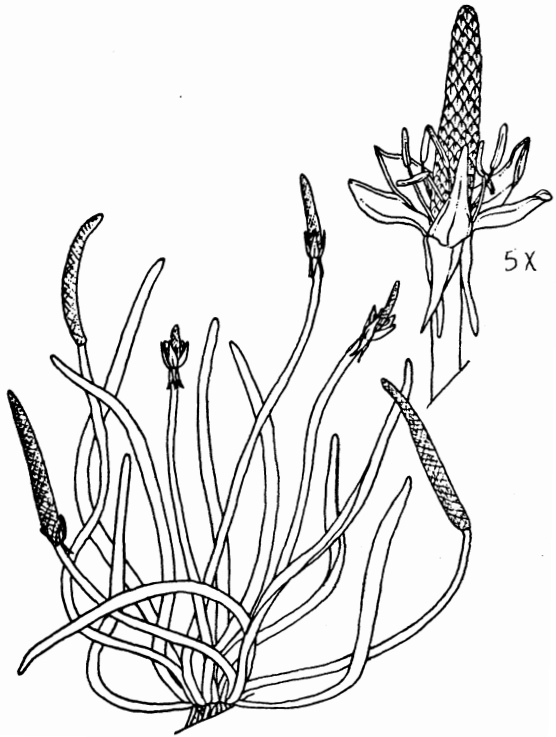
Isopyrum biternatum

11. RANUNCULUS L. Buttercup.

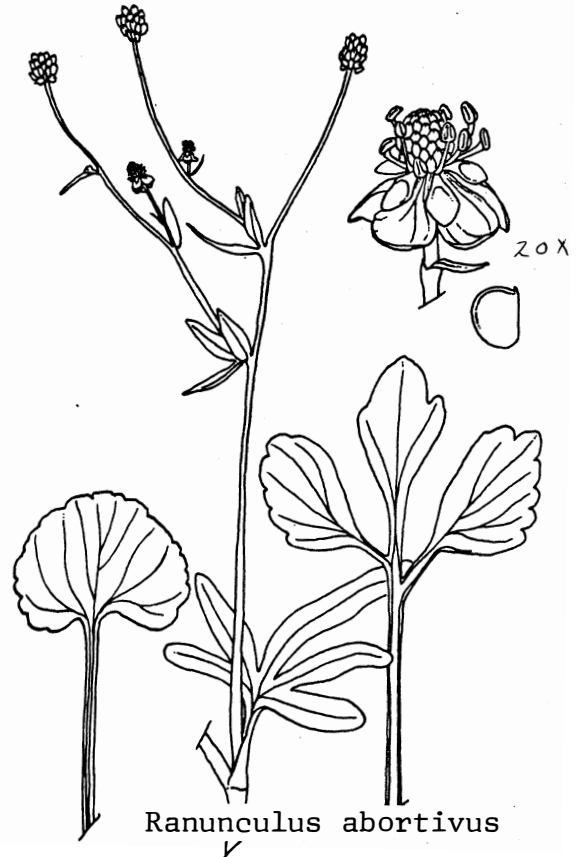
- a. Petals equalling or shorter than the sepals.
- b. Basal leaves mostly crenate, rarely a few lobed; plants glabrous.....1. R. abortivus
- b. Leaves all, or nearly all, deeply lobed; plants pubescent.
- c. Petals 2-3 mm long; achenes 1.5 mm long, with a minute beak.....2. R. micranthus
- c. Petals 3.5-6 mm long; achenes more than 2 mm long with a hooked beak about 1 mm long.....5. R. recurvatus
- a. Petals mostly twice as long as the sepals.
- d. Basal leaves mostly crenate, rarely a few lobed; petals 6-8 mm long; beak of achene less than .5 mm long.....3. R. harveyi
- d. Leaves all, or nearly all, deeply lobed; petals more than 8 mm long; beak or achene 1.5-3 mm long.
- e. Leaf-lobes narrow and linear, less than 1 cm wide; achenes 2-3 mm long.....2. R. fascicularis
- e. Leaflets mostly ovate, 1 more than 1 cm wide; achenes 3-4.5 mm long.....6. R. septentrionalis

1. Ranunculus abortivus L. Small-flowered Buttercup. Perennial, mostly glabrous herb to 5 dm tall; basal leaves reniform, cordate, crenate, occasionally a few 3-lobed; cauline leaves mostly sessile, 3-5 lobed, the lobes linear to obovate; sepals longer than the petals; petals yellow, 2-3 mm long; stamens and pistils numerous; achenes flattened, 1-1.5 mm long, beak minute. Very common in moist woods, fields and waste places.

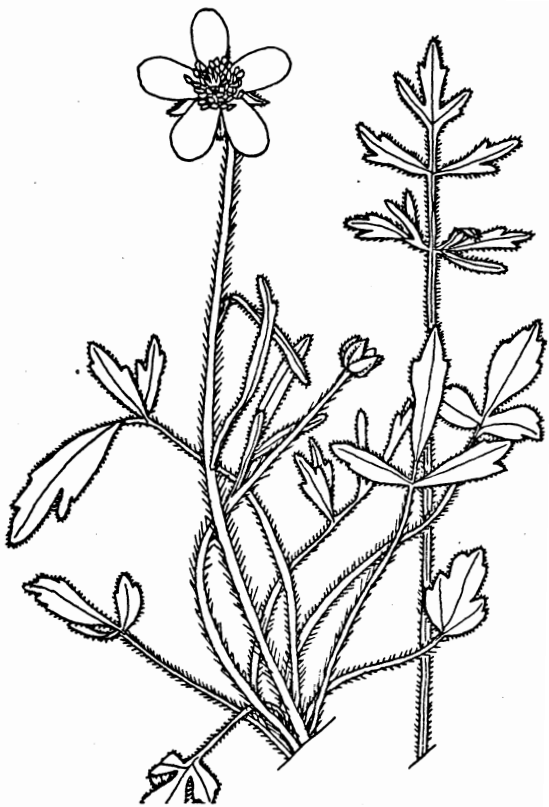
1. Ranunculus fascicularis Muhl. Tufted Buttercup. Perennial, pubescent herb to 2 dm tall; basal leaves deeply lobed and incised, the lobes linear, less than 1 cm wide; cauline leaves 1-3, mostly sessile, smaller, linear to 3-lobed; flowers long peduncles; petals yellow, 8-14 mm long; stamens and pistils numerous; achenes flattened, 2-3 mm long, beak 1.5-3 mm long. Rare in prairie areas.



Myosurus minimus



Ranunculus abortivus



Ranunculus fascicularis



Ranunculus harveyi

3. Ranunculus harveyi (A. Gray) Britt. Perennial, mostly glabrous herb to 4 dm tall; basal leaves broadly ovate to reniform, crenate, rarely a few lobed; cauline leaves divided into 3-5 linear to oblanceolate lobes; petals yellow 6-8 mm long, the straight beak less than .5 mm long. Rare in moist woods.

4. Ranunculus micranthus Nutt. Perennial, pubescent herb to 5 dm tall; pubescence villose, the hairs 1-2 mm long; basal leaves cuneate to truncate, mostly 3-lobed; cauline leaves nearly sessile, 3-5 lobed, the lobes linear to obovate; sepals as long as the petals; petals yellow, 2-3 mm long; stamens and pistils numerous; achenes flattened, 1.5 mm long, the beak minute. Rare in moist woods and waste places. (Not illustrated.)

5. Ranunculus recurvatus Poir. Perennial, pubescent herb to 6 dm tall; leaves mostly petioled, 3-lobed, each lobe obovate to oblanceolate, incised to coarsely serrate; petals yellow, 3-5 mm long, nearly equalling the sepals; stamens and pistils numerous; achenes flattened, about 2 mm long, the beak hooked, about 1 mm long. Occasional in moist woods.

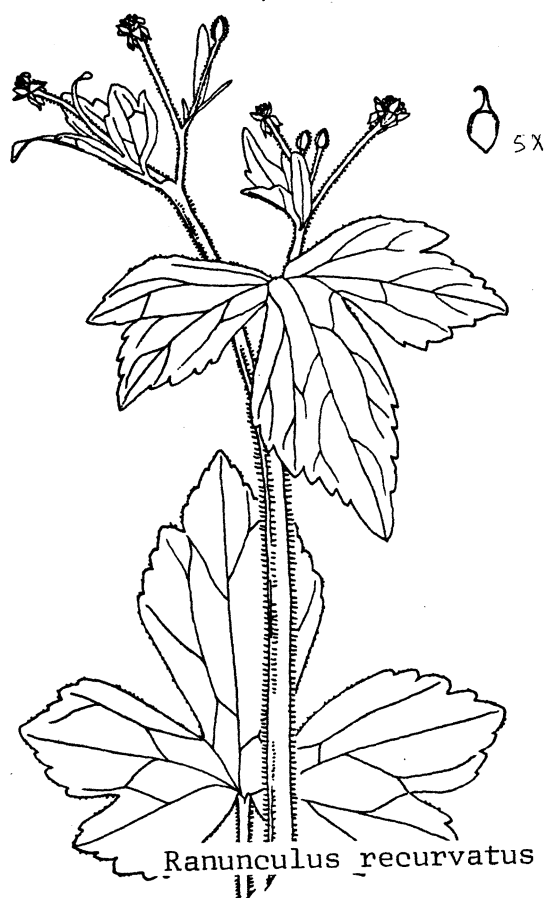
6. Ranunculus septentrionalis Poir. Marsh Buttercup. Perennial, glabrous to pubescent herb; stems ascending or trailing, to 1 m long; cauline and basal leaves similar, 3-lobed to compound, each segment ovate, incised to coarsely serrate, more than 1 cm wide; petals yellow, 9-15 mm long; stamens and pistils numerous; achenes flattened, 3-4.5 mm long, the beak 1.8-3 mm long. Common in moist woods.

12. THALICTRUM L. Meadow-rue.

1. Thalictrum dioicum L. Early Meadow-rue. Glabrous, perennial, dioecious herb to 6 dm tall; leaved petioled, 2-3 ternately compound, the leaflets broadly ovate to obovate, cordate, lobed; flowers in a terminal panicle; staminate flowers greenish yellow, pendent, stamens numerous; pistillate flowers erect, greenish purple, pistils 5-10; sepals 4-5 greenish, caducous; petals absent; achenes about 4 mm long, strongly ribbed. Fairly common in moist woods.

39. ROSACEAE Rose Family

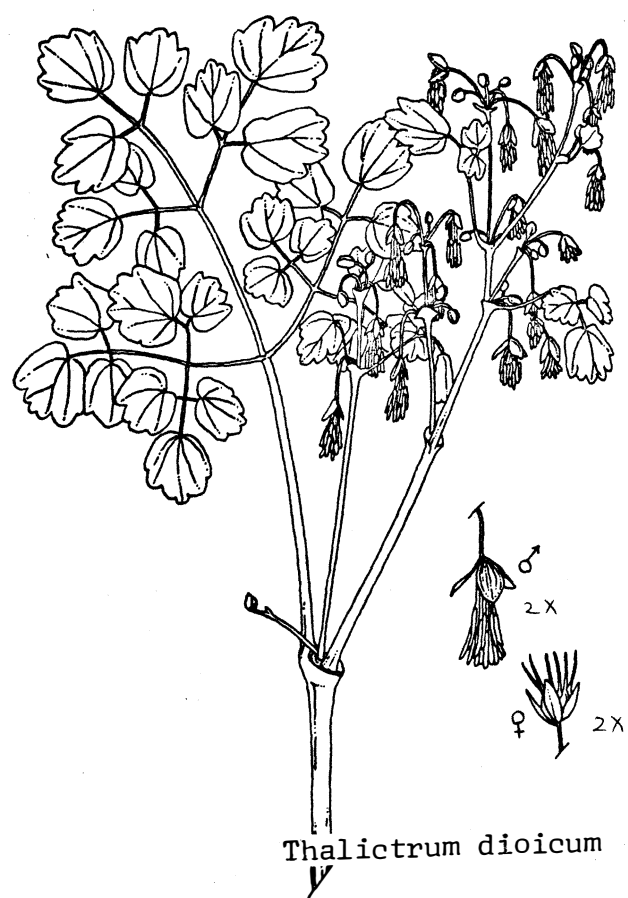
A large family of trees, shrubs, and herbs; leaves mostly alternate, simple or compound, stipules usually present, margins usually serrate; flowers perfect, mostly perigynous, complete, 5-merous, polypetalous, regular; hypanthium saucer-shaped to urn-shaped, free or adnate to the ovary (appearing epigynous),



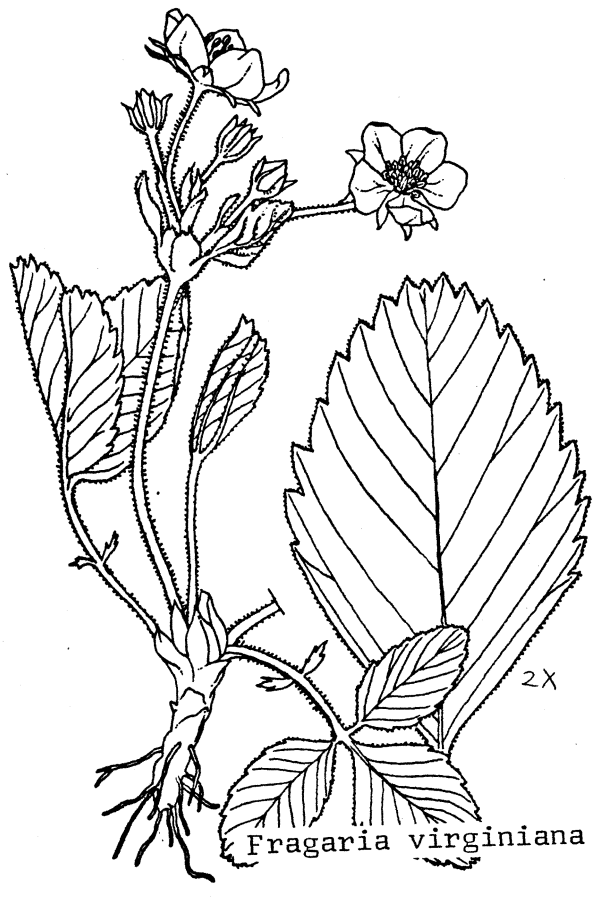
Ranunculus recurvatus



Ranunculus septentrionalis



Thalictrum dioicum



Fragaria virginiana

sepals, petals, and stamens inserted on the rim; stamens numerous; pistils 1-many, separate or united; fruit a group of achenes or follicles, or a drupe or pome.

- a. Leaves pinnately compound; receptacle stalked; style persistent and jointed.....1. Geum
- a. Leaves palmately compound with 3 to 5 leaflets; receptacle not stalked; style deciduous and not jointed.
- b. Leaves all basal; petals white.....2. Fragaria
- b. Leaves cauline; petals yellow.....3. Potentilla

1. GEUM L. Avens.

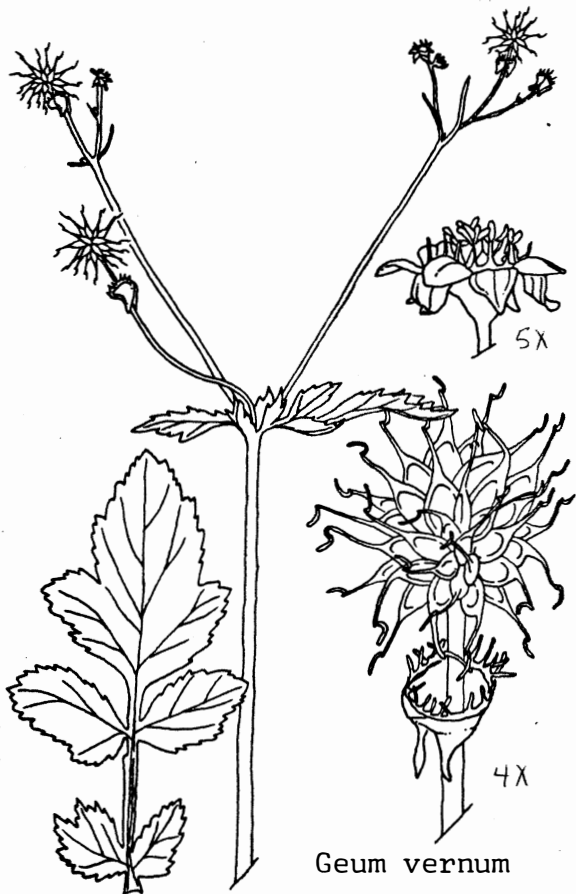
1. Geum vernum (Raf.) T. & G. Spring Avens. Perennial herb to 5 dm tall; stems several, erect or ascending; leaves alternate and basal, pinnately compound; the leaflets ovate, doubly-serrate; stipules foliaceous; flowers solitary or in corymbs; hypanthium cup-shaped; sepals reflexed; petals yellow; stamens 10; pistils many; the head of achenes arranged at the top of a stipe 1-2 mm long, each tipped with the persistent style. Common in moist open woods and waste places.

2. FRAGARIA L. Strawberry.

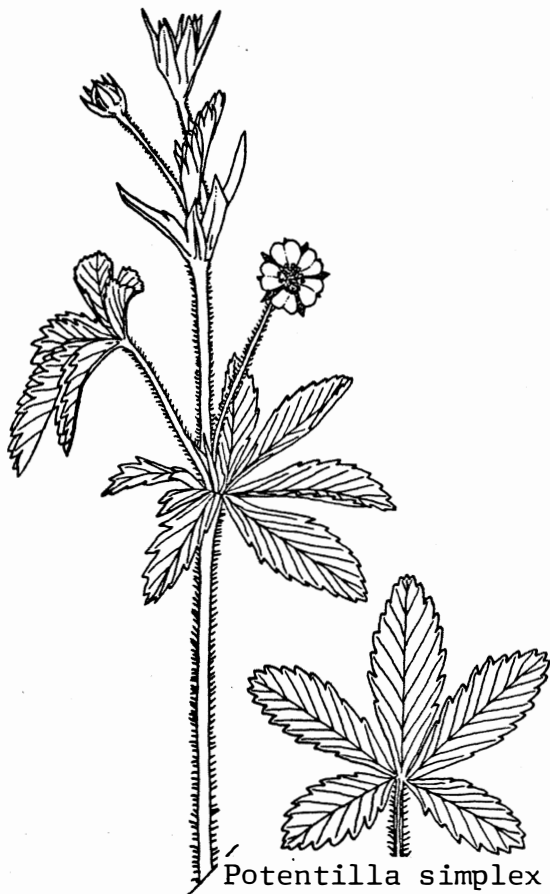
1. Fragaria virginiana Duch. Wild Strawberry. Perennial herb with creeping stolons, to 1.5 dm tall; leaves basal, trifoliate, long-petioled; the leaflets ovate to obovate, serrate, pubescent; flowers in loose corymbiform clusters; hypanthium saucer-shaped; petals white, obovate, 7-10 mm long; stamens numerous; pistils numerous on an enlarged receptacle; fruit of many achenes situated on a large, red, pulpy receptacle. Common in open fields and roadsides.

3. POTENTILLA L. Cinquefoil.

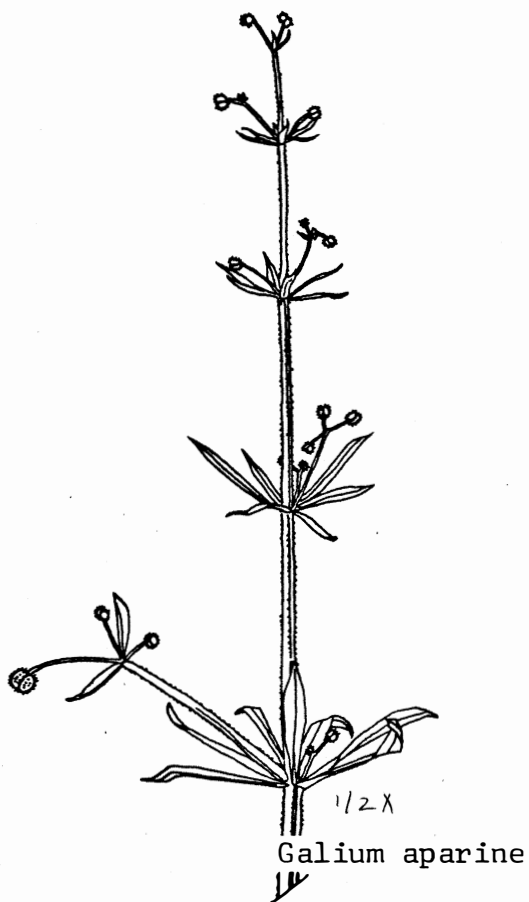
1. Potentilla simplex Michx. Common Cinquefoil. Perennial, creeping herb, the stem rooting at the nodes; leaves basal and alternate, palmately compound with 5 leaflets, petioled; leaflets oblanceolate to elliptic, to 6 cm long, serrate; flowers solitary; petals obovate, yellow, 5 mm long; stamens usually numerous; pistils numerous; fruit a head of achenes. Common in open fields, waste places and roadsides.



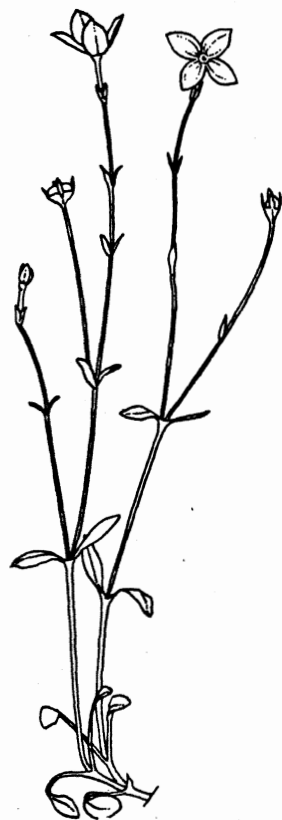
Geum vernum



Potentilla simplex



Galium aparine



Houstonia caerulea

40. RUBIACEAE Madder Family

Annual to perennial herbs or sometimes shrubs in our area; leaves opposite or whorled, simple, entire, stipulate; flowers perfect, epigynous, complete, usually 4-merous, sympetalous, regular; calyx commonly reduced or absent; corolla usually funnel-form or salverform, the tube often hairy within; stamens 4, epipetalous and alternate with the lobes; ovary 2-celled, fruit usually a capsule, berry or drupe.

- a. Cauline leaves whorled.....1. Galium
 a. Cauline leaves opposite.....2. Houstonia

1. GALIUM L. Bedstraw, Cleavers.

1. Galium aparine L. Goose-grass. Annual, decumbent herb to 8 dm long, stem 4-angled, with stiff recurved bristles on the angles; leaves usually in whorls of 8 at each node, sessile, linear-oblan-ceolate, 3-6 cm long, apex apiculate; flowers small, in axillary, few-flowered cymes; calyx absent; corolla white, 4-lobed; fruit 2-lobed, with hooked bristles. Common in moist woods.

2. HOUSTONIA L. Bluets.

- a. Flowers solitary in the axils of leaves; corolla light blue to white with yellow center.....1. H. caerulea
 a. Flower in terminal and axillary cymes; corolla white to light purple without a yellow center.....2. H. lanceolata

1. Houstonia caerulea L. Perennial herb to 15 cm tall; basal leaves petioled, obovate to spatulate, forming a basal rosette; cauline leaves opposite, sessile, oblong to linear, to 1 cm long; flowers solitary from the axils of the cauline leaves; calyx deeply 4-lobed; corolla funnelform, blue to white with a yellow center, about 10 mm wide; fruit a flattened capsule. Occasional in moist fields and open woods.

2. Houstonia lanceolata (Poir) Britt. Erect, perennial herb to 4 dm tall; leaves mostly opposite, sessile, lanceolate, to 4 cm long, 5-14 mm wide; flowers in axillary and terminal cymes; calyx deeply 4-lobed, 3-6 mm long; corolla funnelform, purple to white,

5-9 mm long, the lobes about half as long as the tube; fruit an ovoid capsule. Occasional in prairies and open woods.

41. SANTALACEAE Sandalwood Family

Perennial herb; commonly parasitic on the roots of various plants; leaves simple, opposite or alternate, entire, exstipulate; flowers perfect or unisexual, epigynous, 4- or 5-merous, apetalous, regular; hypanthium present, bearing the sepals at its margin and a lobed disc towards the center; stamens as many as the sepals, opposite them and inserted on their base; ovary 1-celled; fruit a 1-seeded nut or drupe.

1. COMANDRA Nutt. False Toadflax.

1. Comandra umbellata (L.) Nutt. Bastard Toadflax. Perennial herb with long rhizomes, to 3 dm tall; leaves alternate, sessile, narrowly-oblong, 2-4 cm long, entire; flowers white, 5-merous, in cymules; fruit a dry drupe. Occasional on prairies and in dry, open areas.

42. SAXIFRAGACEAE Saxifrage Family

Mostly perennial herbs; leaves alternate or basal, simple or compound, exstipulate; flowers often on a scape, usually in racemes or panicles, perfect, perigynous, complete, 5-merous, polypetalous, regular to slightly irregular; hypanthium usually well-developed; and occasionally adnate to the ovary; stamens usually 5 or 10; pistil usually of 2 carpels united at the base; stigma and styles 2; fruit usually a follicle or capsule.

a. Leaves all basal; inflorescence a panicle.....1. Heuchera

a. Stem with a pair of opposite leaves; inflorescence a raceme....

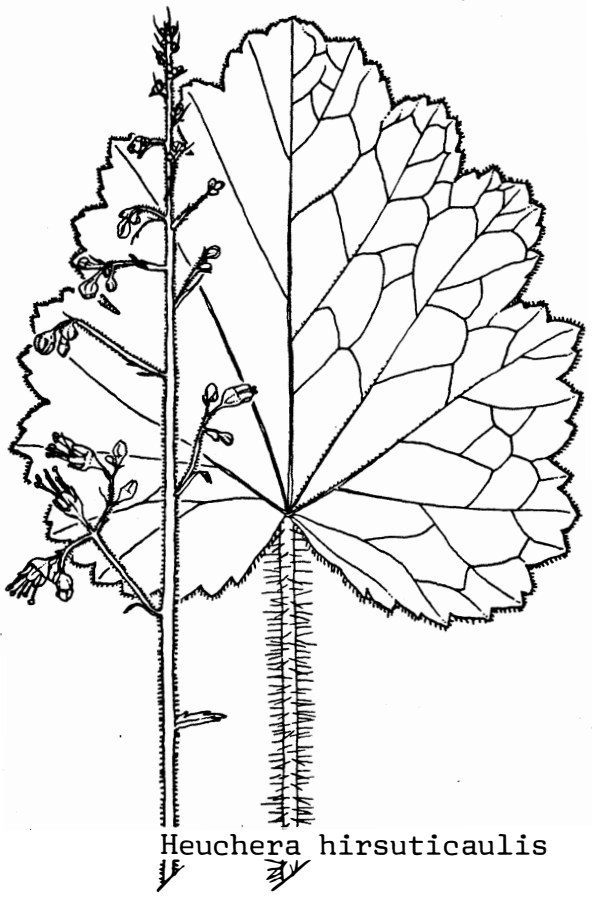
.....2. Mitella



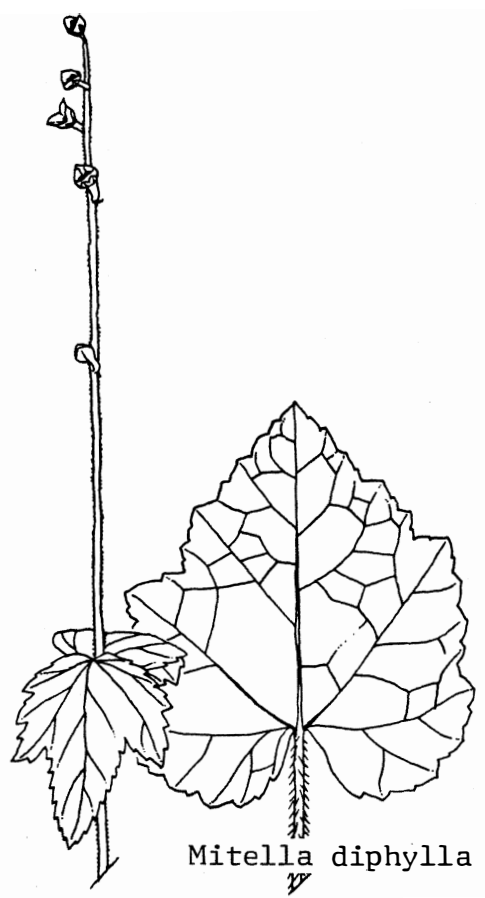
Houstonia lanceolata



Comandra umbellata



Heuchera hirsuticaulis



Mitella diphylla

1. HEUCHERA L. Alumroot.

1. Heuchera hirsuticaulis (Wheelock) Rydb. Erect, pubescent, scapose perennial to 7 dm tall; leaves basal, petioled, ovate to orbicular, shallowly-palmately 5-9 lobed, 5-10 cm wide; flowers usually slightly irregular, in a loose panicle; hypanthium campanulate, adnate to the lower part of the ovary; calyx lobes petaloid, green to reddish; petals small, spatulate; stamens 5, long, exserted; fruit an elongated capsule. Occasional in open woods, roadsides and prairie areas.

2. MITELLA L. Bishop's-cap. Miterwort.

1. Mitella diphylla L. Erect, pubescent, perennial herb to 4 dm tall; rhizomes present; basal leaves long-petioled, orbicular, 3-5 lobed, crenate, base cordate; cauline leaves 2, opposite, sessile, ovate, 3-lobed; flowers in a loose raceme to 15 cm long; petals white, fringed, about 2 mm long; stamens 10; fruit a short ovoid capsule. Rare in moist wooded ravines.

43. SCROPHULARIACEAE Figwort Family

Mostly annual and perennial herbs; leaves simple, usually opposite, exstipulate; flowers solitary or more often in cymes, racemes, or panicles, hypogynous, complete, mostly 5-merous, corolla sympetalous, usually irregular and bilabiate; stamens 2-4, didynamous, commonly with a fifth sterile stamens, epipetalous, alternate with the lobes; ovary 2-celled; fruit usually a capsule. The commonly cultivated Snapdragon is a member of this family.

a. Leaves alternate.

b. Leaves entire, linear; corolla spurred.

c. Flowers yellow, 2-3 cm long, in racemes.....3. Linaria

c. Flowers white to pale purple, less than 1 cm long, solitary
in the axils of the leaves.....1. Chaenorrhinum

b. Leaves pinnately lobed; corolla not spurred...4. Pedicularis

a. Leaves opposite.

d. Flowers less than 1 cm long, solitary in the axils of the

upper leaves; fertile stamens 2.....6. Veronica

d. Flowers more than 1 cm long, in a cyme or panicle; fertile stamens 4.

e. Flowers bicolored, the upper lip white, the lower lip bright-blue; sterile stamen reduced to a small gland.....

.....2. Collinsia

e. Flowers mostly white, tinged with purple; sterile stamen elongated.....5. Penstemon

1. CHAENORRHINUM Reichenb.

1. Chaenorrhinum minus (L.) Lange. Dwarf Snapdragon. Annual, pubescent herb to 3 dm tall; leaves alternate, simple, entire, linear, 1-3 cm long; flowers 5-8 mm long; corolla strongly bilabiate, white, tinged with purple, spurred, palate present; stamens 4; fruit a capsule 4-6 mm long, opening by 2 terminal pores. Fairly common in waste places.

2. COLLINSIA Nutt.

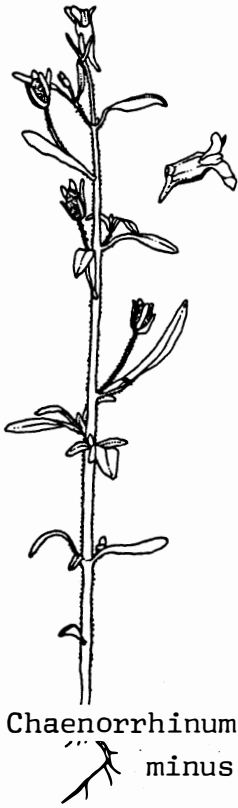
1. Collinsia verna Nutt. Blue-eyed Mary. Annual herb to 4 dm tall; leaves opposite, oblong to ovate, 2-5 cm long, remotely serrate to entire, upper sessile, the lower petioled; flowers in whorls of 4-6, terminal and in the axils of the upper leaves; calyx 5-lobed; corolla bilabiate, tube short 3-4 mm long, upper lip white, 2-lobed, about 10 mm long; lower lip blue, 3-lobed, the middle lobe folded, enclosing the stamens; fertile stamens 4, didynamous, sterile stamen 1, inconspicuous; fruit a capsule. Rare in moist woods.

3. LINARIA Mill. Toadflax.

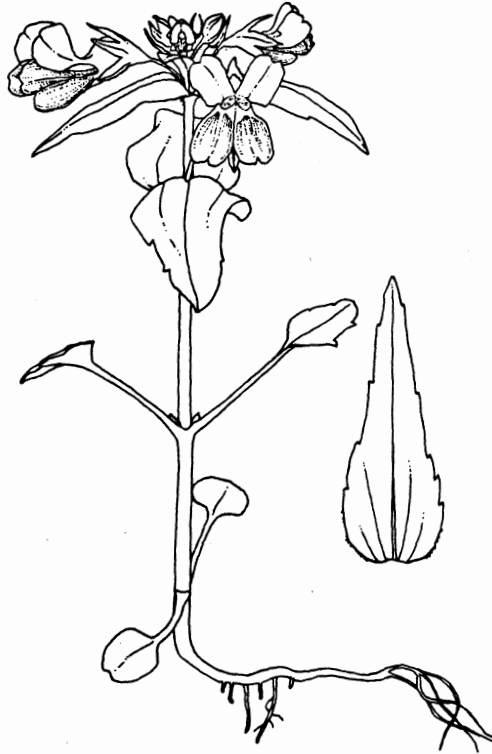
1. Linaria vulgaris Hill. Butter and Eggs; Yellow Toadflax. Perennial herb to 6 dm tall; leaves alternate, numerous, sessile, linear, entire, 2-5 cm long; inflorescence a many-flowered raceme; calyx 5-lobed; corolla strongly bilabiate, spurred, 2-3 cm long, upper lip erect, 2-lobed, yellow, lower lip 3-lobed, yellow, with a prominent orange, pubescent palate; stamens 4; fruit a capsule 8-12 mm long. Occasional in fields, waste places and roadsides.

4. PEDICULARIS L. Lousewort.

1. Pedicularis canadensis L. Wood Betony. Perennial herb to 3 dm tall; leaves basal and alternate, pubescent, pinnately lobed, the lower petioled, the upper nearly sessile; flowers 2 cm



Chaenorrhinum minus



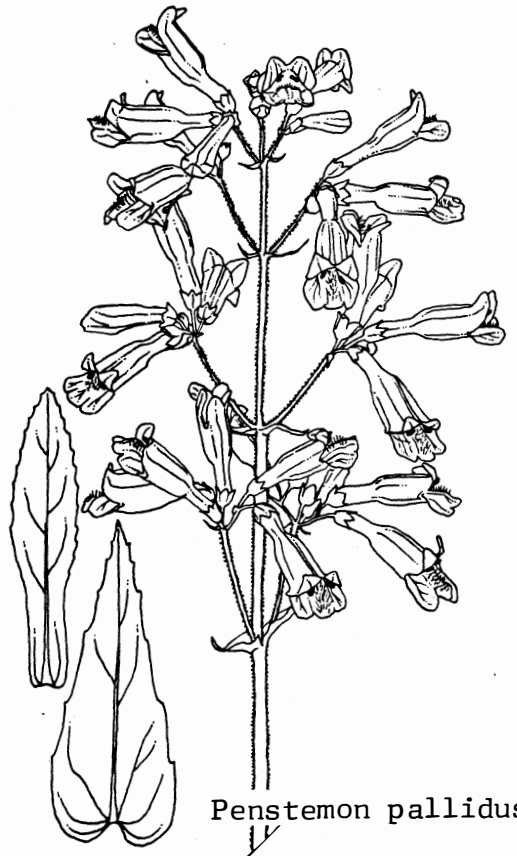
Collinsia verna



Linaria vulgaris



Penstemon digitalis



Penstemon pallidus

long, in a compact spike; calyx tubular, oblique, unlobed; corolla strongly bilabiate, yellow, sometimes tinged with purple, the upper lip 2-lobed, arching over the lower, 3-lobed lip; stamens 4, didynamous, beneath the upper lip; fruit a capsule, to 15 mm long. Rare in upland woods and wooded, rocky hillsides.

5. PENSTEMON Mitch. Penstemon; Beard-tongue.

a. Stem and leaves glabrous or nearly so.....1. P. digitalis

a. Stem and leaves strongly puberulent.....2. P. pallidus

1. Penstemon digitalis Nutt. Foxglove Penstemon. Perennial, glabrous herb to 1 dm tall; leaves opposite, sessile, oblong to lanceolate, finely serrate, to 15 cm long; flowers in a loose panicle; corolla tubular, bilabiate, white to violet, marked with purple in a throat, 2-3 cm long, upper lip 2-lobed, lower lip 3-lobed; fertile stamens 4, didynamous, sterile stamen 1; fruit a capsule about 1 cm long. Fairly common on roadsides and in fields.

2. Penstemon pallidus Small. Perennial, pubescent herb to 8 dm tall; leaves opposite, sessile, lanceolate, finely serrate, to 1 dm long; flowers in open panicles; corolla tubular, bilabiate, white, marked with purple, throat 1.7-2.2 cm long, upper lip 2-lobed, lower lip 3-lobed; fertile stamens 4, didynamous, sterile stamen 1; fruit a capsule to 1 cm long. Occasional in dry open woods.

6. VERONICA L. Speedwell; Veronica.

a. Flowers blue; leaves ovate.....1. V. arvensis

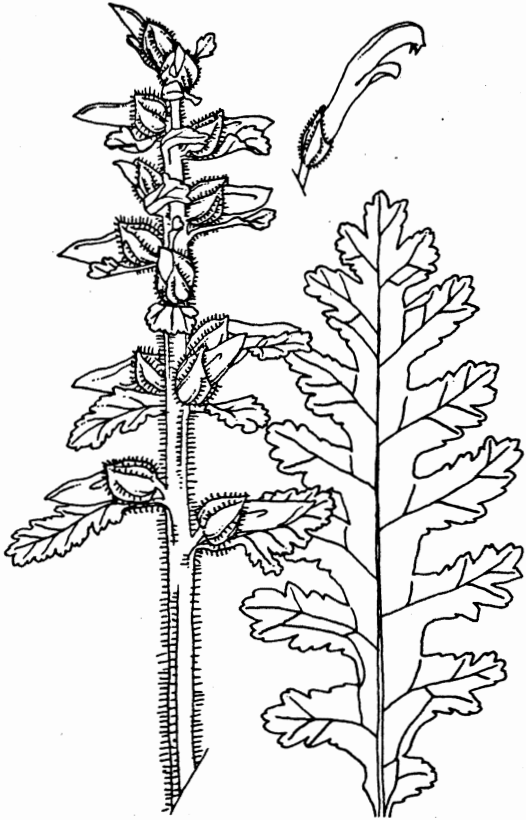
a. Flowers white; leaves oblong.....2. V. peregrina

1. Veronica arvensis L. Corn Speedwell. Annual, pubescent herb to 3 cm tall; leaves opposite, ovate, 6-10 mm long, petioled below, sessile above; flowers solitary in the axils of the upper leaves; calyx deeply 4-lobed; corolla blue, weakly bilabiate, 4-lobed, 2 mm wide; stamens 2; fruit a flattened, heart-shaped capsule 3-4 mm wide. Common in lawns, fields and waste places.

2. Veronica peregrina L. Purslane Speedwell. Annual, glabrous herb to 3 dm tall; leaves opposite, sessile, narrowly oblong to oblanceolate, 2-3 cm long; flowers solitary in the axils of upper leaves, calyx deeply 4-lobed; corolla white, weakly bilabiate, 4-lobed, about 3 mm wide; stamens 2; fruit a flattened, heart-shaped capsule 3-4 mm wide. Common in gardens, fields, and waste places.

44. SOLANACEAE Potato Family

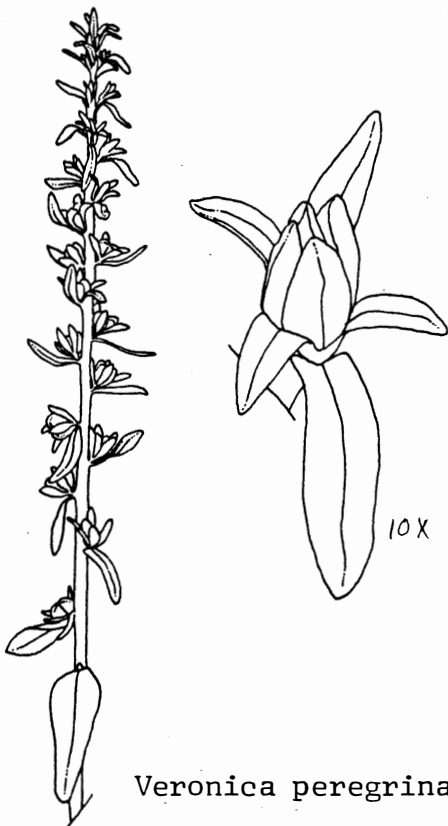
Herbs and occasionally shrubs, with mostly alternate, simple exstipulate leaves; flowers perfect, hypogynous, complete,



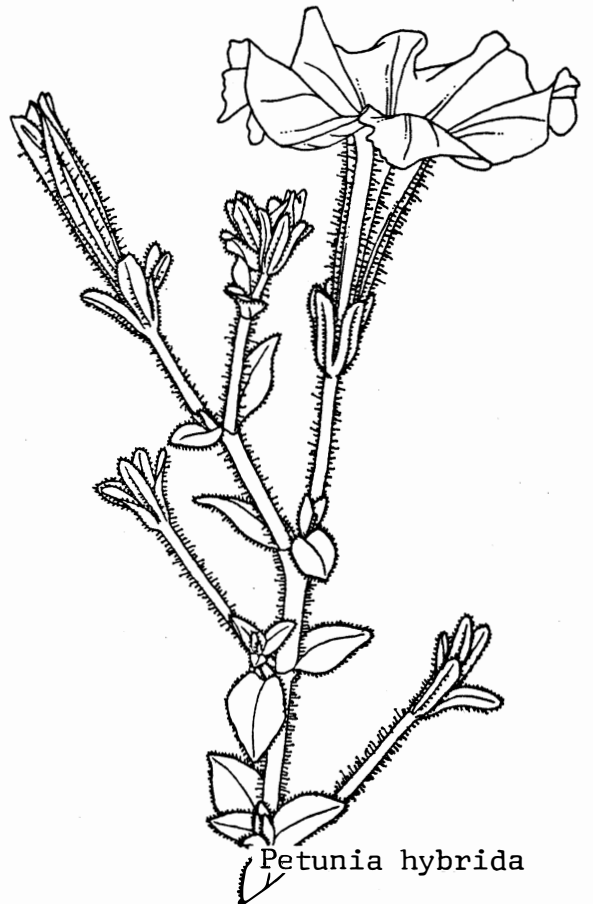
Pedicularis canadensis



Veronica arvensis



Veronica peregrina



Petunia hybrida

5-merous, sympetalous, mostly regular; calyx 5-lobed, stamens usually 5, epipetalous and alternate with the lobes; ovary usually 2-celled; fruit a capsule or berry.

1. PETUNIA Juss.

1. Petunia hybrida Vilm. Petunia. Strongly pubescent herb to 4 dm tall; leaves alternate or falsely opposite, simple, ovate to oblong, 2-6 cm long, entire; flowers axillary, calyx with 5 distinct, linear-oblong lobes; corolla salverform, shallowly 5-lobed, 4-9 cm long, various colors from white to violet and red. Commonly cultivated and rarely appearing spontaneously in our range.

45. UMBELLIFERAE Parsley Family

Aromatic annual and perennial herb with alternate and basal compound leaves; petioles usually dilated and sheathing; flowers small, arranged in simple or compound umbels, perfect; epigynous, complete or incomplete, 5-merous, polypetalous, regular; sepals often reduced or absent; stamens 5, inserted on the disk at the top of the ovary; ovary 2-celled; styles 2; fruit a shizocarp consisting of 2 indehiscent, small, 1-seeded fruits (mericarps).

a. Flowers white.

b. Fruit 2-4 times longer than wide.

c. Fruit covered with straight bristles.....3. Osmorhiza

c. Fruit lacking bristles.....1. Chaerophyllum

b. Fruit less than twice as long as wide.....2. Erigenia

a. Flowers yellow.

d. Leaves palmately compound; fruit covered with hooked bristles.

e. Leaves pinnately compound; fruit 5-8 mm long.....

.....4. Pastinaca

- e. Leaves ternately compound; fruit 3-4 mm long.
- f. Leaflets entire; all of the flowers of the umbellet
pedicelled.....6. Taenidia
- f. Leaflets serrate; central flower of the umbellet
sessile.....7. Zizia

1. CHAEROPHYLLUM L. Chervil.

1. Chaerophyllum procumbens (L.) Crantz. Annual, weak stemmed herb to 6 dm long; leaves ternately decomposed, the leaflets pinnatifid; flowers in terminal and lateral, mostly compound umbels with 1-3 primary rays; involucre absent; umbellets few-flowered, involucre of few conspicuous bracts; calyx absent; petals white; fruit elliptic, slightly flattened, 6-10 mm long, about 4 times as long as wide. Common in moist woods and waste places.

2. ERIGENIA Nutt. Harbinger-of-spring.

1. Erigenia bulbosa (Michx.) Nutt. Perennial herb usually less than 1 dm tall; globose tuber present; leaves 1 to few, ternately decomposed; flowers in a sessile, terminal, compound umbel subtended by a reduced leaf; umbellets 2-4, each subtended by a persistent involucre; calyx reduced to a ridge; petals white; anthers black; styles persistent, recurved; fruit flattened, to 5 mm wide. Occasional in moist woods.

3. OSMORHIZA Raf. Sweet Cicely.

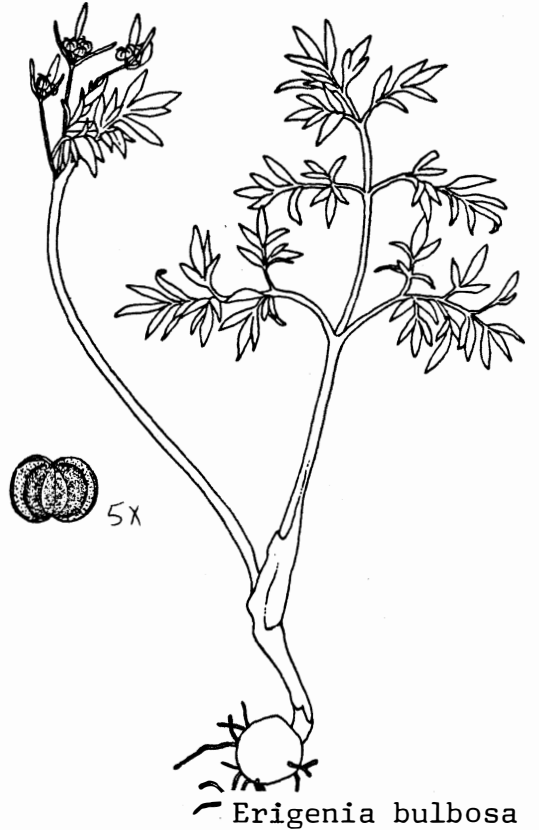
- a. Styles less than 1.5 mm long.....1. O. claytonii
- a. Styles 2-4 mm long.....2. O. longistylis

1. Osmorhiza claytonii (Michx.) Clarke. Perennial, pubescent herb to 9 dm tall; leaves twice ternately compound, leaflets ovate, 3-7 cm long, coarsely serrate; umbels compound, terminal and lateral, peduncled; involucral bracts linear, pubescent; umbellets usually 3, few-flowered, involucre present; sepals absent; petals white, 1.5 mm long; style less than 1.5 cm long; fruit 2-2.5 cm long, about 4 times longer than wide, covered with appressed bristles. Fairly common in moist woods.

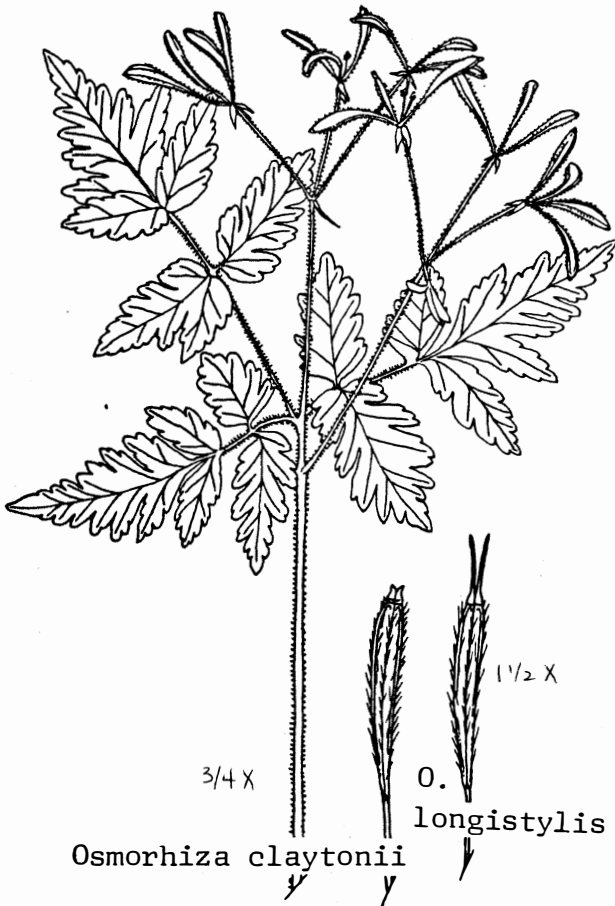
2. Osmorhiza longistylis (Torr.) DC. Perennial, glabrous to pubescent herb to 1.2 dm tall; leaves twice ternately compound, leaflets ovate, 4-7 cm long, coarsely serrate; umbels compound, terminal and lateral, peduncled; involucral bracts lanceolate, pubescent; sepals absent; petals white, 2mm long; style 2-4 mm



Chaerophyllum procumbens

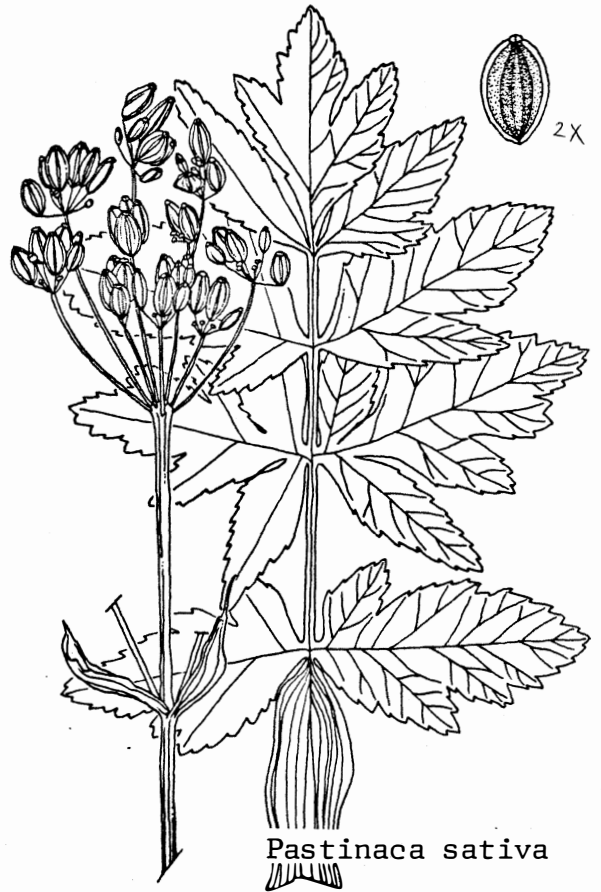


Erigenia bulbosa



Osmorhiza claytonii

O. longistylis



Pastinaca sativa

long; fruit about 2 cm long; about 4 times longer than wide, covered with appressed bristles. Fairly common in moist woods.

4. PASTINACA L. Parsnip.

1. Pastinaca sativa L. Wild Parsnip. Glabrous, biennial herb to 15 dm tall; leaves pinnately compound, petioled; leaflets ovate, 5-10 cm long, coarsely serrate and commonly lobed; umbels terminal and lateral, peduncled, 1-2 dm wide, involucre absent; umbellets numerous, involucre absent; sepals minute or absent; petals yellow; fruit elliptical to oval, flattened, broadly winged, 5-8 mm long. Common on roadside, fields and waste places.

5. SANICULA L. Sanicle; Snakeroot.

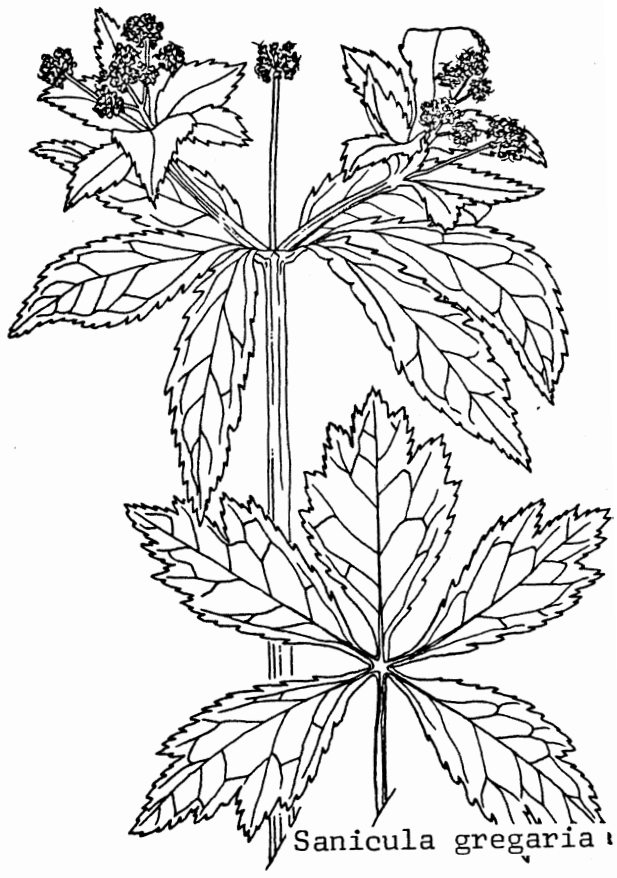
1. Sanicula gregaria Bickn. Common Snakeroot. Perennial, glabrous herb to 7 dm tall; leaves palmately compound, the basal long petioled, the upper cauline sessile; leaflets 3-5, lanceolate, coarsely serrate to lobed; umbels compound, terminal, irregular and appearing paniculate; involucre foliaceous; umbellets subcapitate, usually with 2-4 perfect and several staminate flowers; calyx lobes ovate; petals greenish-yellow, longer than the sepals; fruit subglobose, 3 mm long, covered with hooked bristles; styles recurved, longer than the bristles. Common in moist woods.

6. TAENIDIA Drude.

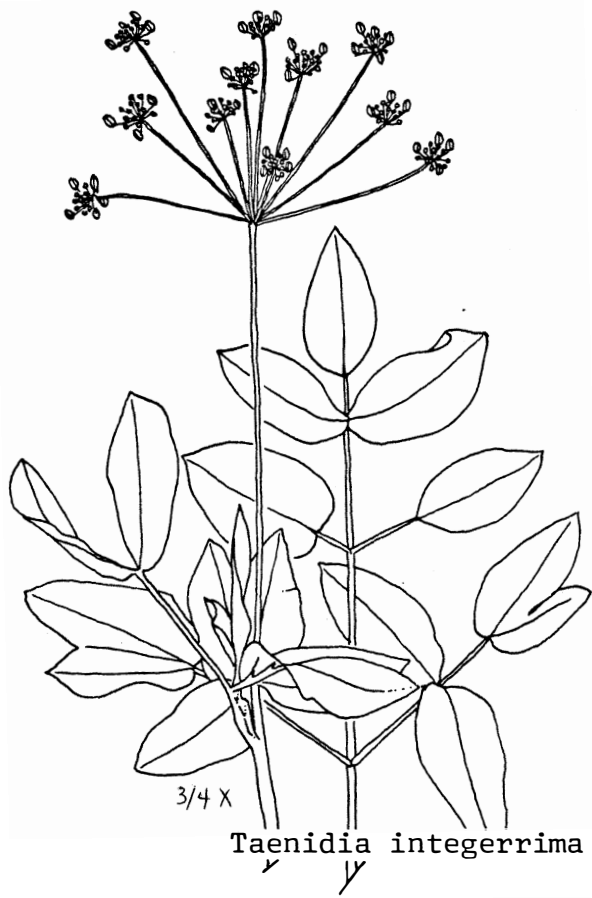
1. Taenidia integerrima (L.) Drude. Glabrous, perennial herb to 9 dm tall; leaves 2-3-ternately compound, basal long-petioled, the upper nearly sessile; leaflets ovate to oblong, entire, 2-4 cm long; umbels terminal and lateral, long peduncled, loose, irregular, involucre absent; umbellets 5-12, many-flowered, involucre absent, inner flowers staminate, the outer perfect; calyx reduced; petals yellow; fruit elliptic, flattened, 3-4 mm long. Occasional in dry, open woods.

7. ZIZIA Koch. Golden-alexanders.

1. Zizia aurea (L.) Koch. Glabrous, perennial herb to 10 dm tall; leaves 1-2-ternately compound, the basal long-petioled, the upper nearly sessile; leaflets ovate to lanceolate, serrate and sometimes lobed; umbels mostly terminal, peduncled, involucre absent; umbellets numerous, many-flowered, involucre present, small; calyx reduced; petals bright yellow; fruit oblong, flattened, 3-4 mm long. Common in fields, open woods, and along roadsides.

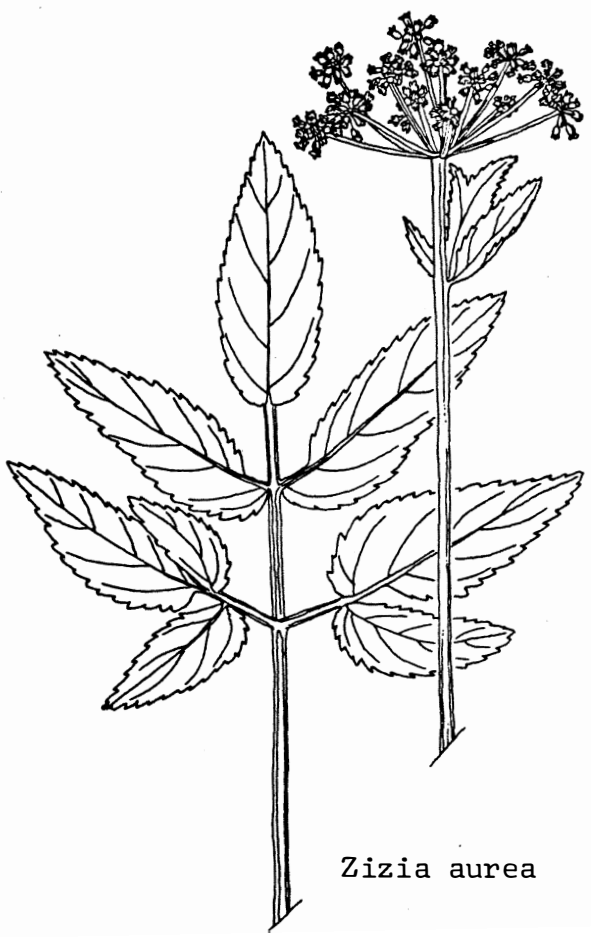


Sanicula gregaria

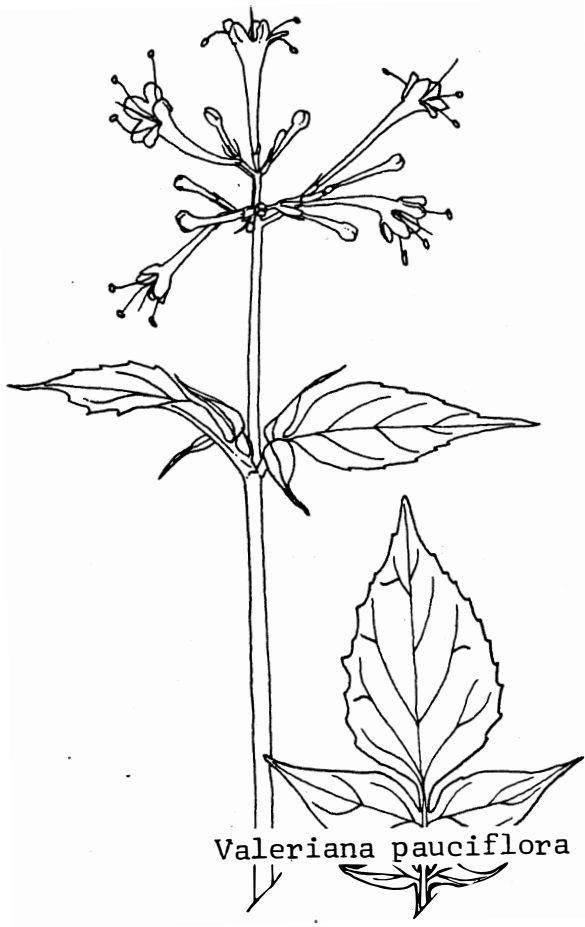


3/4 X

Taenidia integerrima



Zizia aurea



Valeriana pauciflora

46. VALERIANACEAE Valerian Family

Mostly annual and perennial herbs; leaves opposite, simple or pinnately compound, exstipulate; inflorescence a terminal panicle or capitate cyme; flowers perfect or monoecious, epigynous, mostly 5-merous, sympetalous, regular or slightly irregular; calyx very small or absent, sometimes becoming enlarged and plumose in fruit; corolla usually salverform or funnelform, commonly slightly saccate at base; stamens 1-4, epipetalous, alternate with the lobes; ovary 3-celled, but usually only 1 cell fertile; fruit an achene.

a. Stem leaves compound.....1. Valeriana

a. Stem leaves simple.....2. Valerianella

1. VALERIANA L. Valerian.

1. Valeriana pauciflora Michx. Perennial herb to 6 dm tall; ill-scented, slender rhizomes present; basal leaves petioled, ovate, cordate, 5-8 cm long; cauline leaves pinnately compound with 3-7 ovate to deltoid leaflets; inflorescence a terminal compact panicle; calyx becoming enlarged in fruit; corolla funnelform, 15-20 mm long, white to light pink, slightly saccate at base. Rare in moist woods and wooded ravines.

2. VALERIANELLA Mill. Corn Salad.

1. Valerianella radiata (L.) Dufr. Dichotomously branched, annual herb to 4 dm tall; leaves opposite, sessile, oblong to spatulate, glabrous, remotely serrate, 2-4 cm long, 5-10 mm wide; inflorescence a terminal capitate cyme subtended by small bracts; calyx absent; corolla funnelform, 1-3 mm long, white. Occasional in moist, lowland field.

47. VERBENACEAE Vervain Family

Mostly perennial herbs with angular stems; leaves opposite or whorled, usually simple, exstipulate; flowers perfect, hypogynous, complete, 4- or 5-merous, sympetalous, irregular, produced in spikes or heads; stamens 2-4, epipetalous, often

didynamous, alternate with the lobes; fruit variable.

1. VERBENA L. Vervain.

1. Verbena canadensis (L.) Britt. Perennial herb to 4 dm tall; stem decumbent to ascending, much branched, pubescent; leaves opposite, petioled, 3-7 cm long, pubescent, deeply toothed to pinnatifid, base narrowly cuneate; flowers slightly irregular in loose, terminal spikes; calyx tube long, lobes linear; corolla salverform, pink, blue, or white, the tube about 2 cm long; fruit a schizocarp of 4 nutlets, 3-4 mm long. Rare in open areas; sometimes planted.

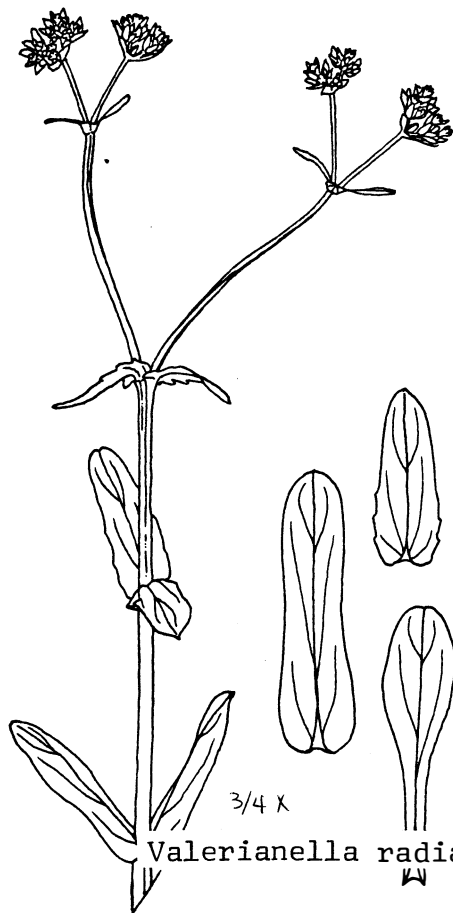
48. VIOLACEAE Violet Family

Mostly annual or perennial herbs; leaves basal or cauline and alternate, simple, petioled; stipules usually foliaceous; flowers perfect, perigynous, complete, 5-merous, polypetalous, mostly irregular; sepals 5, distinct, persistent, usually auricled; petals 5, the lower one larger and sometimes spurred; stamens 5, connivent around the pistil, the filaments usually dilated and sometimes connate into a short tube, the lower two sometimes spurred; pistil with a single stigma and style; cleistogamous flowers commonly present; fruit usually a 3-valved capsule.

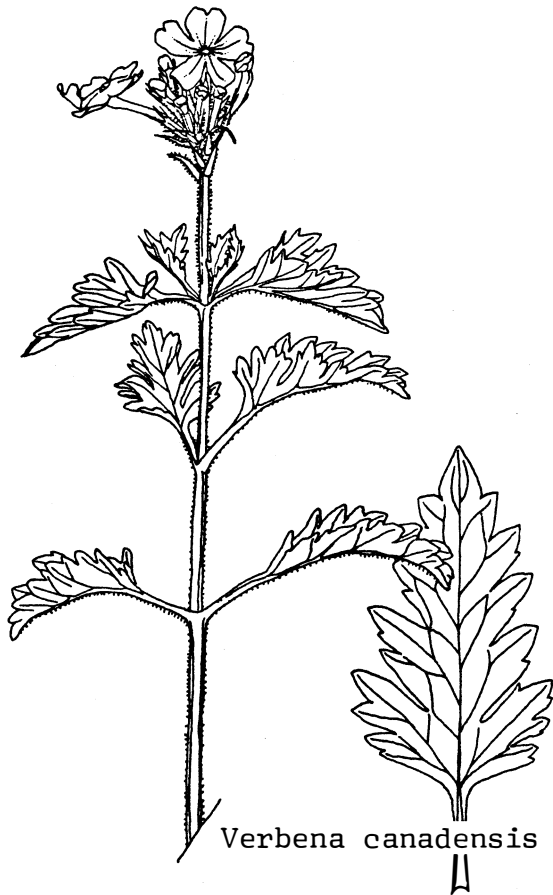
- a. Flowers greenish; sepals lacking auricles; filaments united into a sheath.....1. Hybanthus
- a. Flowers violet, white or yellow; sepals with auricles; filaments not united.....2. Viola

1. HYBANTHUS Jacq. Green Violet.

1. Hybanthus concolor (Forst.) Spreng. Perennial herb to 1 m tall; leaves alternate, elliptic, pubescent, 6-16 cm long, entire; petioles 1-3 cm long; flowers nodding, 4-5 mm long, 1-few in the axils of the upper leaves; sepals small, linear; petals greenish, linear-lanceolate, the tips recurved; anthers united into a tube surrounding the pistil; fruit a 3-valved capsule 1.5-2 cm long. Occasional in moist, lowland woods.



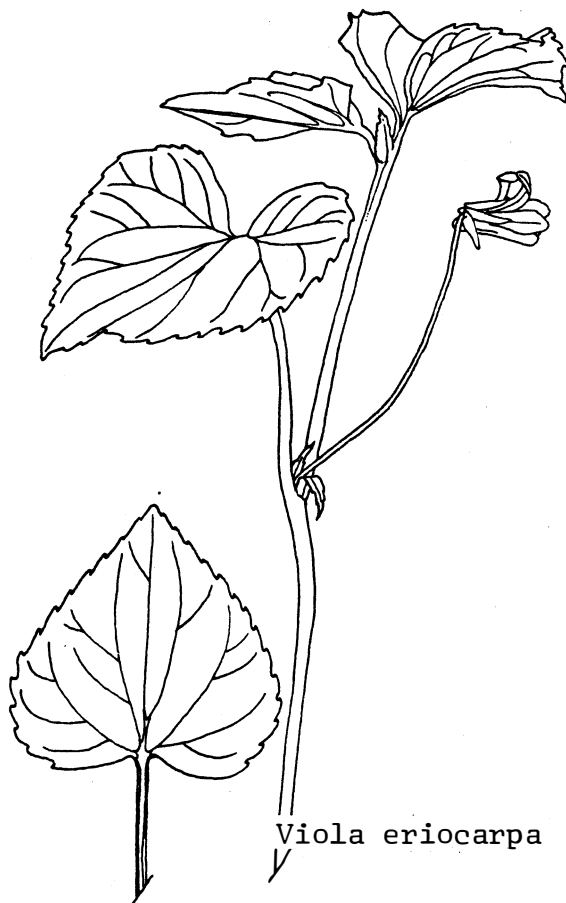
Valerianella radiata



Verbena canadensis



Hybanthus concolor



Viola eriocarpa

2. VIOLA L. Violet

- a. Plants with a leafy stem; flowers axillary.
 - b. Annual; stem leaves obovate, less than 1 cm wide.....
.....7. V. rafinesquii
 - b. Perennial; leaves broadly ovate, more than 2 cm wide.
 - c. Flowers yellow; stipules entire to shallowly
toothed.....1. V. eriocarpa
 - c. Flowers white to cream; stipules fimbriate-toothed..
.....9. V. striata
- a. Plants apparently stemless, the leaves and flowers arising
from an underground rhizome.
 - d. Leaves more or less lobed or dissected.
 - e. Leaves lobed, the divisions linear.
 - f. Lateral petals bearded.....6. V. pedatifida
 - f. All petals beardless.....5. V. pedata
 - e. Leaves lobed, the divisions not linear.....
.....2. V. falcata
 - d. Leaves not lobed or dissected
 - g. Leaves distinctly deltoid.....3. V. missouriensis
 - g. Leaves ovate, broadly ovate to reniform.
 - h. Plants glabrous or nearly so..4. V. papilionacea
 - h. Plants strongly pubescent.....8. V. sororia

1. Viola eriocarpa Schw. Common Yellow Violet. Lightly pubescent, perennial herb to 4 dm tall; stem erect from a brown, woody rhizome; basal and cauline leaves similar, 2-6 cm broad, broadly ovate, cordate, crenate; stipules foliaceous, broadly ovate to laceolate, entire to shallowly toothed; flowers on elongated peduncles, yellow, marked with purple-brown veins; lateral petals bearded; cleistogamous flowers absent. Occasional in open woods and fields.

2. Viola falcata Greene. Perennial, lightly pubescent herb to 3 dm tall, from a short rhizome; leaves basal, broadly ovate in outline, pubescent beneath, usually of two kinds, the earliest and later not lobed, the others 3-7 lobed, the lobes broad, coarsely-toothed; flowers usually deep violet, 2-3 cm wide, the lateral petals bearded; cleistogamous flowers on prostrate peduncles. Occasional in moist, open woods.

3. Viola missouriensis Greene. Perennial, glabrous herb to 2 dm tall, from short, horizontal rhizomes; leaves basal, deltoid, crenate, glabrous, 2-6 cm wide, cordate, apex acuminate; flowers pale-violet with a darker zone around a white center, 2-3 cm wide; cleistogamous flowers on prostrate peduncles. Rare in floodplain and lowland woods.

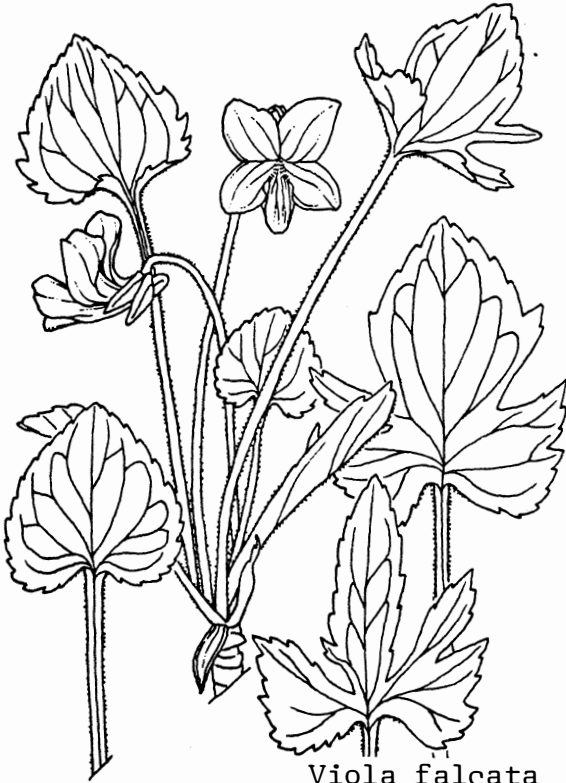
4. Viola papilionacea Pursh. Meadow Violet; Common Blue Violet; Perennial, glabrous herb to 3 dm tall from a stout horizontal rhizome; leaves basal, broadly ovate to reniform, crenate 2-10 cm wide, cordate, apex acute; flowers usually violet, 2-3 cm wide; cleistogamous flowers on prostrate peduncles. Extremely common in moist woods, fields and roadsides.

5. Viola pedata L. Bird-foot Violet. Perennial, mostly glabrous herb to 2 dm tall, from a short, vertical rhizome; leaves basal, palmately dissected into 9-15 linear to narrowly lanceolate lobes; flowers lilac-purple, 2-5 cm wide, all the petals beardless, the tips of the stamens conspicuously exerted from the flower; cleistogamous flowers absent. Occasional in open woods and dry fields.

6. Viola pedatifida Don. Prairie Violet. Perennial, mostly glabrous herb to 2 dm tall, from a short vertical rhizome; leaves basal, palmately dissected into 9-12 linear lobes, these sometimes further divided; flowers violet, commonly with some white, 2-4 cm wide; the lower 3 petals bearded; cleistogamous flowers on erect peduncles. Rare in prairie soil.

7. Viola rafinesquii Greene. Johnny-jump-up; Wild Pansy. Annual, lightly pubescent herb usually less than 2 dm tall; stem erect, mostly branched from the base; cauline leaves about 1 cm wide, obovate to spatulate, entire to slightly crenate; basal leaves orbicular, crenate; stipules foliaceous, deeply pinnatifid with linear lobes; flowers long-peduncled, white to cream in the center, violet at the edges. Occasional in open fields, roadsides and waste places.

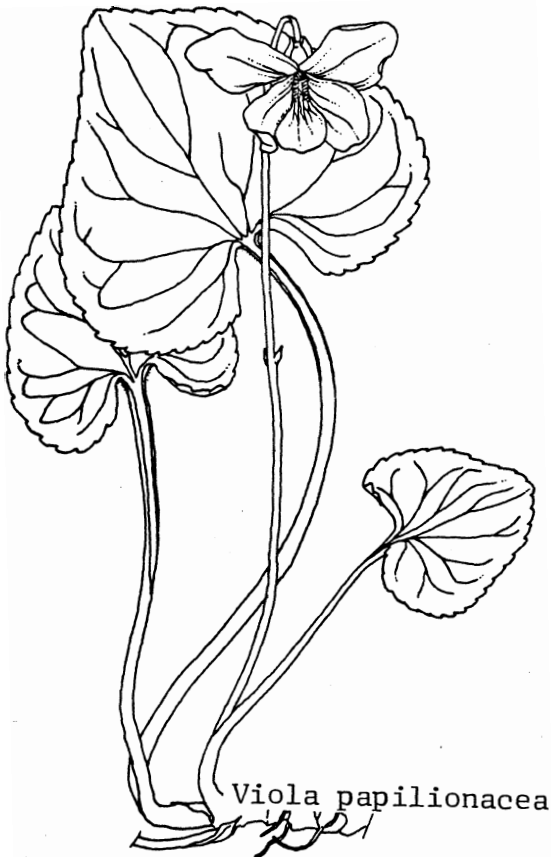
8. Viola sororia Willd. Downy Blue Violet; Woolly Blue Violet. Perennial, densely pubescent herb to 2 dm tall, from a stout, horizontal rhizome; leaves basal, ovate to orbicular, 2-8 cm wide, crenate, cordate, apex acute; flowers violet with a white center, 2-3 cm wide; cleistogamous flowers on prostrate peduncles. Common in moist woods and roadsides.



Viola falcata



Viola missouriensis



Viola papilionacea



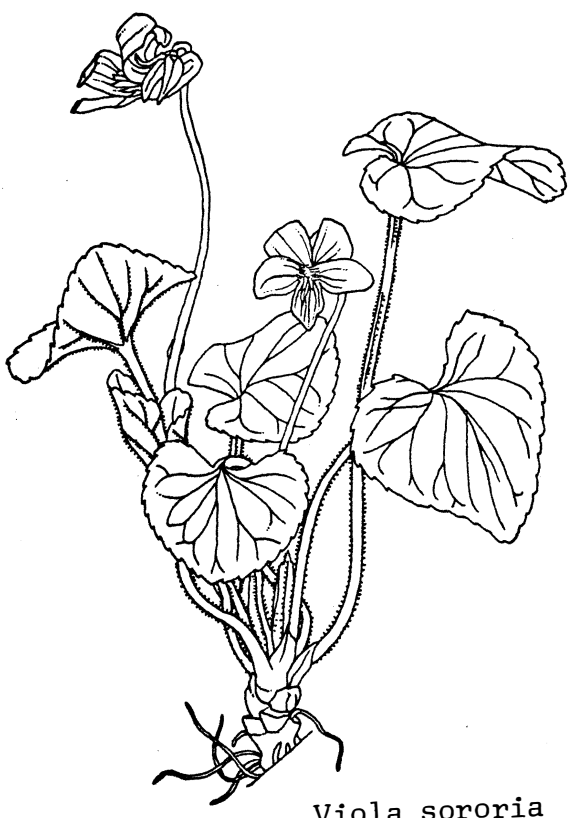
Viola pedata



Viola pedatifida



Viola rafinesquii



Viola sororia



Viola striata

9. Viola striata Ait. White Stemmed Violet; Cream Violet. Nearly glabrous, perennial herb to 5 dm tall; stem erect from a short, brown rhizome; basal and cauline leaves similar, to 5 cm wide, ovate to broadly ovate or orbicular, cordate, crenate; stipules foliaceous, narrowly lanceolate, fimbriate-toothed; flowers on elongated peduncles, white to cream, marked with purple-brown veins; lateral petals bearded; cleistogamous flowers developing later in the season. Occasional in moist woods and wooded ravines.

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Jones, G.N. Flora of Illinois. Notre Dame, Indiana: The University of Notre Dame Press, 1963.