

## 2. SCUTELLARIA L.

- a. Flowers in axillary one-sided racemes, 3-8 mm long; middle stem-leaves with petioles 3-8 mm long. 1. *S. lateriflora*  
 a. Flowers solitary in the axils of the upper leaves, 17-22 mm long; middle stem-leaves nearly sessile. 2. *S. epilobiifolia*

### 1. *S. lateriflora* L. SKULLCAP. Fig. 101, c.

Common throughout; marshes, along streams, lakes, borders, river thickets, and rich ground. July-Aug.

Nfld. to B. C. south to Fla. & N. M.

### 2. *S. epilobiifolia* Hamil., see Fernald, *Rhodora* 23: 85-86. 1921. Fig. 101, b.

Common throughout, in much the same situations as the preceding species. July 15-Aug. (*S. galericulata* L. of some authors).

Nfld. to B. C. south to N. C., Ohio, & Ariz.

## 3. NEPETA L.

- a. Plant creeping; flowers axillary, blue.  
 b. Corolla 1.6-2.2 cm long; leaves green. 1. *N. hederacea*  
 b. Corolla 1-1.5 cm long; leaves reddish.

*N. hederacea* var. *parviflora*

- a. Plant erect; flowers in terminal and axillary spikes, pale purplish or white, dotted with dark dots. 2. *N. Cataria*

### 1. *N. hederacea* (L.) Trev. GROUND IVY, GILL. Fig. 101, d.

Rare, and only occasionally seen, generally growing in shady, rather rich soil; Arcadia, Yarmouth Co.; Earltown, Colchester Co., abundant in rich thickets. (*Glecoma hederacea* L.) Introduced from Eu.; scattered in eastern N. A.

Var. *parviflora* (Benth.) Druce, see Fernald, *Rhodora* 23: 289. 1921, is a very common weed around buildings, often in shady places, on roadsides and in fields. It is mostly a weed around habitations where it forms large patches almost impossible to eradicate. May 1-Aug.

Nfld. to Minn. & Ore. south to Ga., Kans. & Colo.; introduced from Eu.

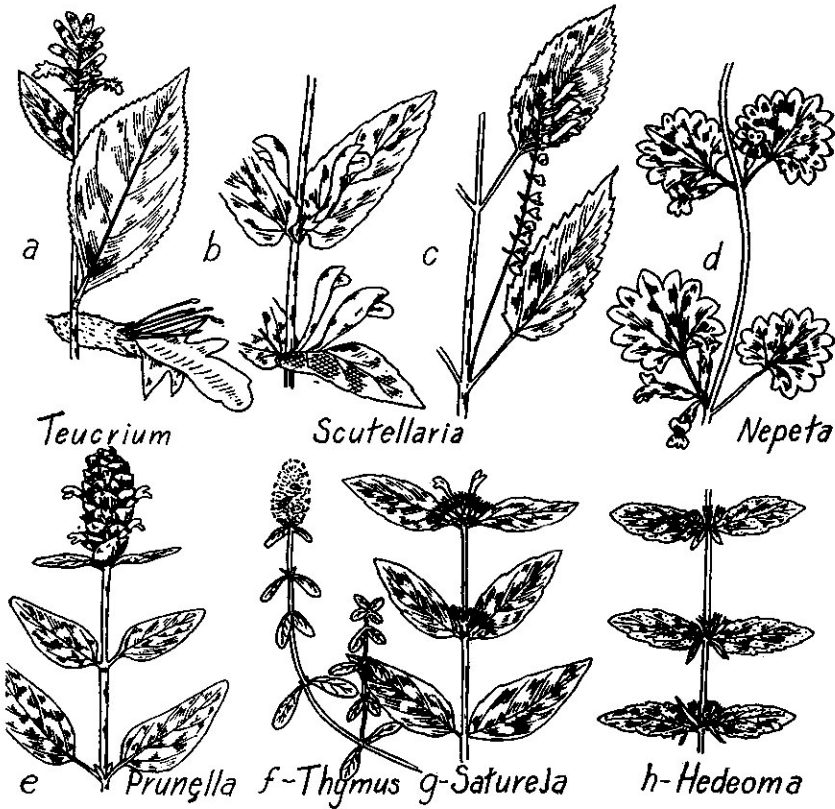


Fig. 101.—*Teucrium*. a, *T. canadense*, x  $\frac{1}{2}$ : flower enlarged. *Scutellaria*. b, *S. epilobiifolia*, part of plant, x 1. c, *S. lateriflora*, x  $\frac{1}{2}$ . *Nepeta*. d, *N. hederacea*, x  $\frac{1}{2}$ . *Prunella*. e, *P. vulgaris*, x  $\frac{1}{2}$ . *Thymus*. f, *T. Serpyllum*, x  $\frac{1}{2}$ . *Satureja*. g, *S. vulgaris*, x  $\frac{1}{2}$ . *Hedeoma*. h, *H. pulegioides*, one third of plant, x 1.

2. *N. Cataria* L. CATNIP.

Waste places throughout; rare, usually in small patches near dwellings and showing little tendency to spread. Above Cheticamp, northern C. B., it is found spreading along roadsides and over the talus of cliffs. July-Sept.

Naturalized from Eu.; Nfld. to Ore. south to Ga., Kans. & Utah.

4. **PRUNELLA** L.

Fernald, M. L. The indigenous varieties of *Prunella vulgaris* in North America. *Rhodora* 15: 179-186. 1913.



- a. Principal and median stem-leaves ovate or ovate-oblong, rounded at the base, two-fifths to two-thirds as broad as long.

1. *P. vulgaris*

- a. Principal and median stem-leaves lanceolate to oblong, gradually narrowed or cuneate at the base, one-fifth to one-half as broad as long.

*P. vulgaris* var. *lanceolata*

1. ***P. vulgaris* L.** HEAL-ALL, SELF-HEAL. Fig. 101, e.

Scattered, usually in shady places and thickets, in rich soil or rarely as a weed in fields or gardens. Introduced from Eu.; Nfld. to Minn. south to N. C.; Mex.

Var. ***lanceolata*** (Barton) Fern. is considered to be native; common throughout, often a weed; fields, roadsides pastures and thickets. Forma ***candida*** Fern., l. c., with white corollas, is scattered on the west coast of C. B., and common around Pleasant Bay. Forma ***iodocalyx*** Fern., with the calyx purplish, seems to be merely a sun form. Most of the records for *P. vulgaris* belong to the variety rather than the species.

Nfld. to Minn. & B. C. south to Fla. & Ariz.

## 5. GALEOPSIS L.

1. ***G. Tetrahit* L., var. *bifida*** (Boenn.) Lej. & Court., see *Rhodora* 12: 141-142. 1910. HEMP NETTLE. Fig. 102, a.

Very common throughout, and a bad weed of gardens. The typical variety with flowers commonly white, larger corolla and calyx, and leaves rounded at the base instead of cuneate, has not been collected in the province although it is occasionally introduced from Nfld. to Ont. & Me. July-Sept.

Introduced from Eu.; Nfld. to Alaska south to N. C. & Mich.

## 6. LAMIUM L.

- a. Upper leaves petioled, crowded. 1. *L. purpureum*  
a. Upper leaves sessile and clasping. 2. *L. amplexicaule*

1. ***L. purpureum* L.** HENBIT, RED DEAD NETTLE.

Occasionally found on waste ground or ballast heaps; North Sydney, Pictou; and Quoddy, Halifax Co. July-Aug. Introduced from Eurasia; scattered.

2. **L. amplexicaule** L. HENBIT NETTLE.

Known only from Bridgewater where it was collected by Groh in waste ground. A small cleistogamous form exists around the Agricultural College at Truro and continues to flower until winter. This is forma **clandestinum** (Reichenb.) G. Beck.

Introduced from Eurasia; N. S. to B. C. south to Fla. & Calif.

7. **LEONURUS** L.

1. **L. Cardiaca** L. MOTHERWORT. Fig. 102, h.

Scattered around old houses and gardens, rarely becoming a weed in cultivated land and showing little tendency to spread.

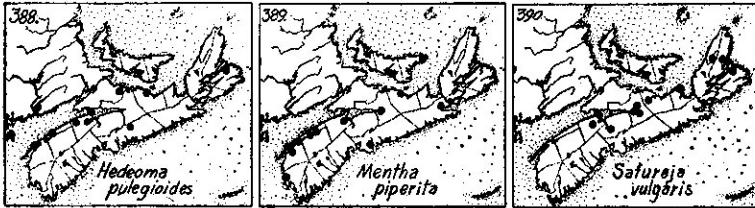
Introduced from Eu.; N. S. to N. Dak. & Utah south to N. C. & Kans.

8. **STACHYS** (Tourn.) L.

1. **S. palustris** L. WOUNDWORT, HEDGE NETTLE. Map 384. Fig. 102, e.

Roadside ditches and rich thickets or orchards, around sea-ports and shores in many parts of the province; luxuriant in some of the orchards of the Annapolis Valley, scattered elsewhere. July-Aug.

Introduced from Eu.; Nfld. to Ottawa south near the coast to N. J.



9. **HEDEOMA** Pers.

1. **H. pulegioides** (L.) Pers. AMERICAN PENNYROYAL. Map 388. Fig. 101, h.

This aromatic plant is characteristic of stony soil and upland pastures throughout the northern part of the province; occasional near the sea-shores. Aug.

N. S. to N. D. south to Fla., Ala. & Ark.

### 10. SATUREJA (Tourn.)L.

1. **S. vulgaris** (L.) Fritsch., var. **neogaea** Fern., *Rhodora* 46: 388. 1944. BASIL, CALAMINT. Map 390. Fig. 101, g.

Characteristic of grassland, pastures and borders of woods, usually on hillsides; Annapolis Co. to northern C. B., unknown in the southwestern counties. July-Aug. The American variety.

Nfld. to Man. south to Va. & Ind.

### 11. THYMUS (Tourn.) L.

1. **T. Serpyllum** L. THYME. Fig. 101, f.

This plant, reported from Cumberland Co. by Macoun over forty years ago, is now a common weed throughout the northern part of the county, where it forms large colonies and frequently covers roadsides, pastures and waste places. July-Aug.

N. S. to N. Y. & N. C.; introduced from Eu.

### 12. LYCOPUS (Tourn.) L.

a. Calyx-teeth tipped with spines, surpassing the nutlets; leaves usually lobed halfway to the middle. 1. *L. americanus*

a. Calyx-teeth short and triangular, not tipped, shorter than the mature nutlets.

b. Leaves thin, shallowly toothed, the lower lanceolate to lance-oblong. 2. *L. uniflorus*

b. Leaves thick, somewhat fleshy, the lower ovate and sparingly or not at all toothed. *L. uniflorus* var. *ovatus*

1. **L. americanus** Muhl. WATER HOREHOUND. Fig. 102, f.

Common throughout; wet meadows, swamps, and sometimes brackish places, along brooks and in the margin of the sphagnum mat of ponds. July-Sept.

Nfld. to B. C. south to Fla., Tex. & Calif.

2. **L. uniflorus** Michx. BUGLE-WEED. Map 391. Fig. 102, g.

Common throughout in swamps, wet ditches, low ground and along streams, showing great variation in habitat and habit. Plants growing in shady places, with leaves larger and thinner, have been named *L. membranaceus* Bickn. Plants in sterile uplands and sandy areas are small, have thick leaves, and are often sterile. A form with

the main stem and branches recurved and rooting at the tip was described from the sandy and cobbly margin of Pottle's Lake, North Sydney, and is also known from Maine. This is forma *flagellaris* Fern., *Rhodora* **23**: 290. 1921.

Var. *ovatus* Fern. & St. John, Proc. Boston Soc. Nat. Hist. **36**: 92, 1921, was described from Sable Island, and was later reported from the upper cobble-beach of Salmon L., Greenville, Yarmouth Co. (Fernald, 1921).

Nfld. to B. C. south to Va., Minn. & Ore.

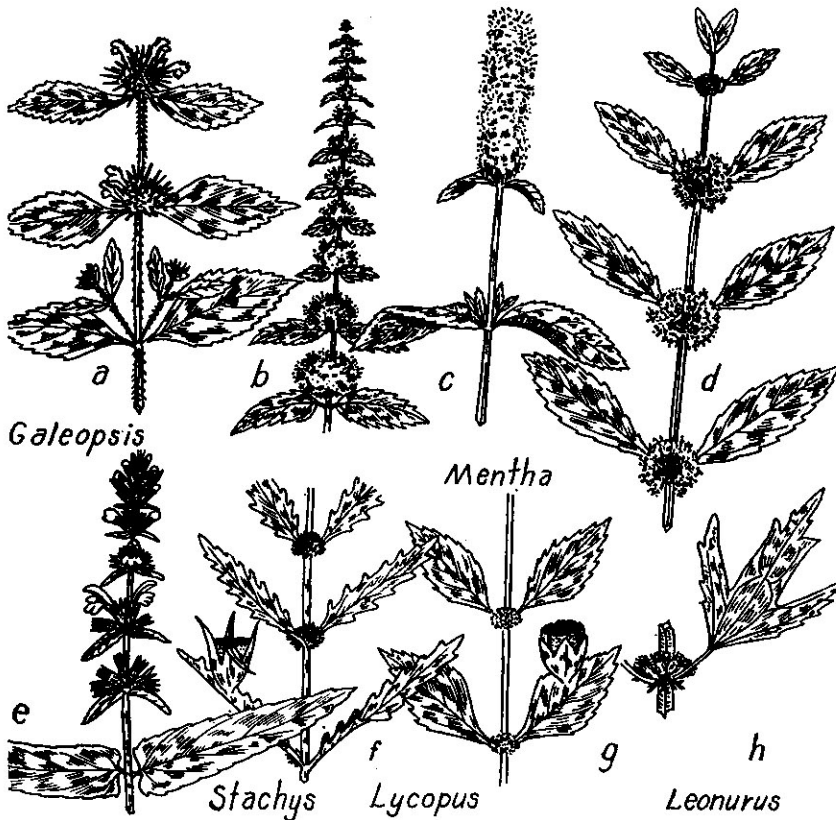


Fig. 102.—*Galeopsis*. a, *G. Tetrahit*, x  $\frac{1}{2}$ . *Mentha*. b, *M. spicata*, top of plant, x  $\frac{1}{2}$ . c, *M. piperita*, x  $\frac{1}{2}$ . d, *M. arvensis*, x  $\frac{1}{2}$ . *Stachys*. e, *S. palustris*, top of plant, x  $\frac{1}{2}$ . *Lycopus*. f, *L. americana*, x  $\frac{1}{2}$ ; flower enlarged. g, *L. uniflorus*, x  $\frac{1}{2}$ ; flower enlarged. *Leonurus*. h, *L. Cardiacus*, node, x  $\frac{1}{2}$ .

### 13. MENTHA (Tourn.) L. MINT

Stewart, Sara R. *Mentha arvensis* and some of its North American Varieties. *Rhodora* **46**: 331-335. 1944.

- a. Flower-clusters separated, not aggregated into definite spikes; middle and upper leaves twice or more as long as the clusters; leaves appearing above the uppermost flowers.
- b. Upper leaves but little smaller than the lower ones; calyx regular, smooth or but weakly pubescent in the throat; leaves with 3-6 pairs of veins.
- c. Leaves, in region of inflorescences, ovate to elliptic, with more or less rounded bases.
- d. Angles of stems more pubescent than sides; petioles, lower surfaces of leaves and stem slightly to very pubescent.
  - 1. *M. arvensis*
  - d. Angles and sides of stem more or less equally pubescent with spreading hairs 1-3.5 mm long; petioles and lower sides of the leaves more or less densely pubescent. *M. arvensis* forma *lanata*
  - c. Leaves, in region of inflorescences, lanceolate, with more or less cuneate bases.
  - e. Stem, in region of first-flowering inflorescence, pubescent on sides and angles. *M. arvensis* var. *villosa*
  - e. Stem, in region of first-flowering inflorescence, glabrous on sides, minutely pubescent on angles. *M. arvensis* var. *villosa* forma *glabrata*
  - b. Upper leaves reduced in size, usually about twice as long as the flower-clusters; calyx weakly 2-lipped, bearded in the throat; leaves with only 2-3 pairs of veins. 2. *M. Cardiac*
- a. Flower-clusters in a loose spike, or aggregated in an oblong or orbicular head at the top of the plant; uppermost leaves reduced to bracts, or absent at the upper node.
- f. Spikes short, oblong to globular, the lower flower-clusters usually slightly separated.
- g. Leaves more than twice as long as wide; stem and leaves nearly glabrous; flowers in an oblong, slightly interrupted head. 3. *M. piperita*
- g. Leaves less than twice as long as wide; stem and leaves more or less hairy; flowers in a rather wide orbicular head. 4. *M. aquatica*
- f. Spikes narrow, long, interrupted, of numerous globular clusters; leaf-petioles less than 2 mm long. 5. *M. spicata*

1. *M. arvensis* L. FIELD MINT. Fig. 102, d.

Throughout; most frequent in the Annapolis Valley where it is common in orchards, cultivated fields and low ground. Widely distributed; partly introduced and partly apparently native. Forma **lanata** (Piper) Stewart is scattered in eastern America.

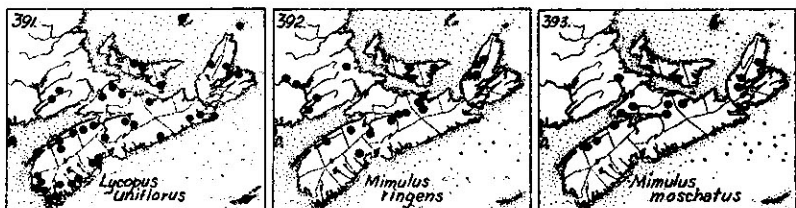
Var. **villosa** (Benth.) Stewart, is the common native plant; common along brooks, in ditches, swamps, along lake margins or outlets throughout, often affected by the rust *Puccinia Menthae*. Nfld. to Alaska south to Va., N.

M. and Calif. Forma **glabrata** (Bentham) Stewart is also widely ranging.

2. **M. Cardiaca** Gerarde

Probably common in the province; ditches, low ground around shallow ponds near habitations at least in the north-central part of the province.

Introduced from Eu.; N. S. to Penn.



3. **M. piperita** L. PEPPERMINT. Map 389. Fig. 102. c.

Scattered and rather local; wet places, along streams near open or cultivated areas.

Introduced from Eu.; N. S. to Minn. south to Fla.; etc.

4. **M. aquatica** L. WATER MINT.

Reported from Pictou by Lindsay and from Truro by Macoun; not observed in recent years. Besides this one several closely related species may be introduced; and the mints as a whole present a very varied and, for this province, little understood complex.

Introduced from Eu.; N. S. to Ga.

5. **M. spicata** L. SPEARMINT. Fig. 102, b.

Common along brooks, in wet areas, meadows and along ditches; like the other species it has been introduced from Europe and has escaped in many places throughout the province.

N. S. to Wash. south to Fla. & Calif.

## 95. SOLANACEAE NIGHTSHADE FAMILY

- a. Plant woody, climbing, with long drooping branches, without thorns; fruit a dryish orange-red berry; leaves not lobed; flowers about 1.5 cm wide. 4. *Lycium*
- a. Plants herbaceous (or partly woody and climbing, with lobed leaves in *S. Dulcamara*); fruit a fleshy berry or large capsule.
- b. Corolla wheel-shaped (rotate) like that of a potato flower; anthers touching, opening by terminal pores; fruit a berry, not enclosed by the calyx (Fig. 103, b, d). 1. *Solanum*

- b. Corolla funnel-form; anthers opening by longitudinal slits.
- c. Corolla yellow, 1.5-2.5 cm wide; flowers pendulous; calyx much inflated; fruit a 2-celled berry (Fig. 103, e). 2. *Physalis*
- c. Corolla white, strongly veined with purple, or purple, 3-5 cm wide; flowers not pendulous.
- d. Plant clammy-pubescent; corolla and stamens slightly irregularly placed; corolla greenish-yellow; capsule opening by a lid. 5. *Hyoscyamus*
- d. Plant not clammy; corolla and stamens regular.
- e. Calyx deeply 5-parted; corolla purplish-blue; fruit a pulpy berry. 3. *Nicandra*
- e. Calyx merely 5-toothed; corolla white to purplish; fruit a prickly capsule, opening by teeth at the apex (Fig. 103, c). 6. *Datura*

## 1. SOLANUM (Tourn.) L.

- a. Plant erect, 1-6 dm high; flowers white; berries black. 1. *S. nigra*
- a. Plant trailing or climbing, 1-3 m long; flowers bluish-purple; berries red.
- b. Leaves smooth or but slightly pubescent. 2. *S. Dulcamara*
- b. Leaves velvety or long pubescent. *S. Dulcamara* var. *villosissima*

### 1. *S. nigra* L. BLACK NIGHTSHADE. Fig. 103, d.

Scattered around the coast on sandy sea-beaches; thoroughly established in gardens at Sable Is. July-Aug.

Introduced and cosmopolitan.

### 2. *S. Dulcamara* L. BITTERSWEET. Fig. 103, b.

Scattered throughout; thickets, along roadsides, and alluvial woods, often in low ground along streams. July-Sept. N. S. to Minn. south to Ga.

Var. *villosissima* Desv., see *Rhodora* 24: 202. 1922, is a villous extreme to which some of the collections from Digby Co. to C. B. may belong.

Nfld. to Que. & Mass.

## 2. PHYSALIS L.

### 1. *P. heterophylla* Nees. GROUND CHERRY. Fig. 103, e.

Occasionally seen in orchards in the Annapolis Valley, becoming a persistent weed. July-Aug.

Probably introduced; N. S. to Sask. south to Fla. & Tex.



Fig. 103.—*Symphytum*. a, *S. asperum*, branch,  $\times \frac{1}{2}$ . *Solanum*. b, *S. dulcamara*, in fruit,  $\times \frac{1}{2}$ ; flower,  $\times 2$ . d, *S. nigra*,  $\times \frac{1}{2}$ . *Datura*. c, *D. stramonium*, flowers, leaf and fruit,  $\times \frac{1}{2}$ . *Physalis*. e, *P. heterophylla*, top of branch,  $\times \frac{1}{2}$ . *Chaenorrhinum*. f, *C. minus*,  $\times \frac{1}{2}$ .

### 3. NICANDRA Adans.

#### 1. *N. Physalodes* (L.) Pers. APPLE-OF-PERU.

Found occasionally in waste ground near dwellings; Windsor. It is rare and probably does not persist.

Introduced from Peru; N. S. to Ont. south to Fla.

### 4. LYCIUM L.

#### 1. *L. halimifolium* Mill. MATRIMONY VINE.

Occasionally found about old gardens or dwellings; Digby, McKinnon, July 1, 1933; Port Mouton, Bissel & Graves, 1920; Sable Is.



Introduced from Eu.; N. S. to Minn. south to Va. & Kans.

## 5. **HYOSCYAMUS** (Tourn.) L.

### 1. **H. niger** L. BLACK HENBANE.

Occasional about old dwellings and gardens; reported as a garden escape by Lindsay, and from the ramparts of the old fort at Annapolis by Macoun; collected at Annapolis in 1902.

Naturalized from Eu.; N. S. to Mich. south to N. Eng.

## 6. **DATURA** L.

### 1. **D. Stramonium** L. JIMSON WEED, THORN APPLE. Fig. 103, c.

Formerly common; now only occasionally seen about buildings, towns, waste places and roadsides. The plant, and especially the fruit, is deadly poisonous and should be exterminated wherever it grows as a weed.

Introduced from Asia; N. S. to Minn. south to Fla.

## 96. **SCROPHULARIACEAE** FIGWORT FAMILY

Pennell, Francis W. *The Scrophulariaceae of eastern temperate North America.* Monograph no. 1. Acad. Nat. Sci. Philadelphia. xiv-650 pp. 1935.

- a. Stamens 5; corolla saucer-shaped; plants tall, the flowers in a tall spike or loose raceme; leaves alternate. 1. *Verbascum*
- a. Stamens 2 or 4; leaves various; corolla shallowly cup-shaped to long-tubular.
- b. Corolla spurred or sac-like, or distinctly swollen on the lower side at the base; leaves entire.
- c. Corolla spurred; leaves linear.
- d. Flowers in terminal racemes, blue or yellowish; stem smooth (Fig. 104, a). 2. *Linaria*
- d. Flowers solitary in the axils of the leaves, pink; stem glandular-pubescent (Fig. 103, f). 3. *Chaenorrhinum*
- c. Corolla merely sac-like or swollen at the base; leaves lance-oblong. 4. *Antirrhinum*
- b. Corolla neither spurred, sac-like, nor swollen at the base.
- e. Leaves deeply and pinnately lobed. 16. *Pedicularis*
- e. Leaves entire or merely toothed.
- f. Corolla yellow.

- g. Calyx 4-toothed, much inflated in fruit; corolla very prominently 2-lipped, with the upper lip arching; plant erect (Fig. 106, c). 17. *Rhinanthus*
- g. Calyx 5-toothed, not inflated; corolla not prominently 2-lipped, the throat open; plant prostrate, or creeping at the base.
- h. Leaves sessile, nearly glabrous, with minute dark glands, narrow (Fig. 104, e). 10. *Gratiola*
- h. Leaves petioled, ovate-oblong, villous and viscid (Fig. 104, c). 7. *Mimulus*
- f. Corolla white, often with dark lines, or blue or purplish.
- i. Plant erect, 3-15 dm high, stout; median stem-leaves 6-25 cm long, serrate.
- j. Stem round; flowers in spike-like terminal racemes; leaves short-petioled, not clasping.
- k. Flowers white, 2-3 cm long, few (Fig. 104, b). 6. *Chelone*
- k. Flowers blue, less than 1 cm long, numerous (Fig. 105). 11. *Veronica*
- j. Stem square; flowers long-pedicelled, in an open inflorescence.
- l. Leaves sessile, clasping; flowers 2-3 cm long (Fig. 104, f). 7. *Mimulus*
- l. Leaves petioled; flowers about 1 cm long; corolla with the upper lip 4-lobed (Fig. 106, g). 5. *Scrophularia*
- i. Plants mostly under 3 dm high, slender, often prostrate at the base.
- m. Plants small, without ascending stems; leaves in a basal rosette, filiform to linear; flowers solitary, erect, whitish. (Fig. 104, d). 8. *Limosella*
- m. Plants with ascending stems; leaves not all in basal rosettes.
- n. Calyx 5-toothed; corolla 2-lipped, or nearly regular.
- o. Fertile stamens 2; plants prostrate at base, or creeping.
- p. Sterile stamens none; fertile ones much exerted; capsule flattened and notched at the apex (Fig. 105). 11. *Veronica*
- p. Sterile stamens 2; fertile ones not exerted beyond the upper lobe of the corolla; capsule ellipsoid, not notched. 9. *Lindernia*
- o. Fertile stamens 4; plants small, erect, not prostrate nor creeping.
- q. Leaves linear, entire; corolla rose-purple (Fig. 106, a). 12. *Gerardia*
- q. Leaves lanceolate or wider, entire or with several coarse projections near the base; flowers yellowish to greenish-purple (Fig. 106, b). 13. *Melampyrum*
- n. Calyx 4-toothed.
- r. Leaves nearly round, often with deeply-cut teeth; flowers prominently marked with purple or violet veins; upper lip of corolla 2-lobed (Fig. 106, e, f). 14. *Euphrasia*

- r. Leaves lanceolate with shallow teeth; flowers an even rose color; upper lip of corolla entire (Fig. 106, d).

15. *Odontites*

### 1. VERBASCUM (Bauhin) L.

- a. Plant densely woolly; flowers in a dense cylindrical spike.

1. *V. Thapsus*

- a. Plant pubescent, but not woolly; flowers in an open inflorescence.

2. *V. virgatum*

#### 1. *V. Thapsus* L. COMMON MULLEIN.

Throughout, usually on light soil, roadsides, hillsides, gravel plains or sandy pastures; a common weed. July-Aug.

Introduced from Eu.; throughout N. A.

#### 2. *V. virgatum* Stokes. MOTH MULLEIN.

The only record of this plant is by Macoun; roadside near Mira Bay, C. B. Co. It has not been collected since; and this collection seems to be the only basis for the range given in Gray's Manual for roadsides, Cape Breton.

Introduced from Eu.; now doubtfully present.

### 2. LINARIA (Bauhin) Hill

- a. Flowers yellow, 2-4 cm long; plant stout.

1. *L. vulgaris*

- a. Flowers pale blue, less than 1 cm long; plant very slender.

2. *L. canadensis*

#### 1. *L. vulgaris* Hill. BUTTER AND EGGS, YELLOW TOADFLAX. Fig. 104, a.

Very common around towns and along roadsides throughout, spreading out into the country especially in sandy ground. Forma *leucantha* Fern., *Rhodora* 23: 290. 1921, with the corolla milky-white except for the yellow palate, is common in the north-central part of the province.

Introduced from Eu.; Nfld. to B. C. south to Fla., Tex. & Calif.

#### 2. *L. canadensis* (L.) Dumort.

Found only as a railroad weed; sparingly introduced, Halifax to Yarmouth.

Introduced; N. S. to S. D. south to Fla. & Tex.; B. C. to Calif.

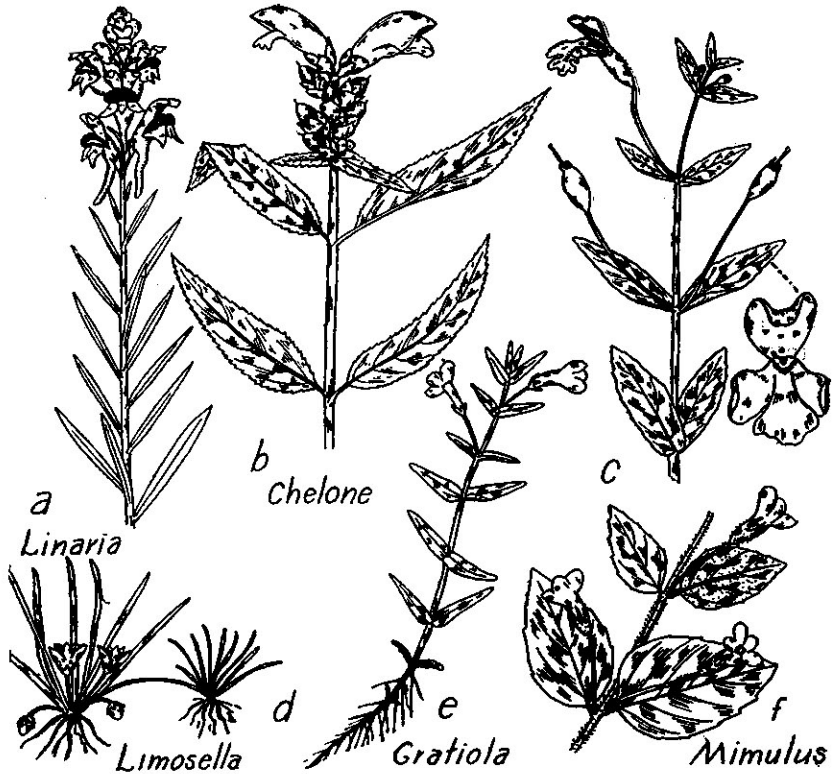


Fig. 104.—*Linaria*. a, *L. vulgaris*,  $\times \frac{1}{2}$ . *Chelone*. b, *C. glabra*, top of plant,  $\times \frac{1}{2}$ . *Mimulus*. c, *M. ringens*, top of plant  $\times \frac{1}{2}$ ; flower enlarged. f, *M. moschatus*,  $\times \frac{1}{2}$ . *Limosella*. d, *L. subulata*,  $\times 1$ . *Gratiola*. e, *G. aurea*.  $\times \frac{1}{2}$ .

### 3. CHAENORRHINUM Reich.

1. *C. minus* (L.) Lange. SMALL SNAPDRAGON. Fig. 103, f.

This is a characteristic railroad weed from Halifax northwards; found scattered in other towns and along lines throughout the province but nowhere abundant. July-Aug.

Native of the Mediterranean region; N. S. to Wisc. south to N. J. & Ill.

### 4. ANTIRRHINUM (Tourn.)L.

1. *A. majus* L. GARDEN SNAPDRAGON.

Commonly cultivated, occasionally persisting for a season. Macoun reports that it was well established in a

meadow near North Sydney. Introduced from Europe as a garden plant.

### 5. SCROPHULARIA (Tourn.) L.

1. **S. lanceolata** Pursh, see *Torreyia* **22**: 81. 1922. FIG-WORT. Fig. 106, g.

Rather rare; in open woods or dryish thickets. It is known from but three widely separated places; growing around the bases of apple trees in an orchard, Harmony, Kings Co.; Boylston, Guysborough Co.; and near Baddeck, Victoria Co. June-July. (*S. leporella* Bickn. of Gray's Man.)

N. S. to B. C. south to N. C. & Calif.

### 6. CHELONE (Tourn.) L.

1. **C. glabra** L. TURTLEHEAD, BALMONY. Fig. 104, b.

Scattered throughout, rather common in the northern part of the province; swamps, wet roadsides, along streams, meadows and estuarine rivers above the influence of the salt water. Forma **tomentosa** (Raf.) Pennell, *Torreyia* **19**: 117, 1919, a form with the leaves tomentose beneath, is represented by a collection from Sandy Cove, Digby Co., Fernald & Long, 22, 413.

Var. **dilatata** Fern. & Wieg., *Rhodora* **14**: 226. 1912, is the more northern extreme with the leaves little if at all smaller towards the top of the stem and rounded to the petioles. This is common from Kings Co. to northern C. B., while the southwestern plants have the leaves much reduced upwards and tapering to the petiole. July 15-Aug.

Nfld. to Minn. south to Ga. & Ala.

### 7. MIMULUS L.

a. Plant erect, smooth; flowers violet-purple; leaves sessile, clasping, lanceolate. 1. *M. ringens*

a. Plant prostrate, soft-hairy; flowers yellow; leaves short-petioled, ovate. 2. *M. moschatus*

1. **M. ringens** L. MONKEY FLOWER. Map 392. Fig. 104, c.

Moist ground, around lakes or along stream bottoms, occasionally in marshes or wet meadows; scattered from

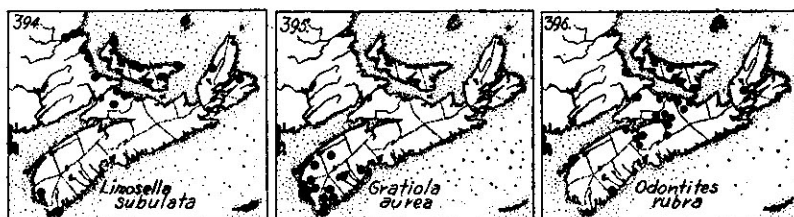
Annapolis and Lunenburg Cos. to northern C. B. July-Aug.

C. B. to Man. south to Ala. & Colo.

2. *M. moschatus* Dougl. MUSK FLOWER. Map 393. Fig. 104, f.

Scattered from Annapolis to northern C. B.; often forming dense mats on springy hillsides or over wet areas, perhaps introduced but often with the appearance of a native plant. July-Aug.

Mont. to B. C. south to Calif.; widely introduced eastward; Nfld. south to N. S.



## 8. LIMOSELLA L.

1. *L. subulata* Ives MUDWORT. Map 394. Fig. 104, d.

Scattered near the coast of Yarmouth and Shelburne Cos.; C. B. and along the Northumberland Strait; abundant on the brackish beach and sand flats near Wallace L., on Sable Is. The species shows two extremes. Those growing on tidal shores are coarse; those on the sandy margins of pools further back in the sand dunes usually have blacker capsules on more recurved pedicels, sepals less acute and leaves more slender. This is forma *maritima* (Raf.) Pennell (l. c. page 169). *L. aquatica* is maintained as mostly European & western.

Lab. to N. J. near the sea.

## 9. LINDERNIA ALL.

1. *L. dubia* (L.) Pennell, see *Rhodora* 44: 441-446. 1942.

The only collection made in the province is at Sheffield Mills, Kings Co., by Fernald; wet areas and edges of streams. [*Ilysanthes dubia* (L.) Barnhart.]

N. S. to Minn. south to Fla. & La.; Wash. & Ore.

## 10. GRATIOLOA L.

1. *G. aurea* Muhl. Map 395. Fig. 104, e.

Common in Yarmouth and Shelburne Cos; scattered east to Annapolis Co. and Bridgewater; often in mats on the slatey lake shores, low areas, and even onto dryish savannahs in the moister areas. Forma *leucantha* Bartlett, *Rhodora* 9: 123. 1907, with the corolla pure white except for a yellowish tinge on the inside of the throat, forms pure colonies on the pebbly strand of Ponhook L., Queens Co. (Weatherby, 1942); and from Mass. to Dela. July-Aug. (*G. lutea* of recent authors).

N. S. & Nfld. south along the coastal plain of N.J.; scattered inland to the Great Lakes and beyond.

## 11. VERONICA (Bauhin) L. SPEEDWELL

- a. Main stem terminating in an inflorescence, in all cases the upper bract leaves alternate.
- b. Plant perennial from rhizomes; flowers crowded in definite racemes.
- c. Racemes dense, spike-like; plants erect, 5-15 dm high.
  - 1. *V. longifolia*
- c. Racemes loose; plant creeping and ascending at the tips, 5-15 cm high.
  - 2. *V. serpyllifolia*
- b. Plants annual, fibrous rooted; flowers in the axils of most of the leaves.
- c. Plants erect, very hairy; flowers with the pedicels shorter than the sepals, in the axils of reduced leaves; seeds less than 1 mm long, smooth.
  - 3. *V. arvensis*
- c. Plants creeping with the tips ascending; flowers with pedicels longer than the ovate sepals, in the axils of ordinary leaves; seeds 1.3-3 mm long, roughened.
- d. Capsule lobes rounded in profile; style shorter than the capsule; sepals ovate; corolla scarcely exceeding the sepals; capsule slightly and narrowly notched.
  - 4. *V. agrestis*
- d. Capsule lobes acutish in profile; style as long as the capsule; sepals narrowly ovate; corolla much exceeding the sepals; capsule widely notched.
  - 5. *V. persica*
- a. Main stem never terminating in an inflorescence; leaves opposite throughout; flowers in axillary racemes.
- f. Plant pubescent, of dryish soil.
  - g. Leaves sessile; plants creeping; corolla 3-4 mm long; pedicels much shorter than the bracts.
  - h. Upper leaves 25-40 mm long, 15-28 mm wide, rounded at the tip.
    - 6. *V. officinalis*

- h. Upper leaves 15-30 mm long, 7-15 mm wide, acute.  
*V. officinalis* var *Tournefortii*
- g. Leaves narrowed to the petiole; plants erect, 1-3 dm high; corolla 5-6 mm long; pedicels much exceeding the bracts.  
7. *V. chamaedrys*
- f. Plants smooth or nearly so; swamp or aquatic plants.
- i. Leaves linear to lanceolate, with a few fine points for teeth, tapering to a long tip.  
8. *V. scutellata*
- i. Leaves oblong or ovate, coarsely toothed, with a rounded tip.  
9. *V. americana*

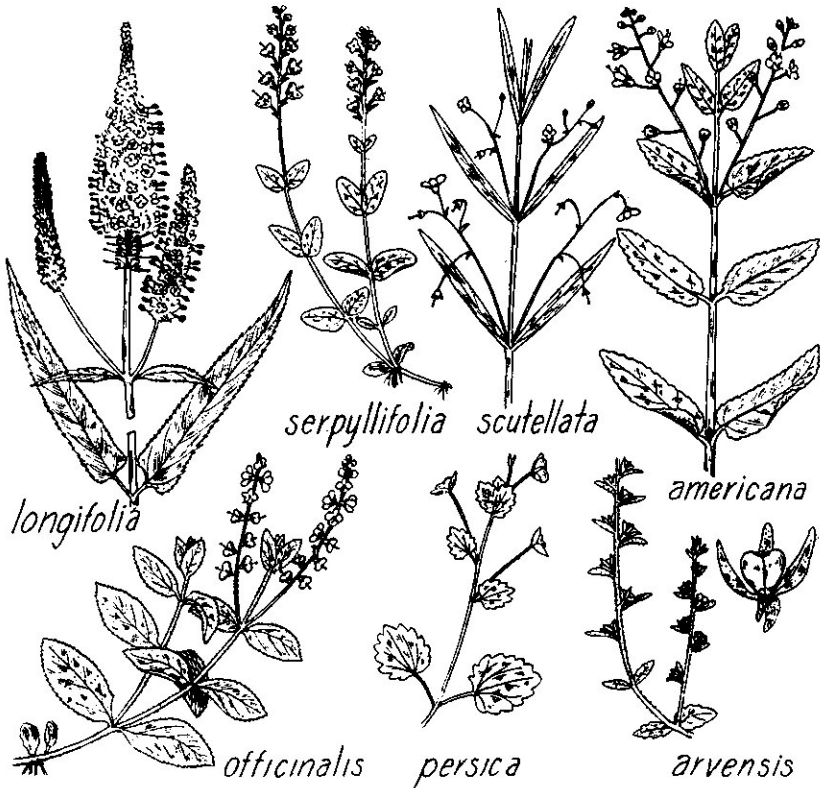


Fig. 105.—*Veronica*, all x  $\frac{1}{2}$ .

1. *V. longifolia* L. GARDEN SPEEDWELL. Fig. 105.  
Commonly planted in gardens; an abundant roadside escape in roadside thickets through Yarmouth, Digby and Annapolis Cos.; scattered to Pictou and Amherst. July-Aug.  
Introduced from Eu.; N. S. to N. Y.



2. **V. serpyllifolia** L. THYME LEAVED SPEEDWELL. Fig. 105.

Common throughout; in moist soils, pastures, and damp runs. May 15-Oct.

Introduced from Eurasia; Nfld. to Minn. south to Ga.; B. C. to Calif.

3. **V. arvensis** L. FIELD SPEEDWELL. Fig. 105.

Dry fields, on slopes and open woods, usually growing on dry and often very sandy soils; rather common from Yarmouth through the Annapolis Valley, often in large colonies. May-June.

Nfld. to Minn. south to Ala. & Tex.; B. C. to Calif.; introduced from Eurasia.

4. **V. agrestis** L.

Waste grounds and sandy fields, rare: Windsor, Halifax and Boylston; collected at Windsor by Howe, and from waste ground at Dartmouth by Fernald in 1922.

Introduced from Eu.; N. S. to La.

5. **V. persica** Poir. Fig 105.

Fields, lawns or open woods; not uncommon about Truro, and found at scattered places from Yarmouth to C.B. Reported by Macoun, under the name *V. Buxbaumii* Tenore as very sparingly naturalized at North Sydney and Pictou. June 15-Sept. (*V. Tournefortii* C. C. Gmel.). Introduced from Eurasia.

Nfld. to Man. and southern Alaska south to Fla. and Calif.

6. **V. officinalis** L. COMMON SPEEDWELL. Fig. 105.

Roadsides, shady places and as a weed of cultivated fields, usually in richer and more shaded places than the variety. June-Aug. Probably introduced from Eu.; Nfld. to Dakota southward.

Var. **Tournefortii** (Villars) Reich., see Fernald, *Rhodora* 35: 282. 1933, is found everywhere in the province in open fields, roadsides, lawns and thickets.

Introduced from Eurasia; P.E.I. and Nfld. to Me.; Ore.

7. **V. ohamaedrys** L. BIRD'S EYE.

Very rarely introduced about some of the towns; collections were seen from Yarmouth, Windsor and Truro; Macoun reports it as sparingly naturalized at Windsor and Halifax.

P. E. I. to Ont. & Mich. south to W. Va. & Ohio.



8. *V. scutellata* L. MARSH SPEEDWELL. Map 397. Fig. 105.

Scattered throughout; shallow water, or more often at the base of rushes and cattails, in partly dried-out ponds and in swamps June 15-Sept.

Nfld. to the Mackenzie, south to Va., Colo. and Calif.

9. *V. americana* (Raf.) Schwein. AMERICAN BROOKLIME. Map 398. Fig. 105.

Rather common in cold streams, springs, margins of rivers and along shaded ditches and swamps from Annapolis Co. to C. B.; Yarmouth. June-Sept.

Nfld. to Alaska south to N.C., Mex. and Calif.

12. *GERARDIA* (Plumier) L.

a. Calyx teeth as long as the tube, green and sharp-pointed; fruiting pedicels usually not longer than the calyx; plant not fleshy.

1. *G. neoscotica*

a. Calyx teeth much shorter than the tube and blunt; fruiting pedicels usually twice as long as the calyx; plant somewhat fleshy.

2. *G. maritima*

1. *G. neoscotica* Greene, Leaflets, II:106. 1910. Map 399. Fig. 106, a.

Common in damp or exsiccated sandy or peaty open soil in Yarmouth and Digby Cos., found along the Bay of Fundy into Annapolis Co., and in the Annapolis Valley to Middleton; scattered east to Queens Co. July-Sept (*Agalinis neoscotica* (Greene) Fern.). N. S. only.

2. *G. maritima* Raf. SEASIDE GERARDIA.

Local; known only from salt marshes along the Argyle R., at Argyle Head, Yarmouth Co. (Fernald, 1922).

Fla. north along the coast to southern Me.; N. S.

13. *MELAMPYRUM* (Bauhin) L.

a. Stem simple or nearly so, 0.5-2 dm high; foliage leaves and bracts linear, 1-5 mm wide, entire or the uppermost bracts rarely toothed at the base.

1. *M. lineare*

a. Stem bushy-branched, 2-5 dm high; foliage leaves 2-10 mm wide; bracts up to 20 mm wide, some or all sharply toothed at the base.

*M. lineare* var. *americanum*

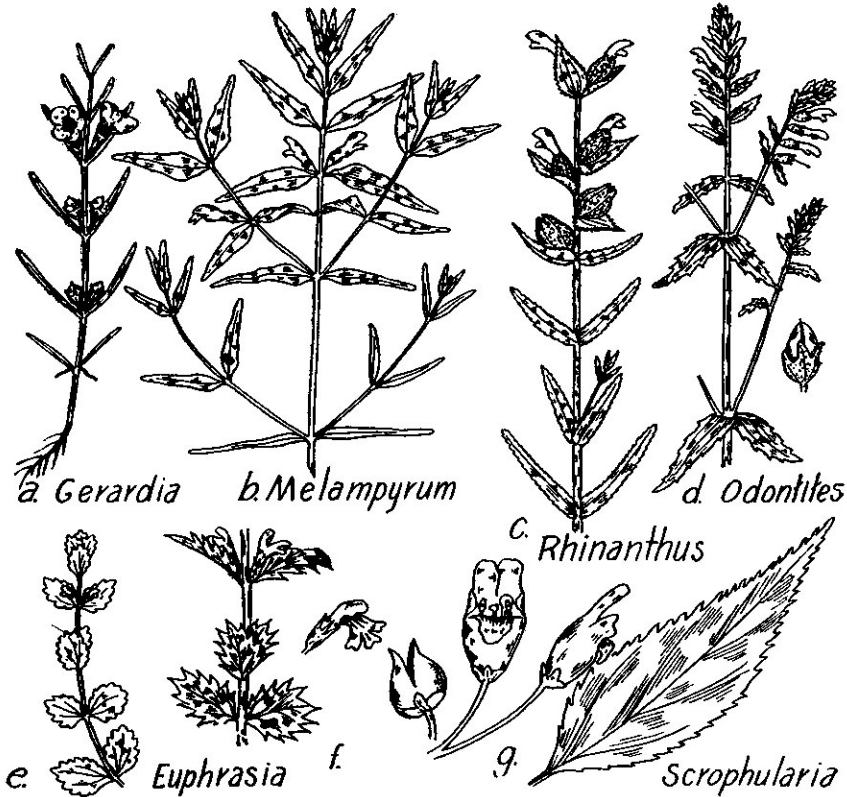


Fig. 106.—*Gerardia*. a, *G. neoscotica*,  $\times \frac{1}{2}$ . *Melampyrum*. b, *M. lineare*,  $\times \frac{1}{2}$ . *Rhinanthus*. c, *R. Crista-galli*,  $\times \frac{1}{2}$ . *Odontites*. d, *O. rubra*,  $\times \frac{1}{2}$ . *Euphrasia*. e, *E. Randii*,  $\times \frac{1}{2}$ . f, *E. americana*,  $\times \frac{1}{2}$ . *Scrophularia*. g, *S. lanceolata*, leaf,  $\times \frac{1}{2}$ ; flowers,  $\times 1$ .

1. *M. lineare* Desr. COW WHEAT. Fig. 106, b.

Bogs, heaths, peaty or rocky barrens in rather exposed situations; rather common throughout. In northern C.B. it is characteristic of dwarf shrub, sedge and other heath associations. Nfld. and southern Lab. to B. C. south to N. S., northern N. Eng. & Wisc.

Var. **americanum** (Michx.) Beauv., see Fernald, *Rhodora* 44: 446-452. 1942, is found on more favorable situations and soils, especially on sands. This includes the more northern element of Pennell's spp. *latifolium* (Muhl.) Beauv.

Dry woods, Anticosti to Minn. south to N. S., Md. & Mont.

#### 14. EUPHRASIA (Tourn.) L. EYEBRIGHT

Fernald, M.L. and K.M. Wiegand. *Euphrasia* in North America. *Rhodora* 17: 181-201. 1915.

- a. Flowers 2.2-4 mm long; lower lip not exceeding the upper, scarcely fan-shaped.
- b. Leaves more or less pubescent on both surfaces.
- c. Leaves sparingly hairy, 5-18 mm long; corolla deep-purple, rarely white, with dark lines. 1. *E. Randii*
- c. Leaves very densely hairy, 2-7 mm long; corolla generally whitish, rarely purple. *E. Randii* var. *Farlowii*
- b. Leaves smooth on both surfaces; flowers deep-purple to cream-colored. *E. Randii* var. *Reeksii*
- a. Flowers 4-10 mm long; lower lip generally exceeding the upper, spreading and conspicuous.
- d. Corolla 5-6.5 mm long, with pale-lavender or bluish lines, the lower lip with the lateral lobes not strongly spreading; spikes comprising the larger part of the plant. 2. *E. canadensis*
- d. Corolla 6-9 mm long, with dark-purple lines, the lower lip with wide-spreading lateral lobes.
- e. Corolla 6-8 mm long; spikes occupying the larger part of the plant; flowering bracts ascending. 3. *E. rigidula*
- e. Corolla 7-9 mm long; spikes occupying the upper half or third of the stem and branches; flowering bracts more or less spreading. 4. *E. americana*

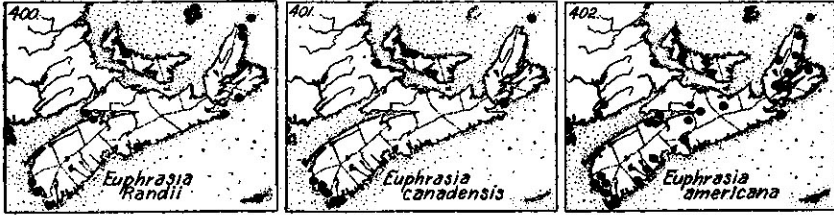
1. **E. Randii** Robinson, see Fernald, *Rhodora* 45: 112. 1943. SMALL EYEBRIGHT. Map 400. Fig. 106, e.

Common on turfy soil and sea-cliffs along the Atlantic Coast and the Bay of Fundy. This is the commonest type and is occasionally very abundant in wet pastures near the coast. Forma **albiflora** (Fern. and Wieg.) Fern., with the lobes of the corolla whitish, is often common. Forma **iodantha** (Fern. & Wieg.) Fern., with the lobes of the corolla purple, is reported by Rousseau (1935) from pastures at Fourchu, C.B. (*E. purpurea* var. *Randii*). Lab. to the Gaspé and Me.

Var. **Farlowii** Robinson occupies much the same range. It is found around C.B., and is often characteristic of bleak exposed headlands.

Var. **Reeksii** Fern. is rather rare and northern; scattered around the northern coast of C.B., Nfld. south to

N. B. and N. S. (*E. purpurea* Reeks). A form with the lobes of the corolla whitish, forma **candida** (Fern. and Wieg.) Fern., is known from the Magdalen Islands, but has not yet been found in N. S.



2. ***E. canadensis*** Townsend. EYEBRIGHT, EUPHRASIA. Map 401.

Open barren fields and roadsides, usually near the coast and rather rare; Yarmouth and Shelburne Cos.; Isle Madame and St. Paul Is. in C. B.

Que., the Maritime Provinces and northern N. Eng.

3. ***E. rigidula*** Jord., see *Rhodora* **35**: 399. 1933.

Scattered in dry fields, grassy roadsides, and pastures; mostly rare, although Rousseau (1935) states that it is frequent in fields and pastures west of Halifax to Guysborough and C.B. (*E. stricta* Host.).

Nfld. to Me. and northern N.Y.; Eu.

4. ***E. americana*** Wettst. COMMON EYEBRIGHT. Map 402. Fig. 106, f.

Common throughout; along roadsides and in sterile fields, often found inland in lawns and open pastures. It is by far the commonest species of the genus in N. S.

Nfld., the Maritimes and Me.

## 15. ODONTITES (Riv.) Ludwig

1. ***O. rubra*** Gilib. RED BARTSIA, RED EYEBRIGHT. Map 396. Fig. 106, d.

Scattered in C. B.; common along the North Shore and becoming rarer to Hants and Kings Co; fields and waste places, in moist soil, usually near the coast. July-Sept.

Introduced from Eurasia; N. S. to Que. south to Me. and northern N. Y.

16. **PEDICULARIS** (Tourn.) L.1. **P. palustris** L. SWAMP LOUSEWORT.

Rare; a collection by Dr. A. H. MacKay is simply labelled western N. S., June 1908; another collection was made by Dr. A. G. Huntsman, C. B. Is., July 1917; there is a good specimen collected in flower by Miss Margaret S. Brown in a marsh, Bay St. Lawrence; and specimens have been seen from Guysborough Co. July.

Eastern Que., N. S. and Nfld. northwards.

17. **RHINANTHUS** L.

Chabert, Alfred. Etude sur le Genre *Rhinanthus* L. Bull. de l'Herbier Boissier 7: 497-517. 1899. The whole group in eastern N.A. need further study, and the following key is merely provisional.

- a. Plant with branches of the stem, when present, short and much reduced at flowering time; if elongating later, with only reduced flowers; strongly blackening in drying.
- b. Stems lacking black lines; upper lip without any violet coloring.
  - 1. *R. Crista-galli*.
  - b. Stem strongly black-lineolate; teeth of the upper lip of the corolla violet.
    - R. Crista-galli* var. *fallax*
- a. Plant simple, or if branched with the branches strongly developed and ascending, bearing flowers similar to those of the primary inflorescence.
- c. Stem strongly black-lineolate; bracts and calyx purplish; teeth of the upper lip of the corolla bluish-grey. 2. *R. stenophyllus*
- c. Stem not black-lineolate; bracts and calyx greenish; teeth of the upper lobe of the corolla light yellowish; plants not strongly blackening in drying.
- d. Plant 3-7 dm high; bracts scabrous; calyx minutely pubescent, the margin ciliate but not glandular; corolla 8-13 mm long, with the tube exceeding the calyx. 3. *R. Kyrollae*
- d. Plant 2-3.5 dm high; bracts glabrous; calyx glabrous, the margin finely glandular-ciliate; corolla about 15 mm long, the tube included within the calyx. 4. *R. groenlandicus*

1. **R. Crista-galli** L. YELLOW RATTLE. Fig. 106, c.

Exceedingly rare; it is known from the coast of Maine and St. John states that the *R. oblongifolius* Fern. of Macoun's list from Sable Is. belongs here. Rousseau's report from eastern N. S. probably belongs to the following variety. Introduced from Eu.

Var. **fallax** (Wimmer and Grab.) Druce is one of the commonest weeds of the province; found throughout in neglected fields, where it is often more abundant than the grass, along roadsides and in waste places. Introduced from Eu. and possibly native northwards. Nfld. & Que. to Conn.

2. **R. stenophyllus** (Schur) Schinz & Thellung.

This little-known plant is mentioned in Gray's Manual as occurring in boggy meadows and shores near the Gulf of St. Lawrence and from Gaspé Co., Que. to N. S. The N.S. record apparently rests upon a collection made at Canso by J. Fowler, July 8, 1901.

3. **R. Kyrollae** Chabert.

Chabert, in his original description, mentions a specimen from Annapolis. Collections in the herbarium of the Experimental Farm at Ottawa resemble this. Eastern Que., along the St. John R., to N. S. and northern Me.; Washington.

4. **R. groenlandicus** Chabert.

Collected but once in the province; Perry and Roscoe, near the ruins of an old house, Trinity Cove, St. Paul Is. This boreal species is found in the east from Greenland south to Saguenay Co., Que., Anticosti and N. S.

## 97. LENTIBULARIACEAE BLADDERWORT FAMILY

- a. Leaves small and linear, or large and divided into capillary lobes; bladder usually present. 1. *Utricularia*
- a. Leaves elliptical to ovate, in a basal rosette, 2-4 cm long; bladders absent. 2. *Pinguicula*

### 1. UTRICULARIA L. BLADDERWORT

Rosback, George B. Aquatic Utricularias. *Rhodora* 41: 113-128. 1939.

- a. Stems erect, from a base definitely anchored in the sand, mud or bog; bladders absent or poorly-developed.
- b. Flowers purple, solitary, facing upwards; bracts on the scape below the flowers in pairs and united to form a tube; leaves small and with few lobes. 1. *U. resupinata*
- b. Flowers yellow, several at the top of the scape; bracts not in pairs; stems solitary; leaves very small and narrow, seldom seen.

- c. Stems very slender, the inflorescence zig-zag; pedicels of the flowers filiform, 1-2 cm long. 2. *U. subulata*
- c. Stems stout, the inflorescence with a straight rachis; pedicels very short so that the flowers appear sessile. 3. *U. cornuta*
- a. Stems floating in the water, or creeping over the wet mud; branched leaf-like stems or divided leaves conspicuous; bladders well-developed.
- d. Divisions of the leaves flattened, with a midrib and parallel sides; plants small, generally less than 15 mm wide, the leaves with 4-10 short often overlapping lobes; bracts of scape with basal lobes.
- e. Margins of the terminal divisions of the leaf minutely and sharply serrate; spur about as long as the lower lip and close to it; pedicels ascending in fruit.
- f. Bladders borne on separate leafless branches; apices of the terminal divisions rounded, except for delicate plants in deep water, and mucronate. 4. *U. intermedia*
- f. Bladders borne on both leafless branches and on the branched leaves; terminal divisions of the leaves acuminate; leaves and their teeth larger. 5. *U. ochroleuca*
- e. Margins of the leaf-divisions entire except sometimes at the tip; bladders on most of the leaves, not on special leafless branches; spur very short; pedicels curved downwards in fruit. 6. *U. minor*
- d. Divisions of the leaves capillary, without a midrib and gradually tapering to the tip; plants various.
- g. Plants small and slender, with short branches creeping over the mud or in shallow water; scape less than 10 cm high, with 1-2 flowers; leaves with 2-5 rather long, capillary, not overlapping divisions. 7. *U. gibba*
- g. Plants large and stout, 3-10 dm long, free-floating in the water; scape 10 cm or more high, with 2-20 flowers; leaves many times divided.
- h. Leaves, or much divided branches, in whorls; flowers purple. 8. *U. purpurea*
- h. Leaves scattered, not in whorls; flowers yellow.
- i. Leaves rather regularly divided so as to possess a zig-zag axis with three orders of divisions; flowering scape without inflated branches.
- j. Leaves with a bristly margin when seen under the microscope, the outline elliptical; basal leaf-divisions .50-.75 mm wide; scape 6-12-flowered, with 1-5 scales, the bracts with basal lobes. 9. *U. vulgaris*
- j. Leaves without spines except at the tips of the divisions, the outline circular or nearly so; basal leaf-divisions about .25 mm wide; scapes without scales, 2-5-flowered, the bracts without basal lobes. 10. *U. geminiscapa*
- i. Leaves irregularly branched, with 4, and commonly 5 or 6 orders of division, the axis not apparent on secondary



divisions; flowering scape with a whorl of inflated leaf-like branches half way to the top. 11. *U. inflata*

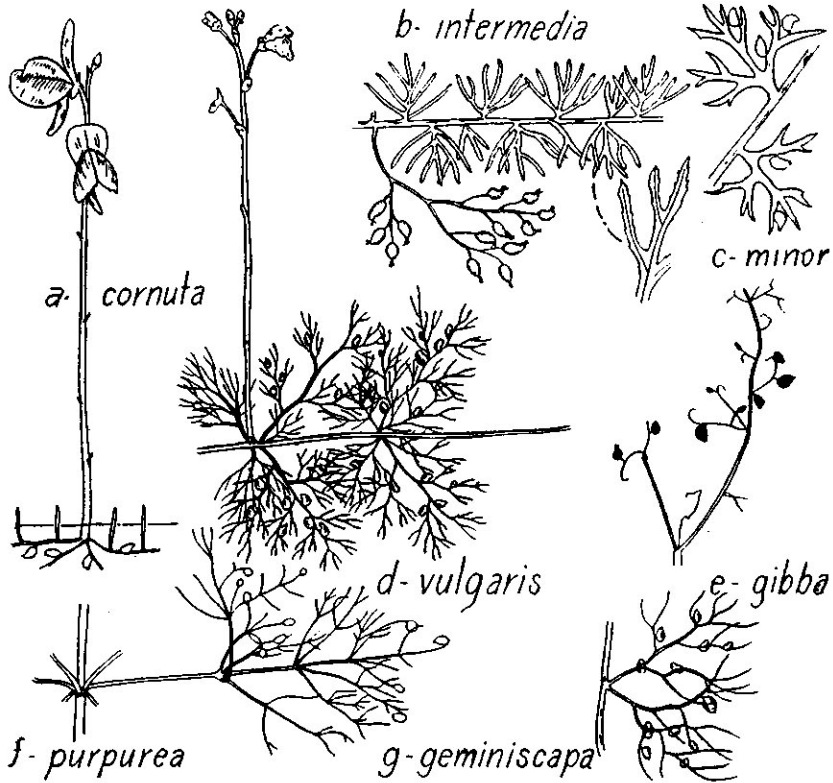


Fig. 107.—*Utricularia*. a, *U. cornuta*,  $\times \frac{1}{2}$ . b, *U. intermedia*,  $\times 1$ . c, *U. minor*,  $\times 1\frac{1}{2}$ . d, *U. vulgaris*,  $\times \frac{1}{2}$ . e, *U. gibba*,  $\times 2$ . f, *U. purpurea*,  $\times 1$ . g, *U. geminiscapa*,  $\times 1$ . (c, e, f and g redrawn after Rossbach).

1. *U. resupinata* B. D. Greene.

Digby Co.: muddy margin of Midway L. at Centreville on Digby Neck (Fernald, 1921).

N. S. to Fla. west to Ont. & Ill.

2. *U. subulata* L. Map 403.

Characteristic of wet, sandy and peaty lake margins of Yarmouth and southern Digby Cos., always growing with and clearly passing into forma *cleistogama* (Gray) Fern., *Rhodora* 23: 108-109. 1921. All gradations between the smallest extreme with cleistogamous flowers with tiny creamy or milk-white, spurless corollas sometimes not larger than a pinhead, and the typical *U. subulata* can be

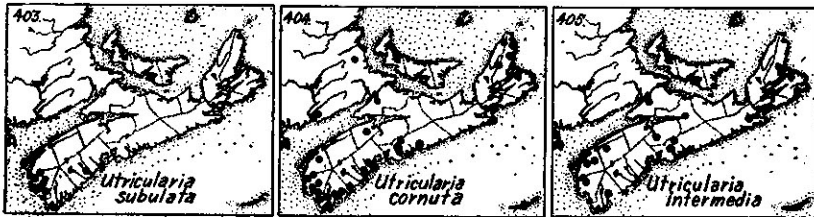
found at most of the stations in the province, [Fernald, 1921]. *U. cleistogama* (Gray) Britt.].

N. S.; Mass. to Fla. & Tex.

3. *U. cornuta* Michx. Map 404. Fig. 107, a.

Common throughout; exposed sand around the lake margins, in peat, mucky areas or in boggy depression and peat bogs from Yarmouth to C. B. In some places the brilliant yellow flowers will form carpets over considerable areas. Fernald (1922) mentions a colony at Rhodenizer Lake, Lunenburg Co., with stems forking into 2 or 3 long branches.

Nfld. to Minn. south to Fla. & Tex.



4. *U. intermedia* Hayne. Map 405. Fig 107, b.

Common throughout; characteristic of the bottoms or marshes, lake shores and often in wet hollows in peat bogs, creeping over the wet substratum of muck or peat and very rarely flowering.

Greenland & Nfld. to B. C. south to Penn. and Calif.; Eu.

5. *U. ochroleuca* R. Hartm.

The only collection of this plant from eastern Canada is by Perry and Roscoe from St. Paul Island, northern C. B. The plants were sterile.

Common in northern Eu.; reported from two localities in Greenland.

6 *U. minor* L. Map 406. Fig. 107, c.

Scattered in shallow pools or films of water, lake margins and wet mud; probably throughout. When the plant creeps out upon the mud the leaves tend to be somewhat larger and more flattened than in the typical form, and the bladders are larger (Perry, 1931).

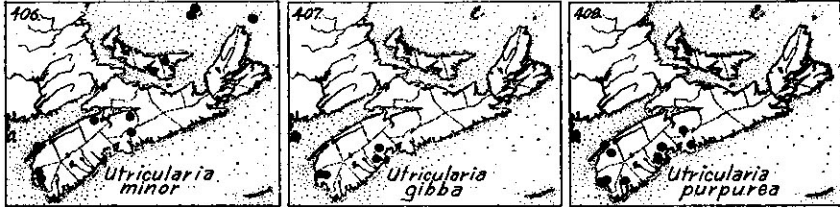
Greenland to Mackenzie south to Conn. and Calif.

7. *U. gibba* L. Map 407. Fig. 107, e.

Rare in Yarmouth and Lunenburg Cos.; shallow mar-

gins of lakes, small pools and in small ponds in quagmires or peaty locations (Fernald, 1921, 1922).

N. S. & Que. to Fla. west to the Great Lakes; Calif.; W. I.



8. **U. purpurea** Walt. Map 408. Fig. 107, f.

Frequent to common from Yarmouth through Lunenburg Co. to Hants Co.; deep water, quiet pools or pond-holes (Fernald, 1921, 1922).

N. S. to southern Que. & Minn. south to Cuba and Central America.

9. **U. vulgaris** L., see Rhodora 43: 642-645. 1941. Map 409. Fig. 107, d.

Common throughout; pools, lake shores, oxbow ponds, in sink-holes and slow streams.

Lab. to Minn. and Alaska south to Fla. & Tex.; circumboreal.

10. **U. geminiscapa** Benj. Map 410. Fig. 107, g.

Common in bog-pools and peaty quagmires in barrens from Yarmouth Co. along the southern region to northern C.B. (*U. clandestina* Nutt.)

Nfld. to Dela. & Va. west to Mich. & Wisc.

11. **U. inflata** Walt., var **minor** Chapm.

Discovered by Miss Margaret S. Brown in full flower, Aug. 31, 1939, in Lake Sawlor, near Hubbard, Halifax Co. She states that the water level of the lake was exceptionally low at the time of collecting. (Can. Field-nat. 54: 44. 1940). (*U. radiata* Small).

N. S. southern Me. to N. J.; Fla., Ark.; S. A.

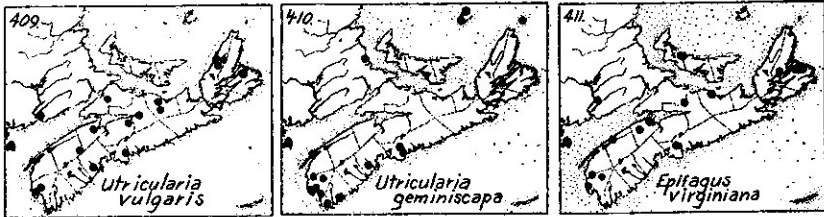
## 2. PINGUICULA (Tourn.) L.

1. **P. vulgaris** L. BUTTERWORT.

Bank of a streamlet between Petrie's Pond and White

Spring on St. Paul Is., C. B.; found also on C.B. but not elsewhere in the province (Perry, 1931).

N. S. & N. B. to northern N. Y. and Minn. and far northwards.



**98. OROBANCHACEAE BROOMRAPE FAMILY**

- a. Flowers numerous in racemes or spikes; plants nearly glabrous.
- b. Plant dry and slender, branched, with loose racemes of flowers; parasitic on beech roots. 1. *Epifagus*
- b. Plants thick and fleshy, consisting mostly of large thick roots and unbranched dense cone-like spikes of flowers. 2. *Conopholis*
- a. Flowers solitary, a terminal one for each stem; plant unbranched except at the base, glandular-pubescent. 3. *Orobanche*

**1. EPIFAGUS** Nutt.

1. *E. virginiana* (L.) Bart. BEECH-DROP. Map 411. Fig. 108, a.

Frequent throughout, wherever beech occurs; especially common from Annapolis to northern C. B.

N. S. to Wisc. south to Fla. and La.

**2. CONOPHOLIS** Wallr.

1. *C. americana* (L. f.) Wallr. CANCER-ROOT.

Known only from "dry pine and oak woods on steep slopes along the Lahave R., Bridgewater; locally abundant, many stems springing from deep-seated bases attached to oak-roots" (Fernald, 1922).

N. S., southern Me. to Mich. south to Fla.

**3. OROBANCHE** (Tourn.) L.

1. *O. uniflora* L. BROOMRAPE. Fig. 108, b.

Scattered from Kings Co. to Pictou, and probably

beyond; habitat various. In the Annapolis Valley it has been found on the sandy plains; but in Colchester and Pictou Cos., it is usually found along the river intervalles or on grassy slopes, growing in large clumps.

Nfld. to Ont. westward, south to Ga. and Calif.

## 99. PLANTAGINACEAE PLANTAIN FAMILY

- a. Flowers solitary or in pairs; plants small, with leaves linear, 2-7 cm long. 1. *Littorella*
- a. Flowers numerous in spikes or elongated heads; plants much larger than the preceding; common. 2. *Plantago*

### 1. LITTORELLA Bergius

#### 1. *L. americana* Fern., *Rhodora* 20: 61-62. 1918.

Known only from the sandy shores of Shubenacadie Grand Lake, where it is abundant along the side next to the main road. The plant was first collected here by Mrs. Britton in 1902. Fernald (1922) notes that owing to the high water in 1920 it did not flower; but in 1921 it formed freely flowering carpets on the sandy and shingly beach. The plant is the American variant of the European *L. uniflora* (L.) Asch.

Rare from Nfld. to Me. & Minn.

### 2. PLANTAGO (Tourn.) L. PLANTAIN

Fernald, M.L. The maritime plantains of North America. *Rhodora* 27: 93-104. 1925. Pilger, Robert. *Plantaginaceae*. *Das Pflanzenreich*, IV. 269. 1937.

- a. Leaves ovate to lanceolate, thin and strongly ribbed; weeds or occasionally growing in brackish soils.
- b. Leaves broad-elliptic to ovate; spikes long and slender; seeds plump.
- c. Sepals and bracts broad, and blunt at the end; capsule ovate and circumscissile near the middle; base of the petiole rarely reddish; seeds about 1 mm long. 1. *P. major*
- c. Sepals and bracts narrow and pointed; capsule opening much above the middle, elliptic-oblong; base of the petiole purplish; seeds 1-1.5 mm long. 2. *P. Rugelii*
- b. Leaves narrow, mostly lanceolate; spikes short, roundish or conical when young; seeds hollow on the face.
- d. Spikes at the beginning of flowering ovoid and tapering to the tip; flowering stems to 8 dm high. 3. *P. lanceolata*

- d. Spikes then globose and rounded at the tip; flowering stems to 4.5 dm high. *P. lanceolata* var. *sphaerostachya*
- a. Leaves linear, to occasionally wide-lanceolate, fleshy with the nerves obscure; plants near the coast only.
- e. Bracts and calyx-segments mostly hairy and minutely ciliolate; spikes usually dense to the base; seeds oblong to narrowly oval, 1.2-2.3 mm long.
- f. Leaves linear and not toothed, erect or nearly so, mostly shorter than the scapes.
- g. Scapes 0.5-2.3 dm high; spikes 2-10 cm long.
4. *P. juncooides* var. *decipiens*
- g. Scapes up to 1.7 dm high; spikes only 0.5-2 cm long.
- P. juncooides* var. *glauca*
- f. Leaves lanceolate or wider, wide-spreading and often toothed, commonly equalling or exceeding the scapes.
- P. juncooides* var. *laurentiana*
- e. Bracts and calyx-segments smooth or nearly so; mature seeds oblong-linear, 2-3 mm long; spikes often remotely flowered at the base; leaves very fleshy, often exceeding the scapes.
- h. Leaves nearly erect, to 12 mm wide; spikes 3-20 cm long, usually remotely flowered at the base. 5. *P. oliganthos*
- h. Leaves loosely spreading or arching, 1.5-4 mm wide; spikes 0.5-7 cm long, usually densely-flowered and depressed.

*P. oliganthos* var. *fallax*

1. **P. major** L. BROAD-LEAVED PLANTAIN. Fig. 108, e.

Very common throughout and very variable; lawns, road-sides, dooryards and in waste places, not uncommon in pastures, and the edges of thickets. Plants found on the brackish marshes are often finely pubescent. Various forms and varieties have been named. July-Sept.

Introduced and cosmopolitan.

2. **P. Rugelii** Dene. RUGEL'S PLANTAIN. Fig. 108, f.

Common in the Annapolis Valley, scattered around Truro, apparently rare elsewhere and much less common than the preceding species in most areas. Perennial in lawns, along roadsides and in fields and pastures.

N. S. to N. D. south to Fla. & Tex.

3. **P. lanceolata** L. RIB-GRASS, ENGLISH PLANTAIN. Fig. 108, c.

Common throughout, especially in hay fields in late July and Aug. Fernald (1922) mentions a locally abundant variant with the spikes branching, sometimes with a few, often with many, short and densely crowded branches.

Var. *sphaerostachya* Mert. & Koch, see Fernald, *Rhodora* 24: 204. 1922, has characteristic very short

spikes. It is occasionally seen in the Annapolis Valley and in the southwestern counties on light soils. Forma *erio-phora* (Hoffm. and Link) Beck von Man. has the upper leaf-surfaces gray with abundant long hairs.

Native of Eurasia; Nfld. to B.C. south to Fla. and Kans.

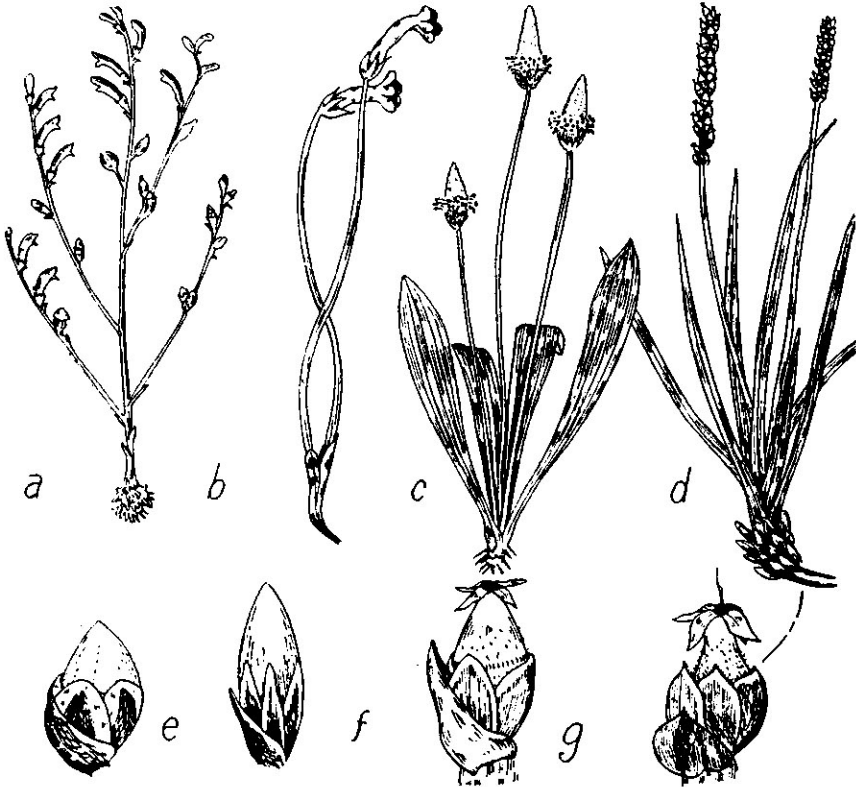
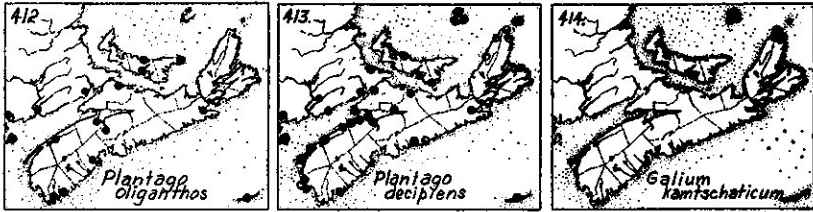


Fig. 108.—*Epifagus*. a, *E. virginiana*, x  $\frac{1}{2}$ . Orobanche. b, *O. uniflora*, x  $\frac{1}{2}$ . *Plantago*. c, *P. lanceolata*, x  $\frac{1}{2}$ . d, *P. juncooides*, x  $\frac{1}{2}$ ; flower, x 4. e, *P. major*, flower. f, *P. rugelii*, flower and fruit. g, *P. oliganthos*, flower.

4. *P. juncooides* Lam., var. *decepiens* (Barn.) Fern. SEASHORE PLANTAIN. Map 413. Fig. 108, d.

Common around the whole coast; edges of salt marshes and dykelands, sea-cliffs, and beaches. This species in places may hybridize with the next; and northward it passes into the following variety. July-Sept. Lab. to N. J.



Var. **glauca** (Hornem.) Fern. is a dwarf variety found around northern C. B. Greenland to Keewatin south to Me.; northern Eu.

Var. **laurentiana** Fern. is likewise common around northern C. B., where all gradations in degree of leaf width and type of spreading may be found. Nfld., Magdalens, P.E.I. & N. S.

5. **P. oliganthos** Roem. & Schultes. SEASHORE PLANTAIN. Map 412. Fig. 108, g.

Much less common than the preceding, scattered around the coast and largely restricted to salt marshes and tidal flats. Que. to N. J. on brackish shores; Man.

Var. **fallax** Fern. has not yet been reported for the province, but it is found from Lab. & Nfld. to N. B. and eastern Me. and presumably also occurs in N. S.

## 100. RUBIACEAE MADDER FAMILY

- a. Leaves in whorls; plants herbaceous; fruit of two nutlets joined side by side.
  - b. Corolla funnel-shaped; calyx lobes lanceolate; flowers nearly sessile in leafy-bracted heads. 1. *Sherardia*
  - b. Corolla flat with wide-flaring lobes; calyx lobes absent; flowers on slender pedicels (Fig. 109). 2. *Galium*
- a. Leaves opposite, or sometimes in 3's; fruit not as above.
  - c. Tall shrubs; flowers in showy globular heads (Fig. 111, a). 3. *Cephalanthus*
  - c. Low herbs; flowers few or in pairs.
    - d. Plants erect; leaves lanceolate, small; flowers bluish, solitary; fruit a top-shaped capsule (Fig. 110, a). 4. *Houstonia*
    - d. Plants trailing; leaves orbicular; flowers pinkish-white, in pairs with one united ovary; fruit berry-like (Fig. 110, d). 5. *Mitchella*

### 1. **SHERARDIA** (Dill.) L.

1. **S. arvensis** L. BLUE FIELD MADDER.

Listed in Lindsay's Catalogue from Tatamagouche,



Colchester Co. Nothing else is known of this plant in the province.

Waste places and lawns; N. S. to Ont., Ohio and N. J.; introduced.

## 2. GALIUM L. BEDSTRAW

- a. Ovary and fruit covered with hooked or inturned hairs.
  - b. Leaves prominently 3-nerved, firm, linear-lanceolate; stem smooth; rare. 1. *G. boreale*
  - b. Leaves 1-nerved.
  - c. Stem very prickly; plants annual. 2. *G. Aparine*
  - c. Stem smoothish; plants perennial.
  - d. Plants short and erect; leaves widely ovate, in 4's. 3. *G. kamschaticum*
  - d. Plants usually prostrate; leaves lanceolate, in 6's. 4. *G. triflorum*
- a. Ovary and fruit smooth or almost so.
  - e. Flowers yellow; stem smooth. 5. *G. verum*
  - e. Flowers white.
  - f. Stem smooth or nearly so; plants large, nearly erect, with very large decomposed inflorescences.
    - g. Branches of the inflorescence, and the pedicels, wide-spreading. 6. *G. Mollugo*
    - g. Branches of the inflorescence and the pedicels ascending. 7. *G. erectum*
  - f. Stems more or less prickly, or if smooth then with the plants very small and slender; plants matted, reclining or ascending, rather slender.
  - h. Leaves with a sharp [pointed tip; plants very rough, often rather coarse. 8. *G. asprellum*
  - h. Leaves blunt; plants usually slender.
  - i. Flowers numerous in branched inflorescences, 2-3 mm wide, with 4 acute petals. 9. *G. palustre*
  - i. Flowers solitary, or in 2's or 3's.
  - j. Corolla commonly with 3 blunt lobes; flowers 1.5 mm wide; fruit 1.25-2.25 mm wide.
    - k. Pedicels straight and smooth, mostly 2-6 mm long; flowers mostly in 2's or 3's. 10. *G. tinctorium*
    - k. Pedicels slender and arcuate, mostly 5-10 mm long; flowers mostly solitary.
      - l. Leaves, stems and pedicels with minute prickles; mature fruit 1.25-1.50 mm thick. 11. *G. trifidum*
      - l. Leaves, stems and pedicels smooth; mature fruit 1.5-1.75 mm thick. *G. trifidum* var. *halophilum*
  - j. Corolla commonly with 4 acute lobes; flowers 2-2.5 mm wide.
    - m. Leaves ascending, 1.5-2.5 cm long; inflorescence mostly terminal; fruit 2.5-3.5 mm thick. 12. *G. obtusum*

m. Leaves mostly reflexed, 0.5-1.5 cm long; inflorescence finally lateral; fruit 1-1.5 mm thick, on short pedicels.

13. *G. labradoricum*

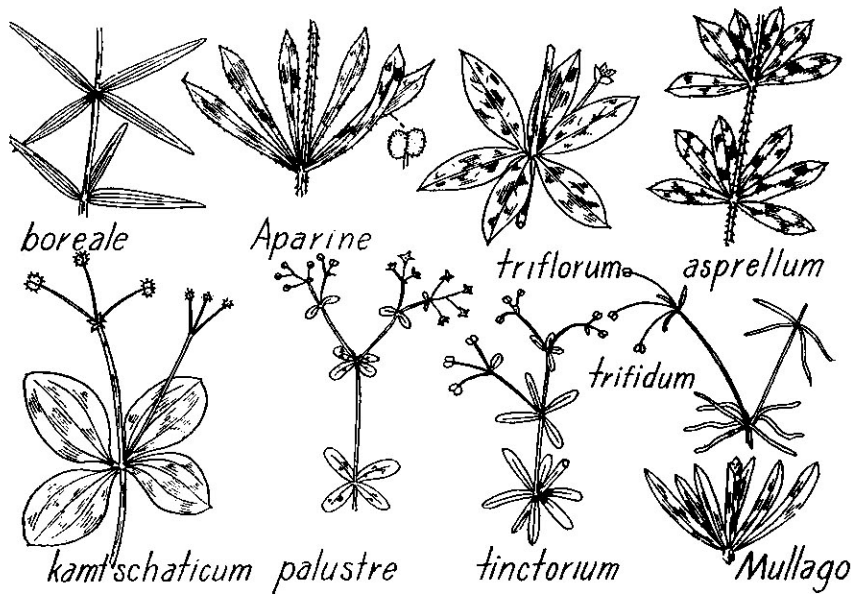


Fig. 109.—*Galium*, all  $\times \frac{1}{2}$ .

1. *G. boreale* L., var. *intermedium* DC., see Fernald, in *Rhodora* 30: 106-107. 1928. NORTHERN BEDSTRAW. Fig. 109.

Known only from the top of Cape Blomidon where it is local around the edges of woods and in grassy places. Aug.

N. S. to Ont. south to Dela. and Ind.

2. *G. Aparine* L. CLEAVER'S, GOOSE-GRASS. Fig. 109.

Sparingly introduced; Macoun lists it from ballast heaps and waste places at Pictou and North Sydney; and it is occasionally found elsewhere.

N. S. to B. C. south to Fla. & Calif.; Eurasia.

3. *G. kamtschaticum* Steller. NORTHERN WILD LIQUORICE. Map 414. Fig. 109.

Scattered and local in rich woods and ravines in northern C. B., often growing in colonies along wet runs.

C. B., Nfld. & Que. south to northern N. Eng.; the Aleutians and eastern Asia.

4. **G. triflorum** Michx. SWEET-SCENTED BEDSTRAW. Map 415. Fig. 109.

Scattered throughout and common from Annapolis to northern C. B.; mixed or deciduous woods. July-Aug.

Greenland to B. C. south to Fla. and Calif.

5. **G. verum** L. YELLOW BEDSTRAW.

Rather rare; seen as an occasional escape along roadsides and near dwellings.

Recently introduced from Eu.; N. S. to Ont. south to Penn.

6. **G. Mollugo** L. CLEAVERS.

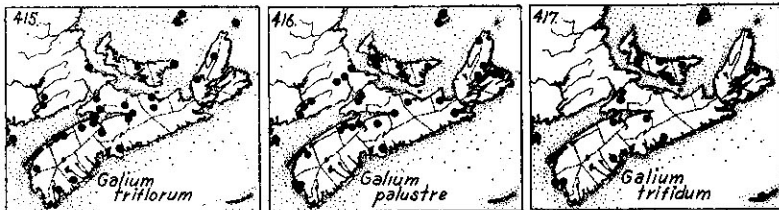
This species was reported from Truemanville, Cumberland Co., by Macoun over 40 years ago. Since that time it has spread and become a bad weed along roadsides and occasionally in fields in the northern part of the province; local elsewhere. July-Aug.

Native of Eu.; Nfld. to Vt., Va. and Ohio.

7. **G. erectum** Huds.

Various collections seem to belong to this species. Its distribution in the province is unknown, but it may be rather common, especially in the north-central counties. July-Aug.

N. S. to Que. & Conn.



8. **G. asprellum** Michx. ROUGH BEDSTRAW. Fig. 109.

Very common, the tangled rough masses are found clambering over bushes and underbrush, roadside weeds, and the sides of ditches; in low pastures, along brooksides, etc. throughout. July-Sept.

Nfld. to Minn. south to N. C.

9. **G. palustre** L. COMMON OR MARSH BEDSTRAW. Map 416. Fig. 109.

Very common throughout; ditches, low ground, along streams and in alluvial soils. It is common on intervale

meadows where it grows among the grasses and along the stream-banks. July-Aug.

Nfld. to Mich. south to Conn.

10. **G. tinctorium** L. SMALL BEDSTRAW. Fig. 109.

Low areas, along brooks, marshes and bogs; common throughout, flowering several weeks later than the preceding species. (*G. Claytoni* Michx., not *G. tinctorium* of Gray's Manual, see Fernald, *Rhodora* 37: 443-445. 1935.) Hara, *Rhodora* 41: 387-388. 1939, further places this and the following plant into one circumboreal species connected by the following variety. Nfld. to Nebr. south to Fla. & Tex.

Var. **subbiflorum** (Wieg.) Fern., *Rhodora* 39: 320. 1937, is mostly a western variety intermediate between this and the next species. In the northeast it is more closely connected with, and grades into *G. tinctorium*. It differs mainly in a tendency towards solitary flowers on longer, sometimes slightly prickly pedicels. Pebbly lake shore, North Sydney, Howe and Lang, no. 752; see *Rhodora* 12: 230. 1910.

11. **G. trifidum** L. Map 417. Fig. 109.

Springy and boggy places, local throughout and much less common than the preceding two species, usually growing in rich alluvial soils along stream bottoms; common on Sable Is. in wet dune hollows and along swampy borders of fresh-water ponds.

Var. **halophilum** Fern. and Wieg., *Rhodora* 12: 78. 1910, is found on brackish shores and borders of salt marshes; Yarmouth Co. and C. B., probably around the whole coast. July 15-Aug.

Nfld. to B. C. south to N. Eng., N.Y. and Calif.

12. **G. obtusum** Bigel., see *Rhodora* 37: 443-445. 1935.

Rare, with earlier records belonging to *G. palustre*. It is found in boggy swales and wet thickets in the Tusket Valley, Yarmouth Co.; perhaps elsewhere. July. (*G. tinctorium* in Gray).

N. S. to Mich. & Nebr. south to N. C.

13. **G. labradoricum** Wieg.

This slender smooth plant with thread-like rootstocks is found from Nfld. to Wisc. south to N. Y., growing in moss under white cedar or larch woods. No specimens or records

have been seen from the province, but it is apparently overlooked.

### 3. CEPHALANTHUS L.

#### 1. *C. occidentalis* L. BUTTONBUSH. Map 418. Fig. 111, a.

Local; rare in Shelburne Co.: rocky shore of Deception Lake, and among granite boulders at Lake John (Fernald, 1921), at both stations rare and local; Queens Co.; found first in the province by R. H. Wetmore at Cameron L., and later found to be common along the Medway R. and about the lakes near its head (Weatherby, 1942). July 15-Aug. 15.

N. S. to Ont. & Calif. south to Fla. & Tex.; east Asia.

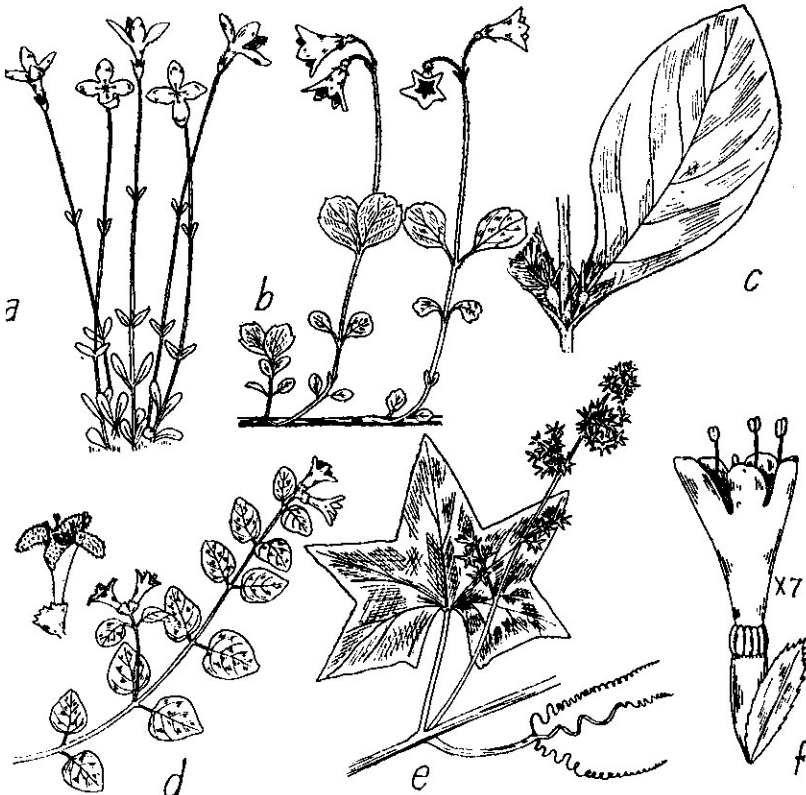


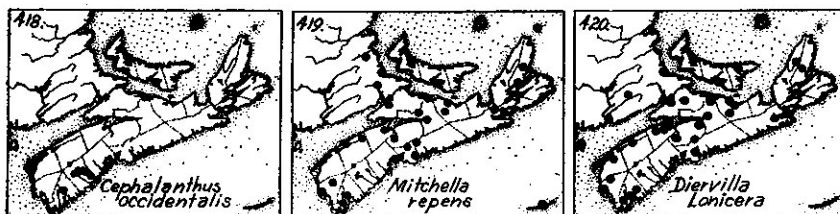
Fig. 110.—*Houstonia*. a, *H. caerulea*,  $\times \frac{1}{2}$ . Linnaea. b, *L. borealis*,  $\times \frac{1}{2}$ . *Triosteum*. c, *T. aurantiacum*,  $\times \frac{1}{2}$ . Mitchellia. d, *M. repens*,  $\times \frac{1}{2}$ ; flower,  $\times 1$ . *Echinocystis*. e, *E. lobata*,  $\times \frac{1}{2}$ . Valeriana. f, *V. officinalis*, flower much enlarged.

## 4. HOUSTONIA L

1. *H. caerulea* L. BLUETS. Fig. 110, a.

Open grassy places, damp fields, meadows and occasionally on drier hillsides; scattered throughout, and abundant in deserted fields or pastures in the Annapolis Valley and the north-central counties. Early May-June.

N. S. to Wisc south to Ga. & Mo.



## 5. MITCHELLIA L.

1. *M. repens* L. PARTRIDGE BERRY. Map 419. Fig. 110, d.

Common throughout; shady and mossy woods, moist banks, and hummocky pastures; characteristic of deciduous climax forest in northern C. B.; uncommon and local on turf-covered dunes on Sable Is. It is mostly found in moist places where it does not have to meet competition of more vigorous herbs or grasses. July.

Nfld. to Minn. south to Fla., Ark. and Tex.

## 101. CAPRIFOLIACEAE HONEYSUCKLE FAMILY

## a. Shrubs.

b. Leaves simple, or merely palmately lobed.

c. Leaves finely and sharply toothed; fruit a capsule; flowers yellow; shrubs in low clumps (Fig. 112, a). 1. *Diervilla*

c. Leaves entire, or obscurely and bluntly toothed; fruit a berry; flowers pinkish to cream-colored.

d. Flowers solitary or in axillary clusters; shrubs mostly less than 1.5 m high.

e. Corolla irregular, funnel-form; berry red or blue, 2-3-celled, several-seeded (Fig. 112, b, c). 2. *Lonicera*

e. Corolla regular and bell-shaped; berry white, waxy, 4-celled, 2-seeded (Fig. 112, d). 3. *Symphoricarpos*

d. Flowers small and numerous, in an erect compound inflorescence or cyme; shrubs mostly over 1.5 m high (Fig. 113).

4. *Viburnum*

- b. Leaves pinnately compound, the leaflets toothed (Fig 111, b, c).  
5. *Sambucus*
- a. Herbs or trailing semi-woody plants.
- f. Plant trailing, partly woody; flowers in pairs on an upright stalk, bell-like, pink (Fig. 110, b).  
6. *Linnaea*
- f. Plant erect, herbaceous; flowers axillary, sessile, reddish (Fig. 110, c).  
7. *Triosteum*

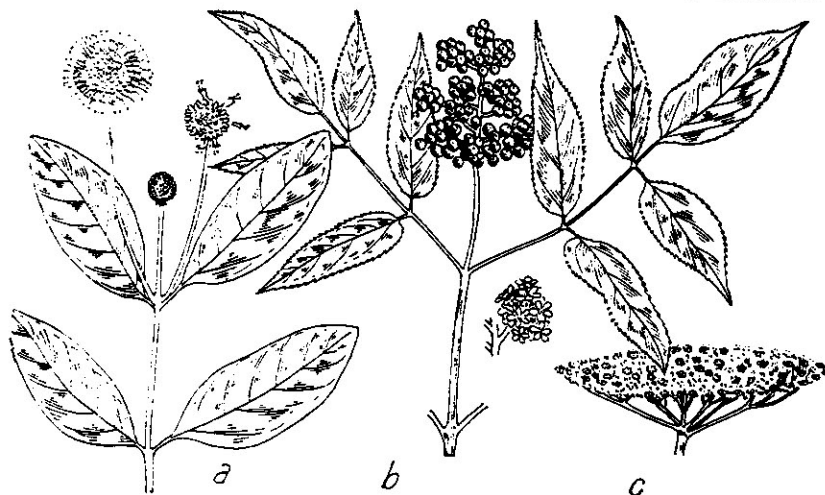


Fig. 111.—*Cephalanthus*. a, *C. occidentalis*,  $\times \frac{1}{2}$ . *Sambucus*. b, *S. pubens*, fruiting twig,  $\times \frac{1}{2}$ ; flower,  $\times 1$ . c, *S. canadensis*, inflorescence,  $\times \frac{1}{2}$ .

## 1. DIERVILLA (Tourn.) Mill.

1. **D. Lonicera** Mill. BUSH HONEYSUCKLE. Map 420. Fig. 112, a.

Common throughout; sandy or stony ground, thickets, dry plains, roadsides and pastures; on very light soil (it usually grows in the shade, but otherwise it shows a wide range of habitats. June 20-July.

Nfd. to N. Eng., Ga. & Wisc.

## 2. LONICERA L. HONEYSUCKLE

- a. Flowers in pairs or rarely solitary; plants bush-like, erect, native.
- b. Leaves elliptical, 2-4 cm long, thick and veiny; flowers yellow, on stalks 3-7 mm long, crowded; fruit blue, the two ovaries united to form one berry.  
1. *L. villosa*
- b. Leaves ovate, thin, smoothish and much larger; flowers greenish-yellow, on stalks 14-30 mm long; fruit red, the two berries nearly separate.  
2. *L. canadensis*

a. Flowers in a dense head; plant twining; garden escape.

3. *L. Periclymenum*

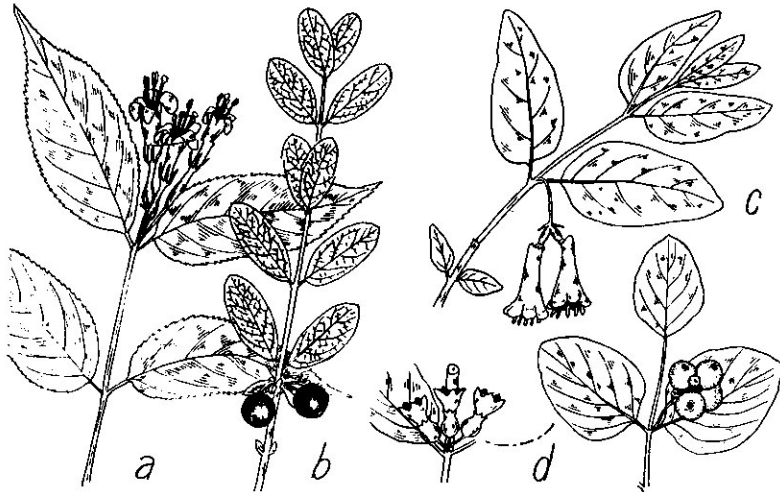


Fig. 112.—*Diervilla*. a, *D. Lonicera*, x  $\frac{1}{2}$ . *Lonicera*. b, *L. villosa*, x  $\frac{1}{2}$ . c, *L. canadensis*, x  $\frac{1}{2}$ . *Symphoricarpos*. d, *S. rivularis*, fruiting twig, x  $\frac{1}{2}$ ; flower, x 1.

1. *L. villosa* (Michx.) R. & S., see Fernald, *Rhodora* 27: 1-11. 1925, for nomenclature and varieties. MOUNTAIN FLY HONEYSUCKLE. Map 421. Fig. 112, b.

Typical *L. villosa* has not been found in the province, but it is represented by the three following varieties, which in N. S. at least, appear more like forms. (*L. caerulea* L. in Gray's Man.).

Var. **Solanis** (Eaton) Fern. has the young branches covered with fine short hairs mixed with longer ones, and the leaves pilose beneath. Yarmouth and Cumberland Cos. to C. B. in bogs, wet pastures and boggy thickets.

Var. **calvescens** (Fern. & Wieg.) Fern. has the young twigs with only fine short hairs or puberulence. Common from Halifax to C. B. Var. **tonsa** Fern. has the branches glabrous, and the leaves glabrous or nearly so. Common in pastures above Parrsboro. The fruit of this species is said to be delicious in flavor and should be an article of diet in parts of the province. May.

Lab. to Man. south to Mass., Mich., & Minn.

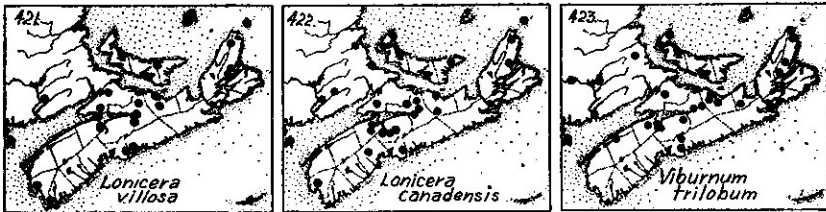
2. *L. canadensis* Marsh. AMERICAN FLY HONEYSUCKLE. Map 422. Fig. 112, c.

Common throughout, especially from Annapolis Co. to



northern C. B.; light or rocky woods, ravine banks, and characteristic of hardwood forests. Early May.

N. S. to Sask. south to Penn. & Minn.



### 3. *L. Periclymenum* L. WOODBINE.

Fernald (1921) reports this common garden shrub as becoming naturalized along roadside fence-rows about Yarmouth.

### 3. SYMPHORICARPOS (Dill.) Ludwig

1. *S. rivularis* Suksdorf, see Jones, Journ. Arnold Arb. 21: 209-214. 1940. SNOWBERRY, WAXBERRY. Fig. 112, d.

Frequently planted around buildings and in gardens, occasionally escaping to roadsides. July. (*S. racemosus* var. *laevigatus* Fern.).

Alaska to Calif. & Mont.; introduced eastwards.

### 4. VIBURNUM (Tourn.) L.

- a. Leaves 3-lobed, palmately veined.
- b. Leaves with large conspicuous glands near the top of the petiole, deeply lobed; cyme 4-6 cm wide, the marginal flowers large and showy.
- c. Leaves downy beneath; petiole with a deep narrow groove along the top, and large disk-shaped glands; stipules near the base of the petiole mostly thread-like and tapering to the end.
  - 1. *V. Opulus*
- c. Leaves smooth beneath except the veins; petioles with a wide and shallow groove above, and smaller club-shaped glands; stipules clavate, or with club-shaped thickened tips.
  - 2. *V. trilobum*
- b. Leaves without glands at the top of the petiole, slightly and shallowly lobed, glabrous beneath except for a conspicuous band of hairs along the main veins; cyme 1-4 cm wide, the flowers small and all alike.
  - 3. *V. edule*
- a. Leaves not lobed, pinnately veined.
- d. Cyme sessile, the marginal flowers large and showy; leaves large, heart-shaped; leaves, twigs and flowering-stalks softly brown-scurfy.
  - 4. *V. alnifolium*

- d. Cyme stalked, the flowers all small; leaves not heart-shaped; leaves, twigs and flower-stalks only minutely brownish-dotted.

5. *V. cassinoides*

1. *V. Opulus* L. EUROPEAN CRANBERRY BUSH.

Frequently planted and occasionally escaping along roadsides and intervalles, especially in the north-central counties. Var. *roseum*, with all the flowers in the cyme with showy rays, is the common snowball of the gardens. June 15-July 15.

Widely introduced from Eu.

2. *V. trilobum* Marsh. HIGHBUSH CRANBERRY. Map 423. Fig. 113, a.

This American variant of *V. Opulus* is found from Annapolis and Cumberland Cos. to northern C.B.; occasional in the Annapolis Valley and becoming common along the intervalles of eastern N. S. (*V. Opulus* var. *americanum* Mill.)

Nfld. to B. C. south to N. Y., S. D. & Ore.

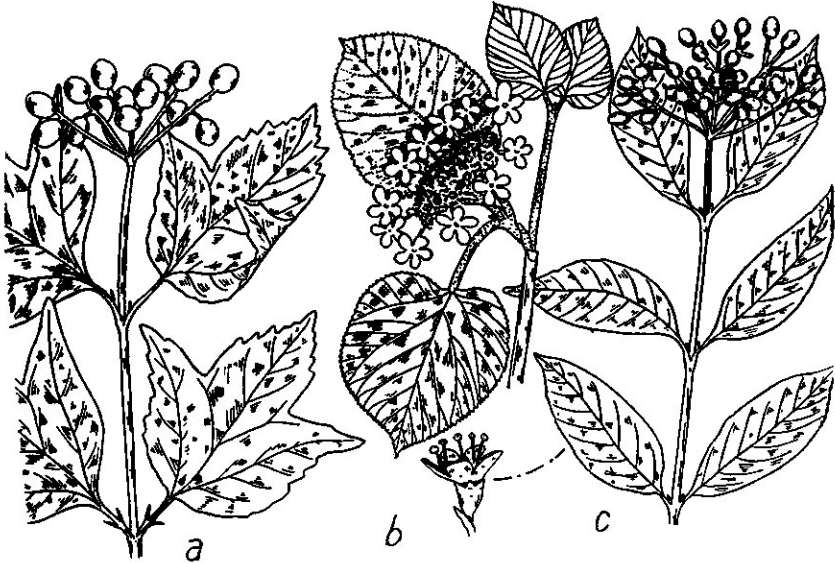


Fig. 113.—*Viburnum*. all  $\times \frac{1}{2}$ . a, *V. trilobum*. b, *V. alnifolium*. c, *V. cassinoides*; flower enlarged.

3. *V. edule* (Michx.) Raf., see Fernald, *Rhodora* 43: 481-483. 1941. CRANBERRY BUSH.

Cold woods, and along streams; characteristic, accord-

ing to Nichols, of the coniferous climax forest in northern C. B.; unknown elsewhere in the province. (*V. pauciflorum* Pylaie).

Nfld. to Alaska south to Me. and in the Rockies.

4. *V. alnifolium* Marsh. HOBBLE BUSH. Map 424. Fig. 113, b.

Scattered in rich woods, shaded ravines and characteristic of rich hardwoods; rare in the southwestern counties, becoming frequent in Digby Co. and along the northern counties to northern C. B. May 15-June 15. (*V. lantanoides* Michx.)

N. S. to Mich. south to Penn.

5. *V. cassinoides* L. WITHE-ROD, VIBURNUM. Fig. 113, c.

Common throughout, often abundant in swamps, wet barrens, open low lands, and in all types of locations from peaty barrens to dry open areas and pastures. June 20-July 15.

Nfld. to Man. south to N. J., Fla & Ala.

## 5. SAMBUCUS (Tourn.) L. ELDER

a. Flowering June 1-June 20; inflorescence pyramidal-shaped; corolla lobes reflexed in drying; fruit red; young pith reddish-brown.

1. *S. pubens*

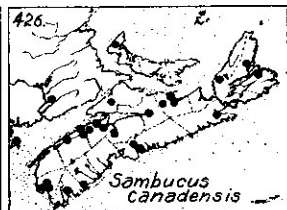
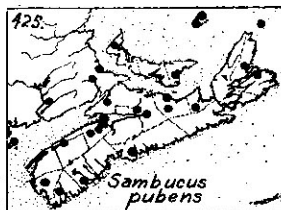
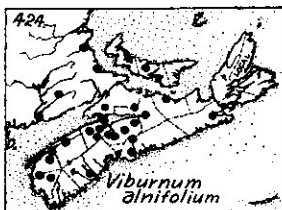
a. Flowering July 15-Aug.; inflorescence almost flat; corolla lobes spreading when dried; fruit dark-purple; pith of the young twigs whitish.

2. *S. canadensis*

1. *S. pubens* Michx., see Fernald, *Rhodora* 35: 310. 1933. RED-BERRIED ELDER. Map 425. Fig. 111, b.

Common in wet places, rocky hillsides, or along streams; throughout, occurring as scattered plants in the climax forest in northern C. B. June 1-June 20. (*S. racemosa* L. of earlier authors).

Nfld. to B. C. south to Penn., Ga. & Calif.



2. **S. canadensis** L. COMMON ELDER. Map 426.  
Fig. 111, c.

Common in rich soil, open woods, around old fields and along brooks, especially in the center of the province; in wet flood-plains and meadows in northern C. B.; not as common in the Annapolis Valley as the preceding species. July 15-Aug.

N. S. to Man. south to Fla., Kans., & Ariz.

## 6. LINNAEA (Gronov.) L.

1. **L. borealis** L., var. **americana** (Forbes) Rehd. TWIN-FLOWER Fig. 110, b.

Common throughout; characteristic of wooded swamps, spruce bogs and coniferous forests, often occurring in dense mats. It is especially common eastwards; also on Sable Is. Late June.

Lab. & Nfld. to Alaska south to Md., Ind. & Minn.

## 7. TRIOSTEUM L.

1. **T. aurantiacum** Bickn. FEVERWORT, HORSE GENTAIN. Fig. 110, c.

Local; intervales or rich soil along the rivers: above Truro, near New Glasgow, and characteristic of intervales in northern C. B., in one place growing on limestone cliffs. July.

N. S. to Ont. and Wisc. south to Va. and Ill.

## 102. VALERIANACEAE VALERIAN FAMILY

### 1. VALERIANA (Tourn.) L.

1. **V. officinalis** L. GARDEN HELIOTROPE Fig. 110, f.

This old-fashioned garden plant is found occasionally as an escape or persisting for a time along roadsides, not spreading. July 15-June.

Introduced from Eurasia and widely distributed.

## 103. DIPSACACEAE TEASEL FAMILY

### 1. SUCCISA (Rupp.) Neck.

1. **S. pratensis** Moench. DEVIL'S-BIT. Fig. 114, e.

Common about Louisburg where it grows about dwell-

ings, along roadsides, in fields and waste places; not known from any other region in eastern Can. Aug.-Sept.

Introduced from Eu.

#### 104. CUCURBITACEAE GOURD FAMILY

This family is represented by the garden squash (*Cucurbita maxima* Duchesne), the pumpkin (*C. Pepo* L.), and the cucumber (*C. sativus* L.). The following is the only member growing without cultivation in the province.

##### 1. ECHINO CYSTIS Torr. & Gray

1. *E. lobata* (Michx) Torr. & Gray. WILD CUCUMBER. Fig 110, e.

This climbing plant, used as a cover for fences and walls, often escapes to waste places and persists on rich river bottoms in the central and southern parts of the province. July-Sept.

N. S. to Man. south to Penn., Ga. & Tex.

#### 105. CAMPANULACEAE BLUEBELL FAMILY

##### 1. CAMPANULA (Tourn.) L.

- a. Plant 6-10 dm high; flowers numerous in an erect terminal spike; stem-leaves wide, toothed. 1. *C. rapunculoides*
- a. Plant 1-6 dm high, weak; flowers few; stem-leaves linear, except var *alaskana*) mostly untoothed.
- b. Stem weak and filiform, very rough and clambering; corolla white, 6-10 mm long. 3. *C. aparinoides*
- b. Stem erect, smooth above; corolla blue, 15-25 mm long.
- c. Stem leaves linear.
- d. Base of the stem pubescent all over for at least 10 cm. 2. *C. rotundifolia*
- d. Base of the stem bristly pubescent only on the angles, or smooth. *C. rotundifolia* var *intercedans*
- c. Stem leaves lanceolate to oblong or narrowly obovate. *C. rotundifolia* var. *alaskana*

1. *C. rapunculoides* L. BELL-FLOWER, BLUEBELLS. Fig. 114, a.

Commonly planted and very persistent in old gardens, often escaping to fields and roadsides. July 15-Aug.

Introduced from Eurasia; Nfld. to Ont. south to Penn. & Ind.



Fig. 114.—*Campanula*: a, *C. rapunculoides*, top of plant, x  $\frac{1}{2}$ . b, *C. rotundifolia*, x  $\frac{1}{2}$ ; basal leaves, x  $\frac{1}{2}$ . c, *C. aparinoides*, x  $\frac{1}{2}$ . *Lobelia*. d, *L. inflata*, top of plant, x  $\frac{1}{2}$ . f, *L. Dortmanna*, x  $\frac{1}{2}$ . *Succisa*. e, *S. pratensis*, inflorescence and leaf, x  $\frac{1}{2}$ .

2. *C. rotundifolia* L. HAREBELL. Map 427. Fig. 114, b.

This typical Eurasian plant is rare in North America, from the Arctic Regions south to N. J., the Great Lakes and Texas. The only N. S. collection seen that approached this variety was from gypsum cliffs, 5-Mile R., Hants Co.

Var. *intercedans* (Witasek) Farw. is common around the coast and in colder parts of the province; it is often abundant near the sea, in meadows, on damp cliffs, and occasionally on cliffs along streams inland. June 15-Sept. Eastern and interior N. A. See Malte, *Rhodora* 36: 188-190. 1934, for discussion of the status of the plant.

Var. *alaskana* Gray, see *Rhodora* 35: 310. 1933, has been collected upon St. Paul Is., C. B. (Perry, 1931). This

intergrading variety is western, collected east of B. C. only in N. S., the Gaspé and Nfld.

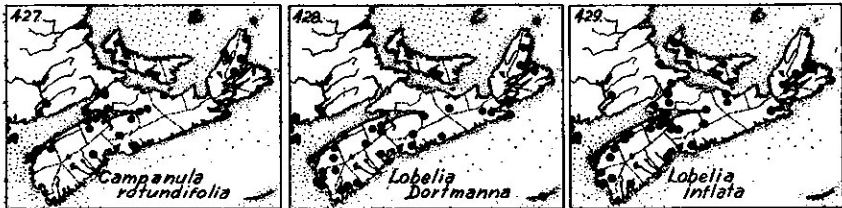
3. **C. aparinoides** Pursh. MARSH HAREBELL Fig. 114, c.

Collected along ditches in a meadow north of Auburn, Kings. Co., August 1942; Ganong reports it as a minor form in the wet marsh about the head of the Bay of Fundy. Aug. N. S. to Colo. south to Ga. & Ky.

## 106. LOBELIACEAE LOBELIA FAMILY

McVaugh, Rogers. Studies in the taxonomy and distribution of the eastern North American species of *Lobelia*. *Rhodora* 38: 241-263; 276-298; 305-329; 346-362. 1936.

- a. Stem leafy; leaves flat; plants of dry or moist habitats.
  - b. Stem slender, unbranched, the flowers scarcely stalked; fruit not inflated nor enlarged. 1. *L. spicata*
  - b. Stem becoming much branched, the flowers long-stalked or several on slender branches.
  - c. Leaves wide, oblong, toothed; plants often rough-hairy; fruit oval, soon much swollen; common. 2. *L. inflata*
  - c. Leaves narrow to linear; plants smooth or nearly so; fruit not swollen; rare. 3. *L. Kalmii*
- a. Stem naked, hollow; leaves in a basal rosette, the blades oval in cross-section, rolled to resemble two united cylinders; water plants. 4. *L. Dortmanna*



1. **L. spicata** Lam. BLUE LOBELIA

Rare in the Maritimes; local and weedy on the top of Cape Blomidon in Kings Co. July-Aug.

P. E. I. to Sask. south to Fla.

2. **L. inflata** L. INDIAN TOBACCO Map 429. Fig. 114, d.

Common throughout; dry pastures, run-out fields and thickets. July-Aug.

Lab. to Sask. south to Ga. & Fla.

3. **L. Kalmii** L. Map 441.

Rare; known only from dripping cliffs or meadows in

northern C. B.; usually found in calcareous or marly places. July-Sept.

Nfld. to B. C. south to Ohio & Mo.

4. **L. Dortmanna** L. WATER LOBELIA Map 428. Fig 114, f.

Common around lakes and ponds in the southern or acid regions of the province, rarer northward and in sandy areas. It grows at the edges of the water with the rosette of leaves submersed and the height of the stem varying with the depth of the water. Aug.

Nfld. to Lake Superior south to N.J.; B.C. to Ore.

#### 107. COMPOSITAE COMPOSITE FAMILY

Flowers composite, composed of many florets grouped on a common *receptacle*, surrounded by one to several rows of bracts making up the *involucre*. Scales growing on the receptacle among the florets are called *chaff*. If chaff is absent, the receptacle is said to be naked. The flower-heads may have two kinds of florets: tubular ones or *disk florets*, and ones with the corolla drawn out into a ray or ligule which are called *ray florets*. If the flowers are *discoid*, the florets are all disk florets; if the flowers are called *ligulate*, then all the florets are ray florets as in the dandelion; if the flower is *radiate*, then the inner florets are disk florets and the outer ones ray florets, as in the daisy. Each floret is like an individual flower with an inferior ovary. The calyx, however, is reduced to scales, teeth or bristles or may be absent. This reduced calyx is called the *pappus*, and is most conspicuous after the fruits are formed.

a. Flower-heads discoid or radiate.

b. Staminate and pistillate florets separated in very different-appearing heads on the same plant; heads discoid; involucre of the pistillate flowers closed and indurated, with 1-2 florets; staminate heads numerous in terminal or axillary racemes.

Pistillate heads small, in the axils of leaves at the base of the staminate racemes, with a few acute tubercles at the apex; leaves opposite, or alternate and pinnately divided (Fig. 121, a).

11. *Ambrosia*

Pistillate heads forming conspicuous oblong to oval hurs covered with hooked spines; leaves rough, alternate and cordate. (Fig. 120, e).

12. *Xanthium*

b. Staminate and pistillate flowers not in very different-appearing heads; involucre of the fertile flowers not woody, with the bracts more or less separate.



- c. Heads discoid, without rays.
- d. Involucral bracts hooked at the tip, forming a bur; pappus of scales; burdock. 29. *Arctium*
- d. Involucral bracts not hooked at the tip to form a bur.
- e. Bracts of the involucre ovate, at least the outer with the margins deeply lobed; flowers blue to reddish (Fig. 125, a). 34. *Centaurea*
- e. Bracts of the involucre not deeply lobed on the margins.
- f. Pappus composed of capillary bristles.
- g. Involucral bracts papery throughout; plants more or less whitish-woolly; stem-leaves scale-like to linear.  
 Basal leaves larger than the stem-leaves, forming a rosette; stem-leaves much reduced (Fig. 119, e, f). 6. *Antennaria*  
 Basal leaves similar to the stem-leaves or absent; stem-leaves long and linear.  
 Involucre papery white, the bracts finely striate, spreading; plants forming colonies by underground rootstocks (Fig. 120, a). 7. *Anaphalis*  
 Involucre yellowish-white or brownish, the bracts not striate, rather appressed; plants not forming clumps (Fig. 120). 8. *Gnaphalium*
- g. Involucral bracts not wholly thin and colorless, if partly so than the plants not whitish-woolly nor the stem leaves linear.
- h. Involucral bracts in one row, often with minute bractlets at the base.  
 Flowers in early spring, on bracted stems; green leaves in summer basal, reniform, deeply and palmately 5-7-lobed (Fig. 123, c). 26. *Petasites*  
 Flowers on green leafy stems, appearing in summer or autumn.  
 Leaves simple; heads 15-20 mm long, the marginal florets all pistillate (Fig. 124, a). 27. *Erectites*  
 Leaves, at least the stem-leaves, deeply lobed; heads 7-10 mm long, the flowers all perfect (Fig. 124). 28. *Senecio*
- h. Involucral bracts in 2 to many rows.
- i. Leaves and stem bristly or spiny (thistles).
- j. Flowers white to purple; pappus of a single row of similar hairs or bristles.
- k. Pappus with the capillary hairs plumose (with very fine branches); thistles. 31. *Cirsium*
- k. Pappus of unbranched capillary hairs.
- l. Receptacle densely bristly, the bristles scattered among the florets.  
 Involucral bracts linear to lanceolate; stamen filaments hairy, separate. 30. *Carduus*  
 Involucral bracts large and ovate; flower-heads solitary; filaments smooth, united into a tube. 33. *Silybum*

- l. Receptacle honey-combed, not bristly; leaves cottony-woolly. 32. *Onopordum*
- j. Flowers yellow; pappus of 10 short teeth, 10 long bristles, and 10 shorter ones in an inner row. 35. *Cnicus*
- i. Leaves and stem neither bristly nor spiny.
  - Corolla deeply lobed; involucre bracts lobed; receptacle bristly (Fig. 125, a). 34. *Centaurea*
  - Corolla merely toothed; involucre bracts not lobed; receptacle without any chaff (Fig. 115, a, b). 1. *Eupatorium*
- f. Pappus not composed of capillary bristles.
- m. Pappus of short, often barbed awns, often one awn prominent at each end or corner of the flattened achene; leaves opposite, usually compound.
  - Plants rooted in soil, more or less erect; leaves not very finely divided (Fig. 121, e). 16. *Bidens*
  - Plants aquatic, floating; submerged leaves with very fine capillary division (Fig. 122, a). 17. *Megalodonta*
- m. Pappus none, or a mere crown of short bristles or scales.
  - Flowers purplish; corolla large, deeply lobed; involucre bracts usually lobed on the margins (Fig. 125, a). 34. *Centaurea*
  - Flowers yellow to yellowish-white; corollas very small, slightly toothed.
    - Leaves not lobed; receptacle chaffy; plant of salt marshes or sea-shores; woody at base. 10. *Iva*
    - Leaves finely divided; receptacle not chaffy.
      - Plant 1-3 dm high, strong-smelling; receptacle strongly conical, dull-green (Fig. 122, d). 21. *Matricaria*
      - Plant over 3 dm high, not strong-smelling; receptacle flat or slightly convex.
        - Heads in a flat-topped inflorescence, bright-yellow and button-like, erect (Fig. 122, e). 23. *Tanacetum*
        - Heads paniculate, racemose or spicate, dingy-yellowish, chiefly nodding, small (Fig. 123, a). 24. *Artemisia*
- c. Heads radiate, with both disk and ray flowers.
- n. Pappus of capillary bristles; receptacle not chaffy.
- o. Flowers on bracted stems, appearing before the typical green leaves, in early spring.
  - Heads solitary like a tiny dandelion; flowers yellow; summer leaves heart-shaped and angled (Fig. 123, b). 25. *Tussilago*
  - Heads numerous, whitish; later leaves reniform, deeply lobed (Fig. 123, c). 26. *Petasites*
- o. Flowers on leafy plants.
- p. Flowers yellow (cream-colored in one goldenrod-*Solidago*).
  - Involucre bracts in one series, often with minute bractlets at the base (Fig. 124). 28. *Senecio*
  - Involucre bracts in three to many series.
    - Flower-heads large, 2.5-10 cm wide (Fig. 120, f). 9. *Inula*

Flower-heads 5-15 mm wide; goldenrods (Fig. 115-116).

2. *Solidago*

p. Flowers blue, violet or white.

Involucral bracts in one to two series; peduncles of the flowers without leaves (Fig. 119, a-c). 5. *Erigeron*

Involucral bracts in three to five series, often very unequal; peduncles leafy-bracted (Fig. 117-118). 4. *Aster*

n. Pappus of scales, awns, a mere crown or absent, not of capillary bristles.

q. Stem leafless; flowers solitary, white to purplish. 3. *Bellis*

q. Stem more or less leafy.

r. Leaves finely and several times divided.

Plants aquatic; leaves of two kinds, the submersed ones finely divided and the exposed ones merely lobed; pappus of awns (Fig. 122, a). 17. *Megalodonia*

Plants terrestrial; leaves all similar; pappus absent or a mere crown.

Receptacle not chaffy; flowers daisy-like. 21. *Matricaria*

Receptacle chaffy.

Flower-heads 3-5 cm wide; rays white, conspicuous (Fig. 122, c). 20. *Anthemis*

Flower-heads 3-7 mm wide; rays small (Fig. 122, b).

19. *Achillaea*

r. Leaves widely lobed, or toothed or entire.

s. Receptacle not chaffy; rays white; heads 4-6 cm wide; Daisy. 22. *Chrysanthemum*

s. Receptacle chaffy; flowers yellow or pink, or very small and grayish.

t. Leaves linear; flowers pink; Yarmouth Co. 15. *Coreopsis*

t. Leaves wider, toothed or lobed.

Flower-heads very small with 4-5 grayish rays; plants low and weak. 18. *Galinsoga*

Flower-heads more than 1 cm wide; rays yellowish.

Pappus of awns which are persistent on the top of the flattened achene (Fig. 121, d, e). 16. *Bidens*

Pappus absent, or a mere crown, or of scales which usually disappear.

Plants 1-2 m high; leaves entire, widely lanceolate or ovate. 14. *Helianthus*

Plants various; 3-6 dm high, with narrow lanceolate leaves, or tall and slender with leaves 3-5-parted (Fig. 121, b, c). 13. *Rudbeckia*

a. Flower-heads with the florets all ligulate; juice of the plant usually milky.

u. Leaves chiefly in a basal rosette.

v. Flowers small, less than 10 mm wide; pappus absent; plants wiry, 1-3 dm high; rare. 37. *Arnoseris*

v. Flowers 1.5-4 cm wide; pappus of bristles; plants larger and stouter.

- w. Leaves lanceolate, not toothed (Fig. 127). 46. *Hieracium*
- w. Leaves toothed, or more or less lobed.  
 Flower-heads solitary; bristles of the pappus simple; achenes spiny near the summit; Dandelions. 42. *Taraxacum*  
 Flower-heads several to numerous; achenes not spiny.  
 Pappus bristles plumose; plants low, mostly less than 3 dm high; leaves all basal, lanceolate.  
 Receptacle chaffy; inner achenes long-beaked; leaves coarse and stiffly hirsute or hairy. 39. *Hypochaeris*  
 Receptacle not chaffy; inner achenes not long-beaked; leaves smoothish to finely pubescent (Fig. 125, c). 40. *Leontodon*  
 Pappus bristles simple; plants stout, more than 3 dm high; leaves elliptical to ovate, often 1 or 2 near the base of the stem (Fig. 127). 46. *Hieracium*
- u. Leaves mainly scattered along the stem.
- x. Pappus of small scales, or else absent.  
 Flowers small, to 10 mm wide, yellow; pappus absent; plants slender, little branched (Fig. 125, f). 36. *Lapsana*  
 Flowers large, more than 4 cm wide; pappus of scales; plants coarse, woody, much branched (Fig. 125, e). 38. *Cichorium*
- x. Pappus of capillary bristles.
- y. Flowers yellow, white or blue, erect with many florets.
- z. Achenes long-beaked.  
 Plant usually not branched; leaves linear; flower-heads 4-5 cm wide; achenes 10-15 mm long; pappus bristles plumose. (Fig. 125, b). 41. *Tragapogon*  
 Plant much branched in the inflorescence; flower heads and achenes very much smaller; pappus bristles simple (Fig. 126, c). 44. *Lactuca*
- z. Achenes not beaked. (*Lactuca biennis* may key out here).  
 Achenes flattened; pappus bristles shining white; leaves smooth and glaucous; plants succulent (Fig. 126, a). 43. *Sonchus*  
 Achenes not flattened; pappus bristles tawny; leaves firm, rarely glaucous; plants stiff (Fig. 127). 46. *Hieracium*
- y. Flowers pale purplish-white, brownish or cream-colored, bell-like, hanging with few florets (Fig. 126, d). 45. *Prenanthes*

## 1. EUPATORIUM (Tourn.) L.

Wiegand, K.M. *Eupatorium purpureum* and its allies. *Rhodora* 22: 57-70. 1920. Wiegand, K.M. & C.A. Weatherby. The nomenclature of the verticillate *Eupatoria*. *Rhodora* 39: 297-306. 1937.

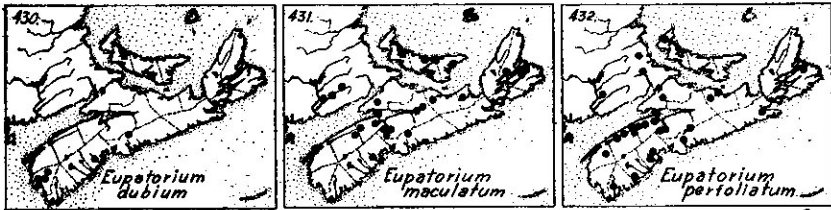
- a. Leaves in whorls of 3-6, or the upper opposite, the bases not united; flowers purplish.

- b. Leaves abruptly contracted to the petiole, more or less 3-nerved; plant somewhat viscid; inflorescence convex; florets mostly 6-10.
  - 1. *E. dubium*
- b. Leaves tapering to the petiole, mostly pinnately-veined; plant not viscid; inflorescence, or its parts, flat-topped; florets mostly 9-15 in each head.
- c. Leaves smaller above, not overtopping the inflorescence.
  - 2. *E. maculatum*
- c. Leaves large on the upper part of the stem, the upper much overtopping the inflorescence.
  - E. maculatum* var. *foliosum*
- a. Leaves opposite, the bases united around the stem; flowers white or a dingy pinkish-white.
  - 3. *E. perfoliatum*

1. ***E. dubium* Willd. Map 430.**

Local to rare; isolated clumps about the rocky shores of some of the lakes in the Tusket Valley, Yarmouth Co., scattered east to Halifax and Lunenburg Cos. Aug.-Sept. (*E. verticillatum* Lam.).

N. S. & N. H. south to S. C.



2. ***E. maculatum* L. JOE-PYE WEED. Fig. 115, a. Map 431.**

Common and conspicuous along brooks, edges of meadows and swamps throughout the northern region from Digby Neck to northern C. B.; rare southward. [*E. purpureum* var. *maculatum* (L.) Darl.]. Late July-Sept. Nfd to Minn & B C. south to Conn & N. H.

Var. *foliosum* (Fern.) Wieg., *Rhodora* 22: 66. 1920, is found throughout the eastern range of the species, and is not uncommon in northern N. S.

3. ***E. perfoliatum* L. BONESET. Fig. 115, b. Map 432.**

Scattered throughout; wet shores, meadows, edges of swamps and bogs, along roadside ditches, streams and rivers. It is usually scattered and does not become a weedy species. Forma *purpureum* Britt. with the heads of varying shades of pink or reddish, was found abundant along the river at Ste. Croix, Hants Co. Late summer and autumn.

N. S. to Man. south to Fla. and Tex.

2. **SOLIDAGO L. GOLDENROD**

- a. Rays whitish or cream-colored, otherwise similar to No. 4.  
3. *S. bicolor*
- a. Rays yellow.
- b. Leaves fleshy, shiny, entire; heads in a crowded oblong inflorescence; involucre of flower-head 4-6 mm high; plant of brackish shores.  
13. *S. sempervirens*
- b. Leaves thin, not fleshy, usually toothed; plants mostly inland, at least not restricted to the sea-coast.
- c. Heads more or less stalked, in irregular but not in flat-topped corymbs; rays mostly fewer than the disk flowers.
- d. Heads large; involucre 6-12 mm high; leaves pinnately-veined.
- e. Heads in a terminal small compact inflorescence; leaves obtuse; plant 1-4 dm high.  
8. *S. multiradiata*
- e. Heads axillary in the axils of the leaves; leaves ovate, acute to acuminate; involucre 8-12 mm high.  
9. *S. macrophylla*
- d. Heads smaller; involucre 2-5, rarely to 6, mm high.
- f. Heads in the axils of the upper leaves; or, more often, the inflorescence long and narrow, erect, with the branches short and crowded (Fig. 115, c, j).
- g. Heads in the axils of normal or but little-reduced leaves, the clusters widely scattered.
- h. Leaves lanceolate; stems smooth, terete, glaucous.  
1. *S. caesia*
- h. Leaves ovate, mostly petioled; stem not glaucous, more or less zig-zag, often pubescent near the top.  
2. *S. flexicaulis*
- g. Heads crowded in the axils of much reduced upper leaves to form an erect crowded inflorescence.
- i. Heads large; involucre 5-6 mm high; leaves elliptical to lanceolate, smooth on both sides.  
6. *S. Randii*
- i. Heads smaller; involucre 3-4.5 mm high; leaves finely puberulent or rough-pubescent on both sides.
- j. Bracts of the involucre narrow and acuminate, without scarious margins (Fig. 115, d); upper part of the stem and the leaves finely puberulent only (Fig. 115, e).  
5. *S. puberula*
- j. Bracts broad and obtuse with scarious margins (Fig. 115, i); upper part of the stem and the leaves finely white-pubescent.
- k. Inflorescence erect, the heads not arranged unilaterally on the branches; leaves pinnately-veined; pubescence long and open (Fig. 115, f).  
4. *S. hispida*
- k. Inflorescence small, usually curved, the heads strongly secund or unilateral on the branches; leaves much reduced towards the top of the stem, with 3 more or less equal veins; pubescence short, whitish (Fig. 115, g).  
7. *S. nemoralis*
- f. Heads in terminal, usually one-sided racemes, the total forming

- a large erect or curved compound inflorescence called a thyrses; plants large (Fig. 115, h).
1. Leaves pinnately-veined, not 3-ribbed, although sometimes obscurely so.
    - m. Basal leaves long-petioled, conspicuously larger than the 5-50 stem-leaves (Fig. 116, a).
      - n. Branches of the panicle pubescent; panicle narrow and compact, the branches short and often ascending.
        - o. Plants 4-15 dm high, of wet soils; stems and leaves smooth or nearly so.
          - p. Inflorescence elliptical or narrower, the branches appressed; heads not along one side only of the branches; involucre 4-5 mm long. 11. *S. humilis*
          - p. Inflorescence more spreading, the heads arranged unilaterally along the panicle branches; involucre 3-4 mm long, the bracts more rigid and incurved. 10. *S. uniligulata*
          - o. Plants 3-6 dm high, of dry soils and barrens; stems and leaves grayish-pubescent. 7. *S. nemoralis*
          - n. Branches of the panicle glabrous; panicle ample, the branches recurved-spreading; of fields and roadsides (Fig. 116, a). 12. *S. juncea*
      - m. Basal leaves similar to the 30-100 or more uniform and gradually reduced stem leaves, usually absent at flowering time; leaves elliptical to lanceolate.
        - q. Stem, branches and leaves glabrous or smooth.
          - r. Branches of the inflorescence strongly ascending; involucre 4.5-6.5 mm high; leaves widely lanceolate to oblong, strongly tapering to each end. 14. *S. Elliottii*
          - r. Branches of the inflorescence arching and reflexed; involucre 3-4 mm high; leaves narrowly lanceolate, gradually tapering to each end. 15. *S. rugosa* var. *sphagnophila*
    - q. Stem, branches and leaves pubescent to long villous.
      - s. Flowers mostly in a large terminal inflorescence; upper leaves short, not exceeding the branches of the inflorescence. 15. *S. rugosa*
      - s. Flowers scattered on short branches, the panicles exceeded by the surrounding leaves. *S. rugosa* var. *villosa*
  - l. Leaves more or less plainly 3-ribbed, with two of the side veins becoming prominent and elongated parallel to the midrib; heads in one-sided spreading or recurved panicles, forming an ample thyrses.
    - t. Flowers small, the involucre 2-3 mm high; rays 10-20, small and short (Fig. 116, b). 16. *S. canadensis*
    - t. Flowers larger, the involucre 3.5-5 mm high; rays 7-15, larger.
      - u. Leaves glabrous or somewhat scabrous above, pubescent at least on the midrib beneath. 17. *S. gigantea*
      - u. Leaves glabrous both above and beneath. *S. gigantea* var. *leiophylla*

- c. Heads sessile or nearly so, in flat or round-topped corymbs; rays more numerous than the disk flowers; leaves linear (Fig. 116, c).
- v. Leaves 3-5-ribbed; heads 20-30-flowered.
- w. Branches of the inflorescence glabrous or nearly so.

18. *S. graminifolia*

- w. Branches of the inflorescence hirtellous with minute spreading hairs.

*S. graminifolia* var. *Nuttallii*

- v. Leaves 1-ribbed, or obscurely 3-ribbed; heads 12-20-flowered.

19. *S. galeorum*

1. *S. caesia* L., var *axillaris* (Pursh) Gray

Scattered in thickets and open woods throughout the north-central region; Macoun lists it from Halifax and the North Mt., near Annapolis; and specimens from oak woods near Kentville belong here.

N. S. to Minn. south to Fla., & Tex.

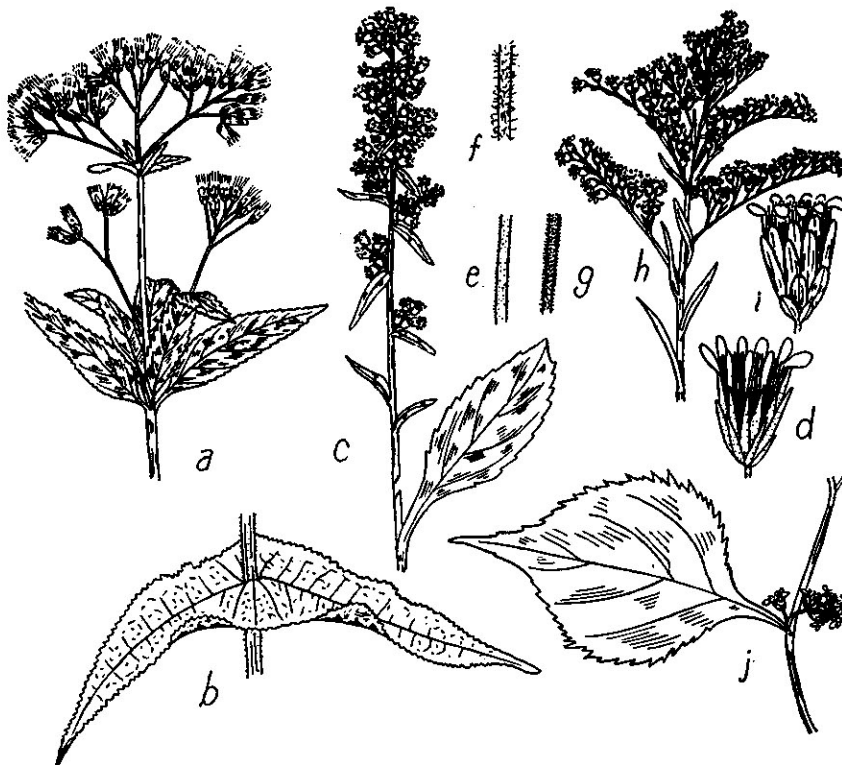
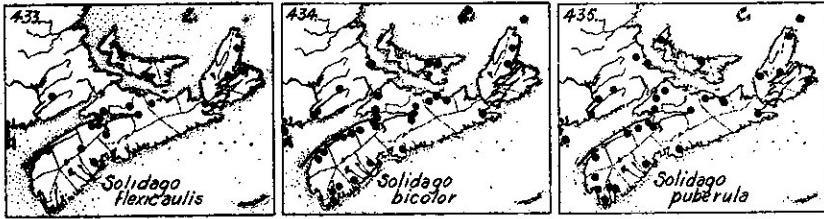


Fig. 115.—*Eupatorium*. a, *E. maculatum*, top of plant,  $\times \frac{1}{2}$ . b, *E. perfoliatum*, opposite leaves,  $\times \frac{1}{2}$ . *Solidago*. c, f, i, *S. bicolor*, top of plant,  $\times \frac{1}{3}$ ; flower,  $\times 3$ ; stem pubescence. h, *S. uniligulata*, inflorescence,  $\times \frac{1}{3}$ . j, *S. flexicaulis*, leaf and flowers,  $\times \frac{1}{3}$ .





2. **S. flexicaulis** L., see Victorin and Rousseau, Contrib. Inst. Bot. Univ. Montreal **36**: 56-58. 1940. WOOD GOLDENROD. Fig. 115, j. Map 433.

Common in rich woods, on calcareous slopes, and alluvial flood plains from Digby Neck and Lunenburg Co. to northern C. B. It is characteristic of climax forests along flood plains in C. B.; rare in the southwestern counties, so that Fernald (1922) considered a collection from Bridgewater worthy of record. Late July-Aug. (*S. latifolia* L.).

Nfld. to N. D. south to Ga. & Kans.

3. **S. bicolor** L. WHITE GOLDENROD. Map 434.

Common in dry soil, old fields and barrens over most of the province; it is a heath pioneer and an early introduction in burnt-over forest in C. B.; rare or absent in Yarmouth and southern Digby Co. Aug.-Sept.

N. S. to Minn. south to Ga. & Mo.

4. **S. hispida** Muhl

Similar to the last except in the color of the flowers; it is rare and only an occasional specimen is seen.

Nfld. to Man. south to Ga. & Ark.

5. **S. puberula** Nutt. ROUGH GOLDENROD. Map 435.

Very common throughout; dry soil, old fields, barrens, exposed headlands and open woods; rarer in the southwestern counties. Aug.-Sept.

Nfld. to Que. south to Penn. and Fla.

6. **S. Randii** (Porter) Britt.

Known only from Guysborough Co., where Rousseau reports it from a gravelly beach at Guysborough (1938).

Granite rocks or dry granitic soil; Me. and Mass. west to Mich.

7. **S. nemoralis** Ait. OLD-FIELD GOLDENROD. Map 436.

Local and of limited distribution; Fernald (1921) states that it was not seen in Queens and Shelburne Cos. and in Yarmouth Co. only at Carleton. In the Annapolis

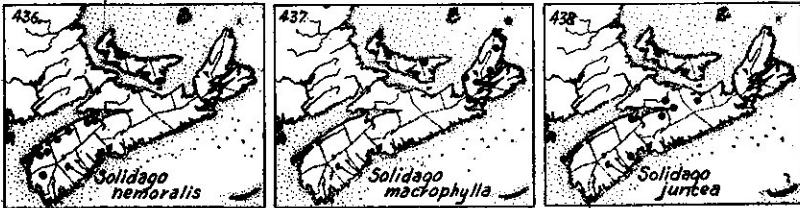
Valley it is one of the commonest goldenrods of late summer, occupying old fields, sandy roadsides and replacing *S. puberula* on lighter soils. Aug.-Sept.

Nfld. to Sask. south to Ariz. and Fla.

8. ***S. multiradiata*** Ait.

Collected but once; barren on St. Paul Is., northern C. B. by Perry and Roscoe.

Alaska to Man.; Nfld., Gaspé and N. S.



9. ***S. macrophylla*** Pursh Map 437.

Scattered in northern C. B. in the coniferous forest, and an early introduction in burned-over land; reported from Pirates Cove, Guysborough Co. by Macoun for the only record from the mainland.

Nfld. south to N. Y. west to Lake Superior.

10. ***S. uniligulata*** (DC.) Porter

This is one of the commonest goldenrods throughout the more acid and boggy parts of the province, and it is characteristic of bogs, dryish peaty barrens and even denuded granitic hills; Yarmouth along the Atlantic Coast to northern C. B., rarer inland and more typically only in bogs. Several varieties are described but whether these are valid or merely ecological forms is not yet clear.

Nfld. to Minn. south to N. C. & Ill.

11. ***S. humilis*** Pursh, see *Rhodora* 17: 6. 1915.

This puzzling species is often much like the preceding one, but is in places in northern N. S. quite distinctive and different from the above plant of bogs and acid barrens. About Oxford and in neighboring areas it is common in poorly-drained fields, growing vigorously with a dense elliptical inflorescence of pale appearance and erect appressed branches. The inflorescence has a brushed upwards appearance quite different from *S. uniligulata*. Macoun's records of *S. uliginosa* and *S. racemosa* belong to the preceding species; and Nichol's records of this species from

various habitats of northern C. B. probably also apply to *S. uniligulata*.

Nfld. to Ont. & Minn. south to N. C.

12. *S. juncea* Ait. EARLY GOLDENROD. Fig. 116, a. Map 438.

Common from Cumberland Co. east to C. B. scattered west to Kings and Lunenburg Cos.; not seen by the Gray Herbarium Expedition in Yarmouth, Shelburne or Queens Cos. It is one of the earliest goldenrods of the season and very common about Truro. Found on dryish soils, roadsides and fields. Early Aug.-Sept.

N. S. to Sask. south to S. C. & Mo.

13. *S. sempervirens* L. SEASIDE GOLDENROD.

Found around the whole coast of the province and on Sable Is; salt marshes and sea-shores just above the range of the high tides. It is abundant on the running dykes, and is found on the slopes next to the tidal rivers. Forma *ochroleuca* Weatherby, *Rhodora* 44: 235. 1942, with the ray flowers very pale yellow almost white, was found scattered in a salt marsh by Mr. Weatherby at Parrsboro, Cumberland Co., Aug. 12, 1942.

Gulf of St. Lawrence south along the seashore to Fla. & Mex.

14. *S. Elliottii* T. & G., var. *ascendens* Fern., *Rhodora* 38: 215. 1938 Map 439.

Abundant and often dominant in boggy clearings, swales, damp thickets, spruce and maple swamps, and lake shores from Yarmouth Co. east at least to Queens Co. One colony found on a gravelly bank south of Belleville, Yarmouth Co. is apparently a hybrid between this species and *S. rugosa* (Fernald, 1922). Late Aug.-Sept.

Dela. to eastern Mass.; N. S.

15. *S. rugosa* Mill. ROUGH GOLDENROD. See Fernald, M.L. The *Solidago rugosa* complex. *Rhodora* 38: 216-224. 1936.

Common throughout; waste places, along fence-rows, open woods and a weed in old or deserted fields. Aug.-Oct. Nfld. to Man. south to Fla.

Var. *villosa* (Pursh) Fern. is frequent throughout, growing in habitats similar to those of the species. This more northern form is common in low ground from Nfld. to Ont. becoming more infrequent south to Va.



Fig. 116.—*Solidago*. a, *S. juncea*, plant,  $\times \frac{1}{2}$ ; flower,  $\times 3$ . b, *S. canadensis*, top of plant,  $\times \frac{1}{2}$ ; flower,  $\times 3$ . c, *S. graminifolia*,  $\times \frac{1}{2}$ .

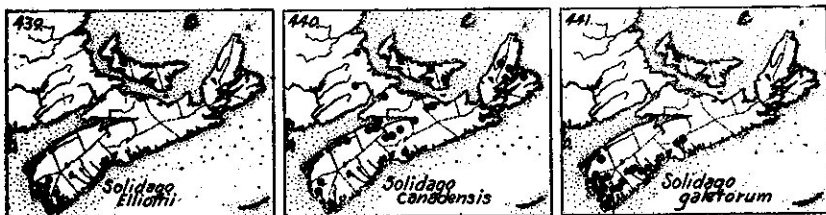
Var. **sphagnophila** Graves was stated to be occasional in spruce swamps and wet savannahs from Yarmouth and Shelburne Cos. (Fernald, 1921); and reported by Miss Perry (1931) from a wet gulch on St. Paul Is., northern C. B. In 1936, however, Fernald restricts the range of this plant to southern Me. to N. C., so that the N. S. plants are apparently not exactly typical of the more southern form.

X ***S. asperula*** Desf. is a hybrid between this species and the seaside *S. sempervirens*, and is more or less intermediate between these two species. This has been reported from various locations along the Atlantic Coast of N. S. and is to be expected wherever the habitats allow the two species to grow together.

16. **S. canadensis** L. CANADA GOLDENROD. Fig. 116, b. Map 440.

This is one of the commonest species throughout the northern regions of the province; fields, roadsides and edges of woods from Annapolis Co. to northern C. B., very rare in the south western counties. Fernald (1921) states that "during the whole summer we did not see this characteristic Canadian species in southern Yarmouth Co. nor in Shelburne and Queens Cos." Late July-Aug. Fernald (1922) reports one clump from Five-River Lake, Shelburne Co., that is apparently a hybrid between this species and *S. uniligulata*.

Nfld. to N. D. south to Va. & Ky.



17. **S. gigantea** Ait., see Rhodora 41: 457. 1939.

Scattered in thickets, rich soil, along intervalles and at the edge of woods from Yarmouth east to C. B. Aug. Nfld. to Que. south to S. C. Tex. & Wisc.

Var. **lelophylla** Fern., Rhodora 41: 457. 1939, is less common than the species. It is unknown in the south western counties; Fernald (1921) reports it from moist thickets from near the mouth of Bevis Brook, Port Bevis, C. B.; and Rousseau (1938) found it in swamps at Gabarus, C. B. (*S. serotina* Ait.).

Nfld. to B. C. south to Ga., Tex. & Ore.

18. **S. graminifolia** (L.) Salisb. NARROW-LEAVED GOLDENROD. Fig. 116, c.

Common on sandy and gravelly lake shores, in damp thickets, and swamps in the southwestern counties; becoming rarer east to C. B. and grading into the following variety.

Var. **Nuttallii** (Greene) Fern. is common throughout, and a common weed in damp fields, along roadsides and in damp thickets. July-Aug.

Nfld. to Minn. south to N. J. & Tenn.

19. **S. galetorum** Greene, Leaflets 2: 152. 1911. Map 441.

Scattered on sandy and gravelly beaches of lakes and in damp thickets from Digby Co. around the coast to Grand Lake, Halifax Co. This species is rather variable, but it may be best to consider the variations as one species and as distinct from the more southern *S. tenuifolia* Pursh. (*S. tenuifolia* var. *pycnocephala* Fern., *Rhodora* 23: 293-294. 1921). Aug.-Sept. N. S.

### 3. **BELLIS** (Tourn.) L.

#### 1. **B. perennis** L. ENGLISH DAISY.

This plant has not been observed in recent years, but it may be found occasionally cultivated. It was reported by Macoun from meadows and pastures, North Sydney, where it had escaped from ballast.

Introduced from Eu. and widely distributed.

### 4. **ASTER** (Tourn.) L.

Shinners, L. H. The genus *Aster* in Nova Scotia. *Rhodora* 45: 343-350. 1943. The key and order of this genus largely follows this treatment.

- a. Middle and lower stem-leaves petioled, the blades abruptly narrowed, or truncate or cordate at the base.
- b. Outer involucre bracts 1.0-2.5 mm wide, less than 2½ times as long as wide; peduncles usually more or less glandular; basal leaves very large and rough (Fig. 117, a). 1. *A. macrophyllus*
- b. Outer involucre bracts 0.2-0.8 mm wide, more than 2½ times as long as wide.
- c. Involucre bracts glabrous on the back.
- d. Stem-leaves tapering or truncate at the base; involucre 5.2-8.2 mm high; disk 4.5-7.5 mm across; inflorescence corymbose-paniculate, the peduncles very uneven in size. 3. *A. ciliolatus*
- d. Stem-leaves cordate at the base; involucre 3.6-5.2 mm high; disk 3-5 mm across; inflorescence racemose-paniculate, the peduncles equal or grading uniformly in size. 4. *A. cordifolius*
- c. Involucre bracts pubescent on the back; leaves firm, usually truncate at the base (Fig. 117, e). 5. *A. undulatus*
- a. Middle and lower stem-leaves sessile, or tapering gradually to slender petiole-like bases.
- e. Middle involucre bracts with midveins expanded upward into prominent colored (usually green) tips.

- f. Involucral bracts glabrous on the back.
- g. Plants mostly low or much branched; involucre 3.3-6.0 mm high  
outer bracts 0.3-3.3 mm long, not more than  $\frac{2}{3}$  as long as the  
inner.
- h. Rays 3.5-6 mm long; leafy bracts of the peduncles and ultimate  
branches of the inflorescence oblong-lanceolate or narrowly ob-  
long, acute or obtuse.
- i. Leaves pubescent on the midvein beneath, at least towards the  
base; common throughout. (Fig 117, c). 6. *A. lateriflorus*
- i. Leaves glabrous beneath.
- j. Involucre 4.8-6.0 mm high; stems glabrous or more common-  
ly pubescent; Cape Breton. 7. *A. acadensis*
- j. Involucre 3.3-5.0 mm high; stems glabrous; southwestern N.S.  
8. *A. Tradescanti*
- h. Rays 5.5-10 mm long; leafy bracts of the peduncles and ultimate  
branches of the inflorescence linear-lanceolate, acuminate.  
9. *A. paniculatus*
- g. Plants stout, often branched only near the top; involucre 5-12  
mm high; outer bracts 3-12 mm or more long, more than  $\frac{2}{3}$   
as long as the inner.
- k. Stems glabrous or pubescent above in lines.
1. Internodes just below the inflorescence 4-16 mm long; plants  
8-50 cm tall; involucre 5-8 mm high. 10. *A. novi-belgii*
1. Internodes just below the inflorescence 16-45 mm long; plants  
30-110 cm tall; involucre 6-9 mm high. 11. *A. foliaceus*
- k. Stems hispid-pubescent over the surface. 12. *A. puniceus*
- f. Involucral bracts glandular or pubescent or both on the back.
- m. Involucre less than 6 mm high; leaves tapering to the base.  
5. *A. undulatus*
- m. Involucre more than 6 mm high; leaves clasping; heads showy.  
13. *A. novae-angliae*
- e. Middle involucral bracts without colored tips, or with colored tips  
not formed by the expansion of the midveins.
- n. Involucre more than 6 mm high; plants relatively short, mostly  
much less than 1 m high.
- o. Outer bracts 1.0-2.5 mm wide (Fig. 117, b). 2. *A. radula*
- o. Outer bracts 0.2-0.8 mm wide.
- p. Largest stem-leaves 3-12 mm wide; plants with 41-75 leaves  
below the inflorescence (Fig. 118, b). 14. *A. nemoralis*
- p. Largest stem-leaves 9-50 mm wide; plants with 10-40 leaves  
below the inflorescence.
- q. Largest stem-leaves 9-24 mm wide; plants with 25-40 leaves  
below the inflorescence. 15. *X.A. Blakei*
- q. Largest stem-leaves 20-50 mm wide; plants with 10-20 leaves  
below the inflorescence (Fig. 117, f). 16. *A. acuminatus*
- n. Involucre less than 6 mm high; plants 1-2 m high; inflorescence  
flat-topped; rays white (Fig. 118, d). 17. *A. umbellatus*



Fig. 117.—*Aster*. a, *A. macrophyllus*, inflorescence and leaf,  $\times \frac{1}{2}$ . b, *A. Radula*,  $\times \frac{1}{2}$ . c, *A. lateriflorus*,  $\times \frac{1}{2}$ . d, *A. cordifolius*,  $\times \frac{1}{2}$ . e, *A. ciliolatus*, leaf,  $\times \frac{1}{2}$ . f, *A. acuminatus*,  $\times \frac{1}{2}$ .

1. *A. macrophyllus* L. LARGE-LEAVED ASTER. Fig. 117, a. Map 442.

Scattered from Yarmouth east to Pictou Co.; dry woods, thickets, and open barrens in the southwest. Var. *velutinus* Burgess has the leaves and stems more villous-pubescent, but is probably of little significance. July 15-Aug.

N. S. to Minn. south to N. C.

2. *A. radula* Ait. [Including var *strictus* (Pursh) Gray]. Fig. 117, b. Map 443.

Common to scattered throughout; boggy barrens, peaty swales, bogs and damp thickets. It is one of the characteristic plants of the Atlantic Region. July-Sept.

Nfld. south to W. Va.



3. **A. ciliolatus** Lindl. Fig. 117, e.

Scattered along roadsides and open thickets from Hants Co. northwards; common between Halifax and Truro. (*A. Lindleyanus* T. & G.).

Lab. to the Mackenzie south to northern N. Y.

4. **A. cordifolius** L. BLUE WOOD ASTER Fig. 117, d. Map 444.

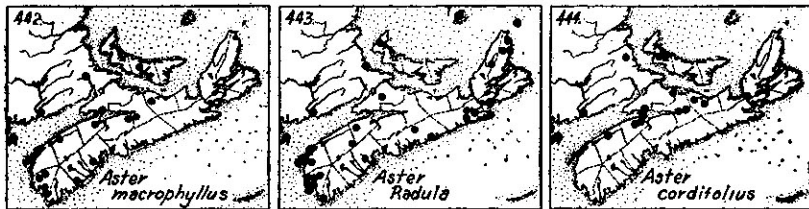
Common from Annapolis Co. to C. B.; thickets, roadsides, fields and about dwellings. July-Aug. Considerable variation exists in the size of the flowers and inflorescence and in the flower-color.

N. S. to Ont. & Minn. south to Ga. & Mo.

5. **A. undulatus** L.

Scattered in dry open woods and thickets in southern Lunenburg Co., and often invading old fields; Greenfield, in adjacent Queens Co. (Weatherby, 1942).

N. S. to Ont. and Minn. south to Fla. and La.



6. **A. lateriflorus** (L.) Britt. SMALL WHITE ASTER. Fig. 117, c. Map 445.

Common throughout; run-out fields, barrens, roadsides and pastures. *A. multiflorus*, stated by Nichols (1918) to be characteristic of blueberry barrens in northern C. B. is apparently this plant. July-late Sept.

N. S. to Que. south to Conn. and the mts. of N. C.

7. **A. acadensis** Shinnars, *Rhodora* 46: 31. 1944.

Swamps and damp woods in Cape Breton: Baddeck and Ingonish. This slender plant with more diffuse inflorescence and fewer longer-peduncled heads than *A. lateriflorus* is not well known. So far it has been found in N. S., P.E.I. and N. B. (*A. lateriflorus* var. *tenuipes* Wieg., *Rhodora* 30: 174. 1928).

8. **A. Tradescanti** L., see Fernald, *Rhodora* 35: 312-314. 1935.

Scattered in boggy savannahs, around gravelly and

sandy beaches of numerous lakes in southern Yarmouth Co.; Sandy Cove, Digby Neck; Ponhook L., Queens Co.; and east to Bridgewater. [*A. saxatilis* (Fern.)Blanchard].

Nfld. and southern N. S.; Que. south to southern Me. & Conn.

9. **A. paniculatus** Lam., see Wiegand in *Rhodora* 35: 28-29. 1933.

Damp thickets and marsh ground; common around Truro and to northern C. B.; probably generally distributed in north and eastern N. S. but the distribution not well known.

N. S. to Ont. & Wisc. south to Conn., Penn. & Ill.

10. **A. novi-belgii** L.

Common on sandy or gravelly beaches, and in swamps and damp places near the coast; abundant on Sable Island, often also on the mainland. Shinner, in *Rhodora* 45: 346. 1943, has separated the northeastern shorter plants as *A. Rolandii* Shinnery, and this name may apply to the plants of the Maritime Provinces.

Near the coast from Que. to N. S. and Me., southwards.

11. **A. foliaceus** Lindl. LARGE BLUE ASTER. Fig. 118, a.

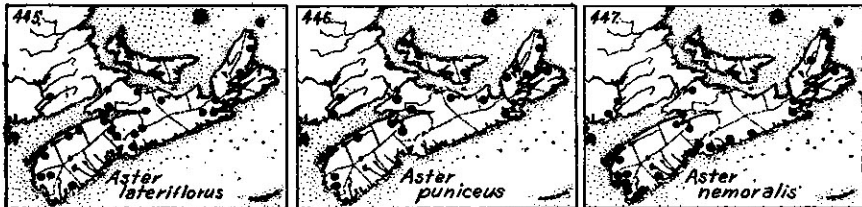
Common throughout; swamps, marshes and roadsides. (Including *A. junceus* and *A. longifolius* of Nova Scotian records). The plants included under this species are very variable and complex. Hybrids may also be common.

Lab. & Nfld. south to Que., Me. & N. H.; westward.

12. **A. puniceus** L. ROUGH ASTER. Fig. 118, c. Map 446.

Common, probably throughout; swamps and wet open places.

Nfld. to Man. south to Ga. & Tenn.



13. **A. novae-angliae** L. NEW ENGLAND ASTER.

Vicinity of Annapolis, Annapolis Co., and Woodburn

Pictou Co.; frequently cultivated, and an occasional escape. Aug.-Sept.

N. S.; Me. to Sask. south to S. C. & Kans.

14. **A. nemoralis** Ait. Fig. 118, b. Map 447.

Common throughout; bogs and marshes, lake margins, and dominant on peaty barrens. Aug.-Sept.

Nfld. to Hudson Bay south to N. J.

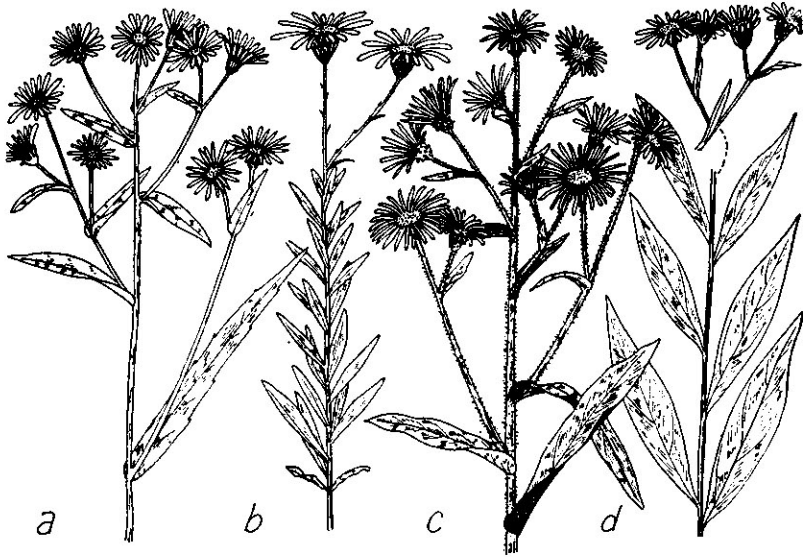


Fig. 118.—*Aster*. all  $\times \frac{1}{2}$ . a, *A. foliaceus*. b, *A. nemoralis*. c, *A. puniceus*. d, *A. umbellatus*.

15. **X. A. Blakei** (Porter) House, N. Y. State Museum Bull. 219-220: 241. 1919. Map 448.

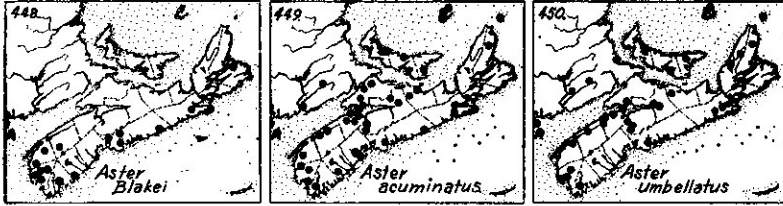
Borders of woods and thickets, in damp or sometimes rather dry ground; common in the southern and eastern parts of the province. In view of the intermediate characters this plant is considered to be a hybrid of *A. nemoralis* and *A. acuminatus*, and in places seems to be more common than either of its parents. (*A. nemoralis* var. *Blakei* Porter).

N. S. to N. Y. & N. J.

16. **A. acuminatus** Michx. WOOD ASTER. Fig. 117, f. Map 449.

Deciduous woodlands and thickets, preferring drier soils; common in the northern counties, scattered elsewhere. Aug.-Sept.

Lab. to Ont. south to Ga.



17. **A. umbellatus** Mill. TALL WHITE ASTER. Fig. 118, d. Map. 450.

Swamps, damp thickets, marshes and roadside ditches; very common throughout and conspicuous along all wet roadsides in late summer, often growing with *Solidago graminifolia*.

Nfid to Sask. south to Ga. & Iowa.

## 5. ERIGERON L. FLEABANE

- a. Rays scarcely exceeding the disk; heads about 5 mm wide, very numerous in an elongate inflorescence (Fig. 119, c). 1. *E. canadensis*
- a. Rays much exceeding the disk; heads 15-33 mm wide, solitary or several to numerous in a flattish corymb.
- b. Leaves sessile and clasping; heads conspicuous, with bluish or pinkish rays.
- c. Stems unbranched; heads 1-7, 2.5-3.5 cm wide; rays about 50, bluish, about 1 mm wide. 2. *E. puchellus*
- c. Stems branched above; heads numerous, 1.5-2 cm wide; rays pinkish, about 0.5 mm wide. 3. *E. philadelphicus*
- b. Leaves sessile, not clasping; heads 1-2 cm wide.
- d. Heads solitary on long peduncles; rays 20-30, whitish to pale pink; plants slender, 2-3 dm high (Fig. 119, b). 4. *E. hyssopifolius*
- d. Heads numerous; rays 60-90; plants stout, often branched above, 2-15 dm high.
- e. Median stem-leaves entire or nearly so, linear to narrowly lanceolate; lower ones toothed at apex (Fig. 119, d).
- f. Stem and leaves pubescent with numerous short appressed hairs. 5. *E. ramosus*
- f. Stem and leaves smooth or with scattered stiff spreading hairs. *E. ramosus* var. *septentrionalis*
- e. Median stem-leaves coarsely toothed, ovate to narrowly lanceolate (Fig. 119, a); stems and leaves sparsely pubescent with stiff spreading hairs. 6. *E. annuus*

1. **E. canadensis** L. HORSE-WEED. Fig. 119, c.

This is a weed of waste places and of light soil, becoming common in parts of the province and especially in the

Annapolis Valley; often very common in strawberry fields. July-Sept.

Found throughout the world.

2. ***E. puchellus*** Michx. ROBIN'S PLANTAIN.

Rare; reported in Macoun's Catalog from Halifax and Pictou; not recently collected and apparently not established in the province. July.

Thickets and moist banks; Me. to Minn. south to Fla.

3. ***E. philadelphicus*** L. PHILADELPHIA FLEABANE.

Rare; reported by Fernald (1921) from Hectanooga, Digby Co.; seen by J. Adams at Hillsborough, C. B. July-Aug.

Pastures and meadows; Lab. to B. C. south to Fla.

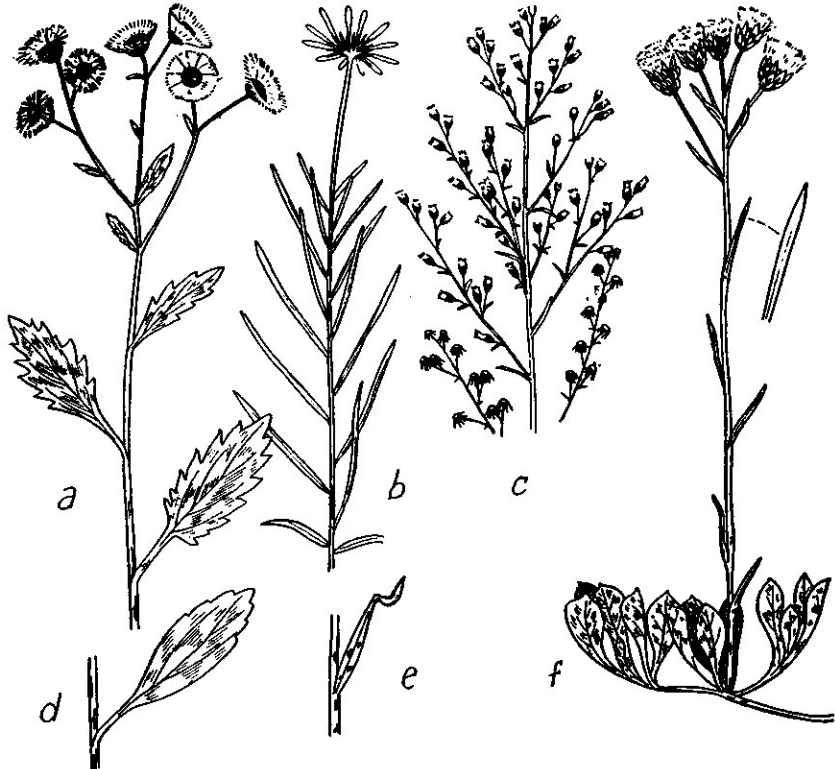


Fig. 119.—*Erigeron*. a, *E. annuus*,  $\times \frac{1}{2}$ . b, *E. hyssopifolius*,  $\times \frac{1}{2}$ . c, *E. canadensis*, top of small inflorescence,  $\times \frac{1}{2}$ . d, *E. strigosus*, leaf,  $\times \frac{1}{2}$ . *Antennaria*. e, *A. canadensis*, leaf showing appendage,  $\times 1$ . f, *A. neodioica*,  $\times \frac{1}{2}$ .

4. ***E. hyssopifolius*** Michx. Fig. 119, b. Map 451.

Confined almost entirely to gypsum outcrops; common in such locations around Windsor and elsewhere in Hants Co.; around Antigonish Co.; Port Bevis and Cape North in C. B. Nichols (1918) records it from the stream bank association between flood levels in northern C. B. Early July.

Calcareous rocks; Nfld. to Mackenzie south to N. S., Me. & Mich.

5. ***E. ramosus*** (Walt.) BSP. DAISY FLEABANE. Fig. 119, d.

Scattered to common in run-out fields, waste places, and roadsides throughout; often the commonest weed on deserted farms in the central part of the province; probably introduced from further south and west. Early July-Sept. Nfld. to B. C. south to Fla., Tex. & Calif.

Var. **septentrionalis** Fern. and Wieg., *Rhodora* 15: 59-61. 1913, is a northeastern variety with the pubescence of the stem resembling that of *E. annuus* but with the leaves narrower and but little toothed. This is found along river banks in native habitats; reported from Pictou by Fern. & Wieg.; found along the rocky banks of the Salmon R., Bay St. Lawrence, Victoria Co.

6. ***E. annus*** (L.) Pers. Fig. 119, a. DAISY FLEABANE.

Common throughout; roadsides, waste places and run-out fields. July-Sept.

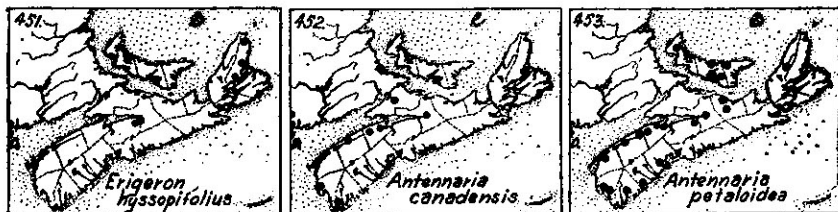
N. S. to Man. south to Ga., Ky. & Mo.

6. **ANTENNARIA** Gaertn. EVERLASTING

Fernald, M. L. Key to the *Antennaria* of the "Manual Range." *Rhodora* 47: 221-235; 239-247. 1945.

- a. Rosette leaves comparatively small, 0.3-2.0 cm wide, with only the mid-rib prominent to the tip.
- b. Middle and upper stem-leaves terminated by a flat or involute papery appendage; rosette leaves tapering and acute at the tip, very rarely rounded.
- c. New rosette leaves bright green and glabrous or soon becoming so on the upper surface.
  1. *A. canadensis*
  2. *A. neglecta*

- b. Middle and upper stem-leaves acute or terminated by a sharp awn-like tip, but not by an appendage; rosette leaves mostly rounded at the end, with a very small pointed tip.
- d. Involucre 7-11 mm high; heads in a loose inflorescence, with the lower pedicel often much longer than the upper; upper part of the stem bare or nearly bare of leaves, the upper stem-leaves terminating in a long point; stolons long and only tardily developing rosettes of leaves. 3. *A. petaloidea*
- d. Involucre of pistillate plants 6-9 mm high, of the staminate plants 5-7 mm high; heads in a compact inflorescence; leaves equally spaced on the stem, and all ending merely in an acute tip; stolons short, quickly developing rosettes.
- e. Leaves more or less whitish-woolly and dull above.
- f. Tips of the involucre bracts linear-oblong, mostly blunt and shining white.
- g. Plants slender to 4 dm high; stem-leaves to 4 mm wide, becoming well separated; basal leaves 5-18 mm wide; corollas 3.2-5 mm long. 4. *A. neodioica*
- g. Plants stout, to 5 dm high; stem-leaves 3-8 mm wide, often overlapping; basal leaves larger and greener; corollas 4.8-6 mm long. *A. neodioica* var. *grandis*
- f. Tips of the involucre bracts tapering with a sharp or acute tip, thinner and much duller. *A. neodioica* var. *attenuata*
- e. Leaves of the rosette glabrous, green and shining above. *A. neodioica* var. *chlorophylla*
- a. Rosette leaves large, 1-7 cm wide, with 3-7 somewhat prominent long ribs beneath. 5. *A. Parlirii*



1. *A. canadensis* Greene. Fig. 119, e. Map 452. PUSSY-TOES, EVERLASTING.

Common throughout; hills, dry and sterile soil, old pastures and deserted fields. May 15-June.

N. S. to Man. south to N. Y.

2. *A. neglecta* Greene

Scattered around Truro; the distribution of this form in the province is poorly known, but it may prove to be widespread in the northern part of the region.

N. S. to Ont. south to Va., & Kans.

3. **A. petaloidea** Fern., var **subcorymbosa** Fern., *Rhodora* **16**: 133. 1914. Map 453.

Scattered, probably throughout the province; railroad embankments, sandy thickets, gravelly banks and fields, usually growing in slightly better soils and more shady locations than the other species. June.

Nfld. to P.E.I. south to central Me. & Cape Cod.

4. **A. neodioica** Greene. Fig. 119, f. EVERLASTING.

Scattered throughout. Nfld. to Wisc. south to Va. Var. **attenuata** Fern. is common throughout in gravelly thickets, stony pastures, fields, roadsides and on sterile soil. Nfld. to Wisc. south to Va. Var. **grandis** Fern. is not uncommon, especially in the Annapolis Valley. N. S. to Mich. south to Mass. Var. **chlorophylla** Fern. *Rhodora* **23**: 296. 1921, is rather similar in appearance to *A. canadensis*. It is reported (Fernald, 1921) from pasture fields at Yarmouth, and from mixed woods and moist thickets, Meteghan, Digby Co. Nfld. to Wisc. south to N. S., N. Eng. and N. Y. June.

5. **A. Parlina** Fern.

Reported (Fernald, 1922) as "abundant at the border of dry pine and oak woods on steep slopes along the Lahave River, Bridgewater." Occasional broad-leaves forms have been observed at different places in the Annapolis Valley, and various forms may be introduced. The most probable one is *A. plantaginifolia* Richards, which has the leaves minutely hairy above. This was reported by Lindsay from Halifax and Pictou. No recent collections have been seen.

N. S. to Ont. south to Ga. & Ia.

## 7. ANAPHALIS DC.

Fernald, M.L. *Anaphalis margaritacea* again. *Rhodora* **40**: 218-219. 1938. Hara, Hiroshi. *Anaphalis margaritacea*. *Rhodora* **41**: 390-391. 1939.

a. Plants 2-9 dm high; leaves linear-lanceolate; heads numerous, in an open corymb.

b. Leaves rather broadly linear-lanceolate, not reduced in length just below the inflorescence, glabrous or nearly so, and green on the upper sides. 1. *A. margaritacea*

b. Leaves linear to narrowly linear-lanceolate, much reduced upwards towards the inflorescence.

c. Leaves cobwebby on both sides.

var. *intercedans*



- c. Leaves bright green and glabrous above. var. *angustior*  
 a. Plants dwarf, leaves comparatively wide; heads showy, few, in a crowded cluster. var. *subalpina*

1. *A. margaritacea* (L.) B. & H. PEARLY EVERLASTING.  
 Fig. 120, a.

This northern plant is scattered in northern C. B. where the clumps of green, leafy plants are conspicuous. Plants from P.E.I. and Pictou Co. are not so typical. Common in eastern Asia and northwestern N. A.: Nfld. to N. Eng. (*A. margaritacea* var. *occidentalis* Greene).

Var *intercedans* Hara is the common form of the plant in N. S.; common on dry hillsides, newly cleared areas, along stone walls and borders of woods. Aug.-Sept. (*A. margaritacea* var. *revoluta* forma *arachnoidea* Fern.). Nfld. to Alaska south to Va. & Ore.; northern Japan.

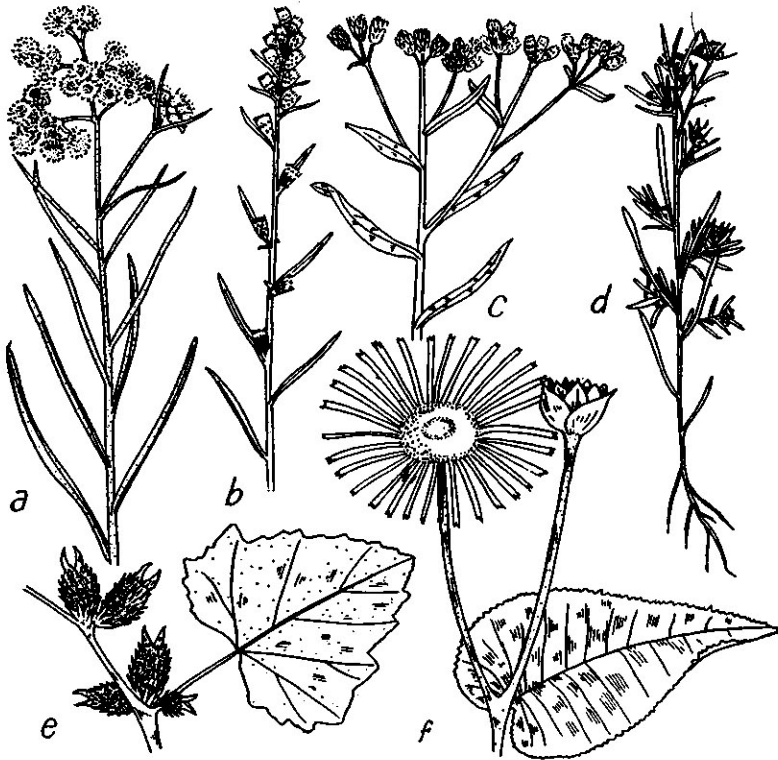


Fig. 120.—*Anaphalis*. a, *A. margaritacea*,  $\times \frac{1}{2}$ . *Gnaphalium*. b, *G. sylvaticum*,  $\times \frac{1}{3}$ . c, *G. obtusifolium*,  $\times \frac{1}{3}$ . d, *G. uliginosum*,  $\times \frac{1}{3}$ . *Xanthium*. e, *X. echinatum*, fruits and leaf,  $\times \frac{1}{3}$ . *Inula*. f, *I. helenium*, top of branch,  $\times \frac{1}{3}$ .

Var. **angustior** (Miquel) Nakai is occasional throughout N. S. (*A. margaritacea* forma *anochlora* Fern.). Throughout the range of the species.

Var. **subalpina** Gray, Fl. N.A. p 233. 1886, is a western form in the Rocky Mts., occurring eastward on the mts. of Que. and Nfld. and other cool areas. St. John (1921) states that it is very common on the dry dunes and barrens of Sable Is., where other varieties of the species are apparently absent.

## 8. GNAPHALIUM L. CUDWEED

- a. Plants low, much-branched; heads in a flat-topped corymb, or else in a very irregular diffusely-branched inflorescence; bristles of the pappus separate.
- b. Plants stout, erect; heads ovoid, clustered at the ends of the branches; achenes smooth.
- c. Leaves tapering to the base, not decurrent on the stem; bracts of the receptacle white, rather obtuse (Fig. 120, c).

1. *G. obtusifolium*

- c. Leaves wide at the base, and prominently decurrent on the stem; bracts yellow-white, acutish.

2. *G. decurrens*

- b. Plants low, diffuse, and becoming prostrate; heads small, exceeded by the leaves; achenes scabrous; involucre bracts light-brown (Fig. 120, d).

3. *G. uliginosum*

- a. Plants erect, unbranched, the heads in small clusters on short branches of the inflorescence in the leaf-axils, forming a spike-like raceme; bristles of the pappus united at the base into a ring (Fig. 120, b).

4. *G. sylvaticum*

1. ***G. obtusifolium* L. OLD-FIELD BALSAM.** Fig. 120, c. Map 454.

Scattered on dry sandy or rocky places in the western part of the province; Sable Is. Aug.-Sept. (*G. polycephalum* Michx.).

N. S. to Man. south to Fla. & Tex.

2. ***G. decurrens* Ives**

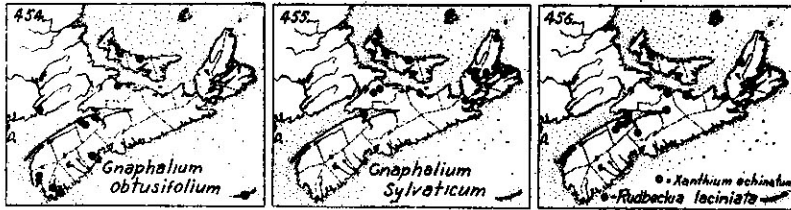
A specimen collected by Howe at Windsor belongs here; no other collection is known for the province.

Introduced; Que. to B. C. south to Penn. & Ariz.

3. ***G. uliginosum* L. LOW CUDWEED.** Fig. 120, d.

Common and weedy throughout; abundant in poorly-drained cultivated land, and especially so in wet years in grain fields. June-Oct.

Nfld. to B. C. south to Va., Ind. & Colo.



4. **G. sylvaticum** L. Fig. 120, b. Map 455.

Scattered in clearings and along roadsides, common in C. B. and becoming rarer west to Cumberland and Kings Cos., often appearing as if native; not found in the acidic areas of the province.

N. S. to Que. south to Me.; introduced from Eu.

9. **INULA** L.

1. **I. Helenium** L. ELECAMPANE. Fig. 120, f.

Introduced from Europe by the early French settlers; scattered from Yarmouth to the Strait of Canso, often found along damp roadsides in the Annapolis Valley where the sunflower-like appearance and large woolly leaves make it a conspicuous plant. Aug.

Introduced from Eu.; N. S. to Minn. south to N. C. & Mo.

10. **IVA** L.

1. **I. frutescens** L., var. **oraria** (Bartlett) Fern., Rhodora 37: 184. 1935. MARSH ELDER.

Undoubtedly introduced; rapidly spreading along the salt marsh by the covered bridge at Avonport, Kings Co; found in Yarmouth Co. on the bar below Yarmouth.

Salt marshes; Mass. to Md.

11. **AMBROSIA** (Tourn.)L. RAGWEED

- a. Plant 2-10 dm high; leaves finely lobed or divided.
  - b. Plant annual, without running rootstocks; fruit ovoid, with about 6 acute teeth around the upper margin.
    - 1. *A. artemisiaefolia*
  - b. Plant perennial with slender running rootstocks; fruit with the teeth or tubercles very small or absent.
    - 2. *A. coronopifolia*
- a. Plants 1-4 m high; leaves deeply 3-lobed.
  - 3. *A. trifida*



Fig. 121.—*Ambrosia*. a, *A. artemisiifolia*,  $\times \frac{1}{2}$ . *Rudbeckia*. b, *R. hirta*,  $\times \frac{1}{2}$ . c, *R. laciniata*, flower and leaf,  $\times \frac{1}{5}$ . *Bidens*. d, *B. cernua*, flowers,  $\times \frac{1}{2}$ ; achene. e, *B. frondosa*, top of plant,  $\times \frac{1}{2}$ ; achene.

1. *A. artemisiaefolia* L. RAGWEED. Fig. 121, a. See Fernald and Griscom. *Ambrosia artemisiaefolia* and its variations in temperate North America. *Rhodora* 37: 184-185. 1935.

Ragweed occurs upon light soil; it is common in the Annapolis Valley, scattered along roadsides in newly disturbed soils to Yarmouth; and found around the sea-coast in the sand and gravel of the upper beaches; rare from Halifax east and in C. B. The different varieties have little significance in the province; although the typical one with coarse leaves and wide staminate involucre is supposed to be native.

Mostly introduced from western N. A.

2. *A. coronopifolia* Torr. and Gray. PERENNIAL RAGWEED. This western species is becoming sparingly naturalized

in the east. It was collected by H. Groh in an orchard at South Berwick, Kings Co. (*A. psilostachya* of Gray's Manual).

3. **A. trifida** L. GREAT RAGWEED.

Sparingly introduced around towns and ports, occasionally seen in rich soil along roadsides: Dartmouth, Kentville, Parrsboro, North Sydney, scattered in Pictou Co., etc.

Introduced from west and south; widely distributed.

12. **XANTHIUM** (Tourn.) L.

1. **X. echinatum** Murr. COCKLEBUR. Fig. 120, e. Map 456.

Sandy and gravelly beaches along the Northumberland Strait and to western C. B., occasionally found around the Bras d'Or Lakes. This plant is usually found just above the high tide level but it sometimes extends up from the beaches into low areas in cultivated fields. It is rarely common or of economic importance.

N. S. to N. C. and westward around the Great Lakes.

13. **RUDEBECKIA** L.

a. Disk of the flower dark brown; leaves narrow, unlobed; stem to 10 dm high (Fig. 121, b). 1. *R. hirta*

a. Disk of the flower greenish-yellow; leaves mostly lobed; stem 10-25 dm high (Fig. 121, c). 2. *R. laciniata*

1. **R. hirta** L. BLACK-EYED SUSAN. Fig. 121, b.

The typical form, with the hairs on the lower leaf-surface variously spreading and with open smooth spaces between their bulbous bases, is rare in the province. The most typical collection seen was from Boylston, Guysborough Co.

Var. **sericea** (T. V. Moore) Fern., see *Rhodora* 39 457-459. 1939, with the hairs on the lower leaf-surfaces mostly appressed, crowded and with minute bulbous bases, is common throughout the Annapolis Valley and scattered east to C. B., rare in the southwestern counties. Large colonies of it grow along the railroad between Halifax and Mount Uniacke. July 15-Aug.

N. S. to Man. south to Fla. and Tex.

2. **R. laciniata** L., var **gaspereauensis** Fern. *Rhodora* 24: 205. 1922. CONEFLOWER. Fig. 121, c. Map 456.

The type of this variety was collected by Prof. H. G.

Perry in an alluvial soil close to the shore of the Black River, tributary to the Gaspereau in Kings Co. It has since been found in swales, roadside swamps, and in gulleys at various places in Kings, Hants and Colchester Counties, usually rare but occasionally growing in large colonies or spreading out into considerable areas. The value of this variety is doubtful, since many collections from Illinois to Pennsylvania show as much pubescence on the undersides of the leaves as do the Nova Scotian plants. Aug.

N. S. to Man. south to Fla. and Ariz.

#### 14. HELIANTHUS L.

a. Plants annual; tubers and spreading rootstocks not present; disk of the flower-head over 2.5 cm wide. 1. *H. annuus*

a. Plants perennial; tubers and running rootstocks usually presents disks of the flower-heads 1-2 cm wide. 2. *H. tuberosus*;

##### 1. *H. annuus* L. SUNFLOWER.

Occasionally seen as an escape in waste places; not common nor persisting. Common in gardens.

Minn. to Tex. and westward; introduced eastward.

##### 2. *H. tuberosus* L. JERUSALEM ARTICHOKE.

Occasional in waste places; rather common in orchards on various types of soil in the Annapolis Valley.

Throughout eastern and central N.A.; introduced into N. S.

#### 15. COREOPSIS L.

##### 1. *C. rosea* Nutt. COREOPSIS

Scattered to often common on wet shores and cobbly or sandy beaches and margins of lakes and streams in the Tusket Valley, Yarmouth Co.; unknown elsewhere in the province. Aug.

N. S.; Mass. to N. J. and southward.

#### 16. BIDENS L. BEGGAR-TICKS

Sherff, E. E. The Genus *Bidens*. Field Mus. Nat. Hist. Publ. Bot. Series. Vol. 16: 1-709. 1937.

a. Leaves compound with the terminal leaflet plainly stalked; rays absent, or small and inconspicuous (Fig. 121, e).

- b. Outer involucre bracts 3-5, mostly 4, not plainly fringed; body of the achene 3-6.2 mm long, the awns barbed upwardly.  
1. *B. discoidea*
- b. Outer involucre bracts 5-16, evenly and copiously fringed with white hairs.
- c. Outer involucre bracts 10-16; inner bracts shorter than the disk; achenes brown or olivaceous, the body 6-12 mm long, and the awns downwardly barbed.  
2. *B. vulgata*
- c. Outer involucre bracts 5-8; inner bracts equal to the disk; achenes blackish, 6-10 mm long.
- d. Awns downwardly barbed.  
3. *B. frondosa*
- d. Awns upwardly barbed.  
*B. frondosa* var. *anomala*
- a. Leaves simple and toothed, or the lower divided and lobed with the terminal leaflet on a widely-winged stalk; heads discoid or radiate.
- e. Flowers small, 1-2 cm wide, discoid or with narrow rays; heads usually erect in fruit.
- f. Margin of the achene upwardly barbed, at least near the base.
- g. Petiole broadly winged; blade usually 3-parted. 4. *B. connata*
- g. Petiole not, or very narrowly winged; blade not divided, except in very vigorous plants. *B. connata* var. *petiolata*
- f. Margin of the achenes downwardly barbed for the entire length; leaves lanceolate, entire or nearly so. 5. *B. hyperborea*
- e. Flowers much larger, 1-5 cm wide, with wide rays; margins of the achenes downwardly barbed for the entire length (Fig. 121, d).
- h. Stem 1-9 dm high, branched; heads many, nodding in fruit.  
6. *B. cernua*
- h. Stem 2-20 cm high, simple or nearly so; heads solitary, or few, erect or nearly so in fruit. *B. cernua* forma *minima*

1. ***B. discoidea*** (T. & G.) Britt.

Scattered in swamps and gravelly or sandy shores near Pictou, probably local in the north central region of the province. Sherff lists it only from beaches at Pictou. July-Aug.

N. S. to southern Que. & Minn. south to Ala., Ohio & Tex.

2. ***B. vulgata*** Greene. BEGGAR-TICKS.

Common in ditches and around the dykelands at Truro; rare or absent elsewhere; perhaps introduced.

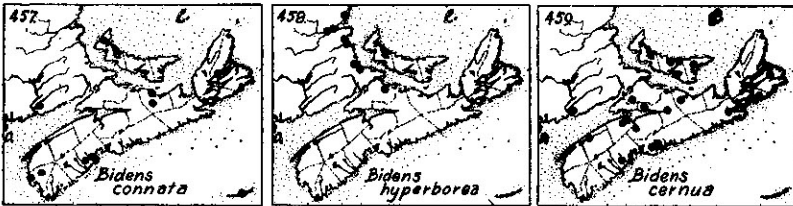
N. S. & Que. to B. C. south to N. C. & Calif.

3. ***B. frondosa*** L. COMMON BEGGAR-TICKS. Fig. 121, e. Map 460.

Common throughout, often growing in shade around dwellings and as a solid mat in damp waste places. In rich soil it is high and much-branched, while in exsiccated

soil it may be but a few inches high with a simple stem and few heads. Nfld. to Ont. and Wash. south to Fla. & Calif.

Var. **anomala** Porter is rather common from Yarmouth Co. along the Bay of Fundy to Amherst. Usually it grows along the edges of brackish areas, but occasionally it is found along fresh-water streams a short distance from the coast. C. B. south near the coast to D. C.; locally inland.



Var. **pallida** Wieg., *Rhodora* 26: 5. 1924, is a poorly-understood plant with pale-green leaves, the side branches longer than the main stem, and the terminal leaflet tending to be stalked. Sherff reports this as collected by Brother Peter at Halifax in 1896. Rare and apparently widely scattered.

4. **B. connata** Muhl. Map 457. SWAMP BEGGAR-TICKS.

Wet thickets and swales back of brackish shore of La-have River, Bridgewater: first station east of southern Maine. Earlier records belong to var. *petiolata* (Nutt.) Farw. (Fernald, 1922). Var. **inundata** Fern., *Rhodora* 23: 298. 1921, is a possible endemic variety described from a sphagnous bog at Sand Beach, Yarmouth Co., and reported from various places in the province. Sherff considers these plants merely as variations of *B. connata* which are closely matched by specimens from widely separated localities.

Var. **petiolata** (Nutt.) Farw., see Sherff, p. 257, has been collected in boggy swales, borders of ponds and ditches in various parts of the province; frequent at the borders of fresh-water ponds on Sable Is. Range of the species and more common.

N. S. and Me. to Que. south to N. J., Mich and Mo.

5. **B. hyperborea** Greene. See Fassett, Norman C. *Bidens hyperborea* and its varieties. *Rhodora* 27: 166-171. 1925. Map 458.



Tidal mud-flats of the River Philip, Oxford. Var. *colpophila* Fern. & St. John, *Rhodora* 20: 149. 1918, with which this collection was identified, is a variation of the species with the stem somewhat branching and the leaves serrate. Lower St. Lawrence, around Gaspé, N. B. and south along the coast to N. Y.

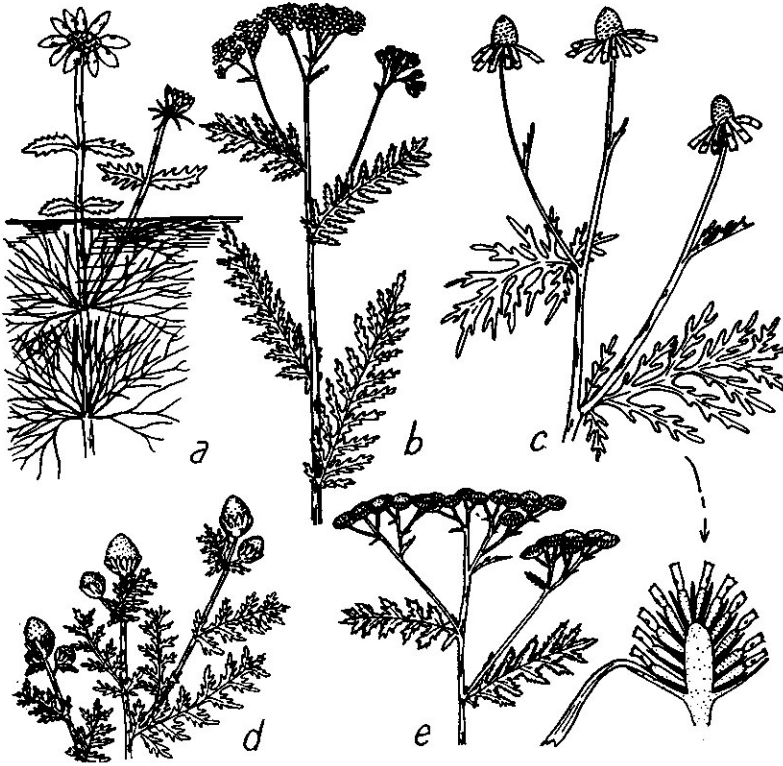


Fig. 122.—*Megalodonta*. a, *M. Beckii*,  $\times \frac{1}{2}$ . *Achillea*. b, *A. Millefolium*,  $\times \frac{1}{2}$ . *Anthemis*. c, *A. Cotula*,  $\times \frac{1}{2}$ . *Matricaria*. d, *M. matricarioides*,  $\times \frac{1}{2}$ . *Tanacetum*. e, *T. vulgare*, inflorescence,  $\times \frac{1}{2}$ .

6. *B. cernua* L. NODDING BUR MARIGOLD Fig. 121, d. Map 459.

Conspicuous and common in springy land, swamps and wet thickets from Annapolis and Lunenburg Cos., to northern C. B. July-Sept. Fernald in *Rhodora* 24: 206. 1922, has described several forms based upon leaf shape.

The plant is very variable and the following is the best marked.

Forma **minima** (Huds.) Larss. is the smallest extreme; boggy margin of Hebb's L., Bridgewater (Fernald, 1922); bog at the margin of the sea at Gabarus, C. B. (Rousseau, 1938).

N. S. to B. C. southward; Eu. & Asia.

### 17. MEGALODONTA Greene

#### 1. **M. Beckii** (Torr.) Greene Fig. 122, a. WATER MARIGOLD

Deadwater of Rocky Brook north of Hassett, Digby Co., for the first record east of Penobscot, Maine (Fernald, 1922); abundant below the bridge at the outlet from Lake Ainslie of the Southwest Margaree R. (Roland 1938). Aug. (*Bidens Beckii* Torr.).

N. S. and Que. to Man. south to N.J. Mo.

### 18. GALINSOGA R. & P

#### 1. **G. ciliata** (Raf.) Blake, in *Rhodora* 24: 35. 1922. QUICKWEED.

Common along the streets of Halifax; unknown elsewhere. June-Oct. (*G. pariflora* Cav. var. *hispidula* DC.).

Introduced from tropical America; widespread.

### 19. ACHILLAEA (Vaill.) L. YARROW

a. Leaves lanceolate, simple, finely toothed; corymb very loose and leafy, with heads few on long pedicels. 1. *A. Ptarmica*

a. Leaves finely divided; corymb more compact, the heads numerous, on short pedicels.

b. Leaves conspicuously dotted, their ultimate segments strongly callus-thickened towards the apex; rays purplish.

2. *A. asplenifolia*

b. Leaves not conspicuously dotted, their ultimate segments not callus-thickened towards the apex; rays white to pinkish.

3. *A. Millefolium*

#### 1. **A. Ptarmica** L. SNEEZEWEED.

Local; common around Pleasant Bay in C. B.; collected at Truro and Woodville, rarely elsewhere. July-Sept.

Introduced from Eu; from N. S. to Alberta.

2. **A. asplenifolia** Vent., see Rydberg, N.A. Flora 34: pt. 3: 225. 1916.

Plants collected in the western half of the province have been placed here. The distinctness of this species is unknown, and is rather doubtful. In all probability it will hybridise with the following species and produce flowers of various color shades. It is retained here until further study is carried out.

Perennial garden plant; widely escaped in N.A.

3. **A. Millefolium** L. Fig. 122, b. YARROW.

Common throughout; roadsides, lawns, fields, and waste places, sometimes a weed in hay fields and often troublesome in dykelands in Cumberland Co. Forma **rosea** Rand & Redfield has pinkish rays or disk flowers. Rousseau (1938) has an interesting discussion of the inheritance of this pink color. *A. ligustica* All. is considered to be merely a variation of this species. *A. lanulosa* Nutt. is a plant typical of the Rocky Mountains and the north-western part of N. A. St. John considers that all the yarrow on Sable Is. belongs to this species, but much of the material of *A. Millefolium* from N. S. is more or less woolly and the lines between the two species in the east are not at all distinct. June 15-Sept.

Eurasia; throughout most of N. A.

## 20. **ANTHEMIS** (Michx.) L.

1. **A. Cotula** L. CHAMOMILE Fig. 122, c.

Very common about farmyards, scattered along roadsides and in waste places throughout; usually growing where the soil is more or less compacted. July-Oct. A closely related species, *A. arvensis* L., var. *agrestis* (Wallr.) DC., has been found in P.E.I. (Charlottetown) but is not known definitely from N. S. This plant differs in not being strong-scented, the leaves are not so finely divided, the lower branches are often rooting at the nodes, and the seeds are not tubercled on the sides.

Introduced from Eu.; generally distributed in N. A.

## 21. **MATRICARIA** (Tourn.) L.

a. Flower-heads 3-4 cm wide, with long white rays; plant not strong-scented.

1. *M. inodora*

- a. Flower-heads small, rayless, very conical; plant with a strong odor suggesting pineapple. 2. *M. matricarioides*

1. **M. inodora** L. MAYWEED.

Growing in much the same situations as *Anthemis* and rather similar to it in appearance. It is, however, more confined to seashore regions; common as a weed along the French Shore of Digby and Yarmouth Co., and along Northumberland Strait; scattered elsewhere in towns, waste places and along roadsides; rather rare inland. July-Aug.

Nfld. to Conn. & Mich.; introduced from Eu.

2. **M. matricarioides** (Less.) Porter. Fig. 122, d.

PINEAPPLE WEED.

Very common along roadsides, about dwellings and in waste places throughout. July-Nov. [*M. suaveolens* (Pursh) Buch.].

Introduced from the West Coast into eastern America: Eu.

## 22. CHRYSANTHEMUM (Tourn.) L.

- a. Basal leaves crenate-dentate; middle and upper stem-leaves oblong or oblanceolate, coarsely and regularly crenate or dentate above, with larger spreading teeth at the base. 1. *C. Leucanthemum*

- a. Basal leaves pinnatifid, subpinnatifid or coarsely and irregularly toothed; middle and upper stem-leaves narrowly oblong or oblanceolate, conspicuously subpinnatifid at base. var. *pinnatifidum*

1. **C. Leucanthemum** L. OX-EYE DAISY.

Reported by Fernald (1922) to be common at Annapolis Royal and Granville; apparently more or less common in Annapolis Co. Fields and roadsides: Nfld. and Que. becoming rarer southward. Introduced from Eu.

Var. *pinnatifidum* Lecoq. & Lamotte is the common daisy of pastures, cultivated land and waste places throughout. June-July.

Nfld. to N. J. and becoming rarer westward; introduced from Eu.

## 23. TANACETUM L.

1. **T. vulgare** L. Fig. 122, e. TANSY.

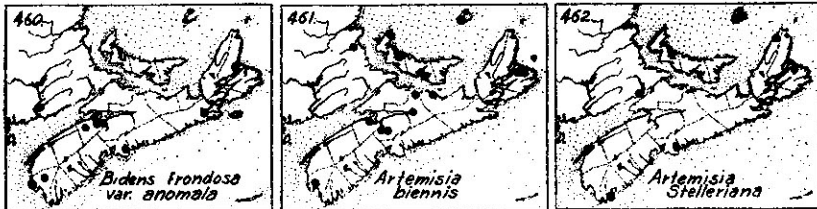
Scattered throughout; in small patches near old houses or along roadsides, becoming a weed in fields and orchards on the deeper soils around the Minas Basin and locally in

good soils elsewhere. Aug.-Sept. Forma **crispum** (L.) Fern., *Rhodora* 38: 235. 1936, with the leaves finely divided and closely toothed with the teeth partly inturned, is scattered in various parts of the province.

Introduced from Eu.; N. S. to Minn. & Ore. south to Ga.

## 24. ARTEMISIA L.

- a. Leaves smooth on both sides, thin and crowded, once-divided with triangular sharp teeth; heads small. 1. *A. biennis*
- a. Leaves whitish-hairy on one or both sides; heads larger, 2-7 mm long.
- b. Leaves densely whitish-woolly on both sides, the lobes rounded and about 5 mm wide; heads 6-7 mm long. 2. *A. Stelleriana*
- b. Leaves smooth on one side, or very finely pubescent on both sides; heads 2-4 mm long.
- c. Leaves smooth above, white-woolly beneath, partly twice-divided, with lobes 2-4 mm wide and tapering to a sharp tip. 3. *A. vulgaris*
- c. Leaves finely pubescent on both sides, 2-3 times divided into narrow lobes.
- d. Receptacle of the head with numerous long hairs between the florets; middle leaves 3-6 cm long, the lobes 1-several mm wide; lower leaves long-petioled; plants stout. 4. *A. Absinthium*
- d. Receptacle without long hairs; middle stem-leaves less than 3 cm long, finely divided into lobes less than 1 mm wide; plant slender with the lower leaves short-petioled. 5. *A. Pontica*



### 1. *A. biennis* Willd. Map 461. BIENNIAL WORMWOOD.

Reported by Lindsay from Windsor and Pictou; collected at Pictou, rather common along the North Shore in the heavy soils; scattered west to Kings Co. Aug.-Sept.

Introduced from western America; widely scattered.

### 2. *A. Stelleriana* Besser. Map 462. BEACH WORMWOOD.

Scattered around the coast on rocky or sandy beaches; commonest in northern C. B., scattered down the Atlantic coast to Yarmouth and Digby Cos. Early Aug.

Introduced from Asia; along the coast from Que. to N. J.

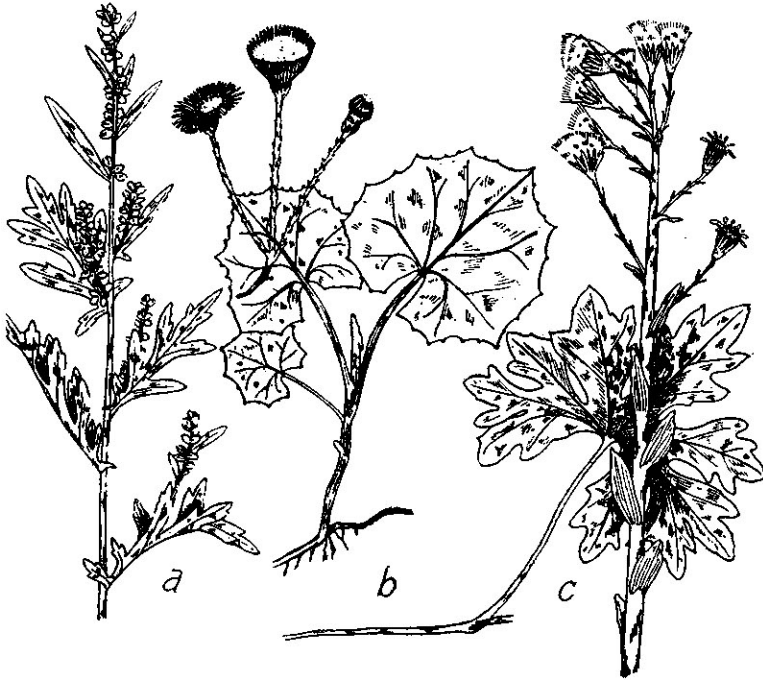


Fig. 123.—*Artemisia*. a, *A. vulgaris*,  $\times \frac{1}{2}$ . *Tussilago*. b, *T. Farfara*, flowering plant,  $\times \frac{1}{2}$ ; summer leaves,  $\times \frac{1}{2}$ . *Petasites*. c, *P. palmatus*, flowering plant,  $\times \frac{1}{2}$ ; leaf,  $\times \frac{1}{2}$ .

3. *A. vulgaris* L. Fig. 123, a. COMMON WORMWOOD.

Orchards, roadsides and waste places about towns; common from Annapolis to Halifax and Pictou Cos; probably throughout.

Native to western America; introduced from N. S. to Ga.

4. *A. Absinthium* L. WORMWOOD.

Rare; found around old dwellings where it was formerly planted as a garden herb. Lindsay lists it from Pictou and Five-Islands; collected at Sheet Harbour, Halifax Co. Aug.

Introduced from Eu.; Nfld. to Mont. south to S.C.

5. *A. Pontica* L. ROMAN WORMWOOD.

Known only from a collection from waste ground, Dartmouth (Fernald, 1922). Aug.

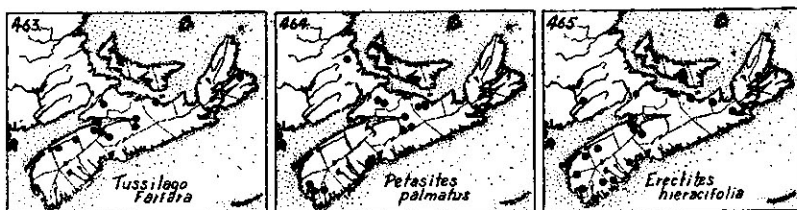
Introduced from Eu.; N. S., sparingly found west and south.

## 25. TUSSILAGO (Tourn) L.

### 1. *T. Farfara* L. Fig. 123, b. Map 463. COLTSFOOT.

Scattered and becoming a common weed in many parts of the province, especially about ports. It spreads actively by running rootstocks, and forms large patches on damp hillsides, river banks, roadside cuts and in heavy soil. Early May.

Introduced from Eu.; N. S. to Minn. south to Penn.



## 26. PETASITES (Tourn.) Hill

### 1. *P. palmatus* (Ait.) Gray Fig. 123, c. Map 464. SWEET COLTSFOOT.

Scattered in woods, swamps, recent clearings and roadside thickets from Belleville, Yarmouth Co. to Cumberland and east to C. B.; rather common in the north-central part of the province, carpeting the ground over considerable areas back of Stewiacke; rare elsewhere. The leafless flowering-stems arise in May or early June, while the green leaves appear later from the same rootstocks. (*P. frigidus* (L.) Fries var. *palmatus* (Ait.) Cronquist, in *Rhodora* 48: 123-125. 1946).

Lab. & Nfld. to Alberta south to Mass., Minn. & Calif.

## 27. ERECTITES Raf.

### 1. *E. hieracifolia* (L.) Raf. Fig. 124, a. Map 465. FIREWEED.

Common throughout; moist woods, recently burnt areas, and open thickets. Fernald, in *Rhodora* 19: 24-27. 1917, has named three varieties upon the size and shape of the leaves. These characters appear to be very variable. Var. *intermedia* Fern., according to this treatment, would be our commonest form. This has the leaves broad with some-

what clasping bases, rapidly reduced in size upwards to the inflorescence. Other collections show large leaves up to the apex of the stem. July-Sept.

N. S. to Ont. south to Fla. & Tex.

## 28. **SENECIO** (Tourn.) L.

- a. Plants leafy to the top, the leaves gradually becoming smaller upwards.
- b. Plants slender, 1-7 dm high, annual; leaves pinnately-lobed; flower-heads inconspicuous, without rays or with the rays small and narrow.
- c. Rays absent; outer bracteoles around the involucre black-tipped.
  - 1. *S. vulgaris*
- c. Rays present, often rolled outwards; outer bracteoles not black-tipped.
- d. Plant lightly pubescent but not glandular; bracteoles very small.
  - 2. *S. sylvaticus*
- d. Plant densely glandular-pubescent and viscid; bracteoles one-third to one-half the length of the involucre.
  - 3. *S. viscosus*
- b. Plants stout, 8-12 dm high; biennials or perennials; leaves simple, or if otherwise, finely twice to thrice divided; heads showy with conspicuous flat rays.
- e. Leaves widely lanceolate and obscurely toothed, whitish-woolly beneath; flower-heads 2.5-5 cm wide.
  - 4. *S. Pseudo-Arnica*
- e. Leaves finely divided, smooth; flower-heads 1-1.5 cm wide; flower-heads numerous, showy.
  - 5. *S. Jacobaea*
- a. Plants usually with many larger basal leaves which are merely toothed or shallowly lobed, and few and much smaller stem-leaves.
- f. Basal leaves large, round or ovate, the principal ones cordate at the base (Fig. 124, d).
- g. Basal leaves dentate with rounded or blunt teeth.
  - 6. *S. aureus* var. *intercursus*
- g. Basal leaves sharply serrate or dentate to acutely lacerate, membranous.
  - S. aureus* var. *aquilonius*
- f. Basal and lower leaves ovate to oblong-lanceolate, squarish at the base (Fig. 124, e), or tapering.
- h. Basal leaves squarish or very slightly cordate at the base; leaves, stem, and branches of the inflorescence smooth or nearly so.
  - 7. *S. Robbinsii*
- h. Basal leaves long-tapering at the base; stem, especially at the nodes, and leaves, and branches of the inflorescence more or less whitish-woolly.
  - 8. *S. pauperculus*

### 1. **S. vulgaris** L. Fig. 124, b. COMMON GROUNDSEL.

This common weed is well established in waste places, around roadsides, in towns and gardens, usually in rich soil; common in towns and gradually spreading out into



the country; common along the Bay of Fundy around the fishing villages. May-Oct.

Introduced from Eu.; widespread in N. A.

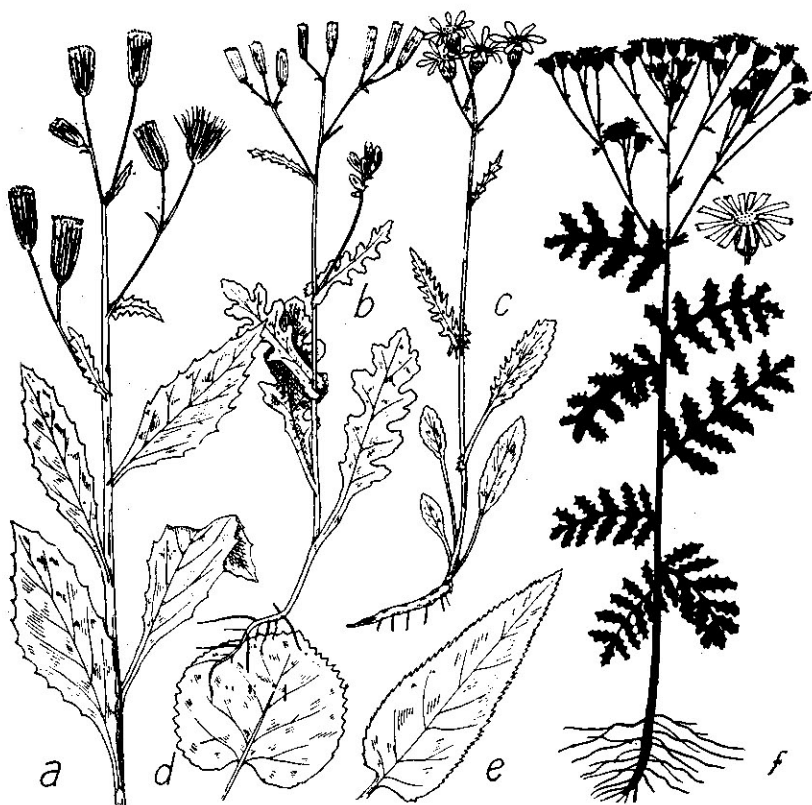


Fig. 124.—*Erectites*. a, *E. hieracifolia*,  $\times \frac{1}{2}$ . *Senecio*. b, *S. vulgaris*,  $\times \frac{1}{2}$ . c, *S. pauperculus*,  $\times \frac{1}{2}$ . d, *S. aureus*, leaf,  $\times \frac{1}{2}$ . e, *S. Robbinsii*, leaf,  $\times \frac{1}{2}$ . f, *S. Jacobaea* plant,  $\times \frac{1}{10}$ ; flower,  $\times 1$ .

2. *S. sylvaticus* L. Map 466.

Clearings, waste places and sea-coasts along the Bay of Fundy and east to C. B., usually growing near the coast. The plant is very variable according to ecological conditions, varying from tiny unbranched plants to much-branched ones with over a hundred heads. June-Sept.

Introduced from Eu.; Nfld. to Que. south to Me.

3. *S. viscosus* L. CLAMMY GROUNDSEL.

Common around towns and about railroads, becoming weedy. July-Sept.

Introduced from Eu.; N. S. to N. Eng. & N. C.

8. **S. pauperculus** Michx., var **neoscoticus** Fern., *Rhodora* 45: 502. 1943. Fig. 124, c.

This plant is confined to gypsum outcrops where it is often an abundant and conspicuous element of the flora on the dryish cliffs and talus slopes. Common about Windsor, Five-Mile R., Antigonish Harbour and Cape North. Robinson (1908) states that rough places along the interval streams of eastern N. S. are almost sure to contain *S. obovatus* Muhl. and *S. Balsamitae*. These records probably refer to the previous two species. Early June. N. S. & Gaspe.

## 29. ARCTIUM L. BURDOCK

Fernald, M.L. and Wiegand, K.M. A Synopsis of the Species of *Arctium* in North America. *Rhodora* 12: 43-47. 1910.

- a. Involucre large and conspicuously woolly; leaf-blades roundish ovate and obtuse; petioles very angular. 1. *A. tomentosum*
  - a. Involucre smooth or slightly cob-webby; leaf-blades usually more acute; petioles slightly angular.
  - b. Head short-peduncled, racemose or sub-spike-like. 2. *A. minus*
  - b. Heads longer-peduncled, more or less in a corymb.
- A. minus* var. *corymbosum*

### 1. **A. tomentosum** Mill. WOOLLY BURDOCK.

This large burdock is common around Pugwash, Cumberland Co.; not seen elsewhere.

Sparingly introduced from Eu. into eastern Can. and the U. S.

### 2. **A. minus** (Will.) Benth. COMMON BURDOCK.

Common in waste places, roadsides, orchards and around buildings throughout. Plants with larger heads, more spreading involucre and darker ground color to the achenes were formerly segregated as *A. nemorosum* Lejeune. Fernald (1921) reports this from Weymouth, Digby Co., but this is perhaps best considered a variation of *A. minus*.

Var. **corymbosum** Wieg., *Rhodora* 26: 5. 1924, is intermediate in some respects between *A. minus* and *A. Lappa*. A collection from Pictou by H. Groh, Aug. 1926, is placed here. *A. Lappa* has not been seen in the province.

Introduced and widely distributed in N. A.

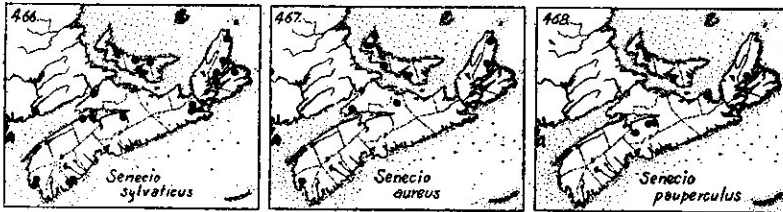
4. **S. Pseudo-Arnica** Less. BEACH SENECIO.

Rare; St. John reports it as infrequent in gulches near the sea and on the top of the beaches on Sable Is.; Rousseau (1938) found it at Canso on a gravelly beach with *Cornus suecica* and *Pinus Banksiana*; and it is abundant on the cobbly barrier beach below Yarmouth. Early Aug. Lab. south to Me.; Alaska.

5. **S. Jacobaea** L. Fig. 124, f. RAGWORT, STINKING WILLIE.

Very common from Pictou east to northern C. B. in pastures, along roadsides, waste places and burnt-over woods. It is becoming frequent in parts of Colchester Co., and has been introduced into small areas in Yarmouth, Halifax and Kings Cos. Late July-Aug.

Introduced from the British Isles; N. S. to Que. and N. Eng



6. **S. aureus** L., var. **intercursus** Fern., Rhodora 45: 499. 1943. Map 467. GOLDEN RAGWORT.

Rare; seen in the western counties by the Gray Herbarium Expedition only at Belleville, Yarmouth Co.; occasional in Cumberland, Colchester and Victoria Cos.; found in a pure stand in a wet meadow west of Parrsboro, where it covered acres of ground. Late June-July. N. S. to Mich. south to Penn. Ala. & Mo.

Var. **aquilontus** Fern. Rhodora 45: 500, 1943, is rare; Barrasois R., C. B. Nichols, no 852. (Fernald, 1. c.). (*S. pseudoreus* Rydb.).

Nfld. to Algoma south to C. B., P.E.I., Ohio & Wisc.

7. **S. Robbinsii** Oakes. Fig. 124, e. SWAMP RAGWORT.

Common in swamps, wet meadows, low fields and wet thickets throughout, especially abundant from Hants Co. to northern C. B. Late June-July.

N. S. & N. B. to northern N. Y.

**30. CARDUUS (Tourn.) L.**

- a. Heads nodding, large, solitary on long peduncles; involucre 3-4 cm wide. 1. *C. nutans*
- a. Heads clustered at the ends of winged branches; involucre 1.5-3 cm wide.
  - b. Leaves widely lanceolate, shallowly incised with the spiny lobes pointing forward, whitish-woolly beneath; involucre about 1.5 cm wide or less. 2. *C. crispus*
  - b. Leaves narrowly lanceolate, deeply incised with long spiny lobes which project backwards, smooth beneath; involucre about 1.3-2.5 cm wide. 3. *C. acanthoides*

**1. *C. nutans* L. PLUMELESS THISTLE.**

Sparingly introduced from Eu., from Penn. northwards to N. B. about seaports and towns; rare. No specimens have been seen from N. S. June-Oct.

**2. *C. crispus* L. WELTED THISTLE.**

The only collection seen is one from South Sydney and reported by Macoun. Aug. -Sept.

Sparingly introduced from Eu. and occasionally found about seaports.

**3. *C. acanthoides* L.**

Sparingly introduced in waste ground and on ballast; Yarmouth, Sydney, Pictou and Pugwash. Aug.-Sept.

Sparingly introduced from Eu. about seaports.

**31. CIRSIUM (Tourn.) L. THISTLE**

- a. Heads large, 3-9 cm wide; plants not spreading by underground rootstocks, usually solitary.
- b. Outer and inner involucre bracts spine-tipped; leaves whitish-hairy beneath, decurrent on the stem, very spiny. 1. *C. vulgare*
- b. Outer bracts spine-tipped, the inner soft and spineless; leaves whitish beneath, not decurrent on the stem, less deeply cut, with softer and smaller spines. 2. *C. muticum*
- a. Heads small, 2-5 cm wide or less, numerous; outer bracts of the involucre appressed and barely prickly-pointed.
- c. None of the leaves strongly decurrent; vigorously spreading in patches by strong running rootstocks. 3. *C. arvense*
- c. Lower leaves, at least, strongly decurrent; plants solitary, not spreading by underground rootstocks. 4. *C. palustre*

**1. *C. vulgare* (Savi) Airy-Shaw, in Fedde Rept. Spec. Nov. 43: 302-315. 1938. Fig. 125, g. BULL or SCOTCH THISTLE.**

Scattered throughout; open pastures, along roadsides,

and in waste ground, often in grazed areas but not found in cultivated ground. July 15-Sept. [*C. lanceolatum* (L.) Hill].

Introduced from Eu.; Nfld. to Ore. south to Fla. & Calif.

2. **C. muticum** Michx. Map 469. SWAMP THISTLE.

Low ground, wooded swamps, meadows and moist places; probably throughout, often rather common. Late July-Aug.

Nfld. to Sask. southward

3. **C. arvense** (L.) Scop. CANADA THISTLE.

This is the commonest of the thistles and one of the worst weeds of the province; found throughout. Forma **albiflorum** (Rand & Redf.) R. Hoffm., with white flowers, is common around Truro and occasionally seen elsewhere.

Introduced from Eu.; Nfld. to B. C. south to Va. & Utah.

4. **C. palustre** (L.) Scop.

Scattered in the vicinity of Halifax where it was found in various localities by W. G. Dore and Eville Gorham in the summer of 1944. It closely resembles *C. arvense* in general appearance.

Introduced from Eu.; Nfld. to N. H.

### 32. ONOPORDUM (Vaill.) L.

1. **O. Acanthium** L. COTTON THISTLE.

This plant is rather similar in appearance to the Scotch Thistle. Specimens from the province have not been seen, but it is reported in Gray's Manual from N. S. & N. B. south to N. J. It is naturalized from Eu. and may occasionally appear.

### 33. SILYBUM (Vaill.) Adans.

1. **S. marianum** (L.) Gaertn. LADY'S THISTLE.

An occasional garden escape, or weed of ballast or waste ground; collected at Halifax by H. Groh. Introduced from southern Eu.; rare in N. A.

34. **CENTAUREA L.**

- a. Plants annual; leaves linear, entire; marginal flowers large and ray-like. 1. *C. Cyanus*
- a. Plants perennial; lower leaves wider, more or less toothed or lobed.
  - b. Heads small, 5-10 mm wide, the involucrel bracts fringed only at the tip; lobes of the leaf very long and narrow. 2. *C. maculosa*
  - b. Heads large, 12-20 mm wide the involucrel bracts fringed to the base; leaves widely and shallowly lobed or nearly entire. 3. *C. nigra*

1. **C. Cyanus L. BACHELOR'S BUTTON, CORN FLOWER.**

This garden flower is occasionally found in waste places, around garden or on dumps, not persisting for any length of time. Aug.-Sept.

Introduced from Eu.; widely grown in N. A.

2. **C. maculosa Lam.**

Sandy soil and waste places, rare; Woodside, Kings Co., collected by H. Groh, 1936. July-Aug.

N. S. to Minn. south to N. J. & Penn; introduced from Eu.

3. **C. nigra L. Fig. 125, a. K NAPWEED.**

Common along roadsides throughout, often forming a continuous band along newly disturbed embankments. It is only occasionally a weed in hayfields, although around Annapolis and other parts in southwestern N. S. it is common in both fields and pastures. The color of the involucre is variable, from black to yellowish, but this does not seem to be correlated with any other character. The pappus hairs are likewise very variable in size and number and may occasionally be absent. This last type has been named *C. nigrescens* Willd., but all gradations can be found in the province. A white-flowered plant was collected at Scott's Bay, Kings Co., by J. F. Hockey, July 1939. July-Aug.

Introduced from Eu.; Nfid. to N. J. and scattered westward.

35. **CNICUS L**1. **C. benedictus L. BLESSED THISTLE.**

Rare; not collected in recent years; occasionally introduced into N. A. on ballast, in waste places or about towns. Introduced from Eu.

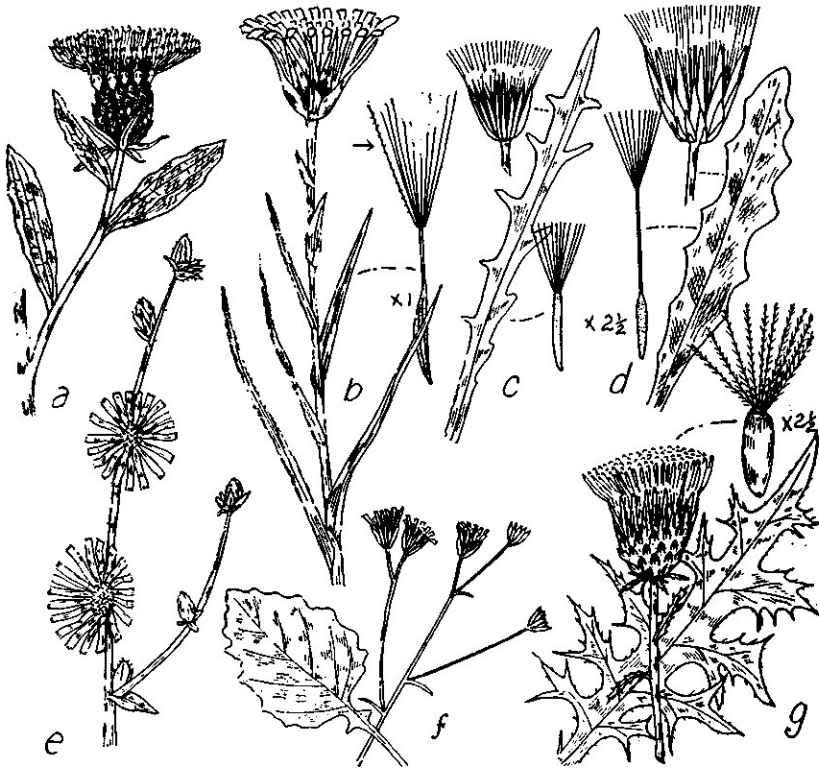


Fig. 125.—*Centaurea*. a, *C. nigra*, flower,  $\times \frac{1}{2}$ . *Tragopogon*. b, *T. pratense*, top of plant,  $\times \frac{1}{2}$ ; achene. *Leontodon*. c, *L. autumnalis*, leaf,  $\times \frac{1}{2}$ ; fruiting head,  $\times 1$ . *Hypochaeris*. d, *H. radicata*, leaf,  $\times \frac{1}{2}$ ; fruiting head,  $\times 1$ ; achene. *Cichorium*. e, *C. Intybus*, flowers,  $\times \frac{1}{2}$ . *Lapsana*. f, *L. communis*,  $\times \frac{1}{2}$ . *Cirsium*. g, *C. vulgare*, flower and leaf,  $\times \frac{1}{2}$ ; achene.

### 36. LAPSANA L.

#### 1. *L. communis* L. Fig. 125, f. NIPPLEWORT.

Scattered in towns or about greenhouses; Mahone Bay to Guysborough and Pictou Cos.

Introduced from Eu.; N. S. to Mich. south to Penn.

### 37. ARNOSERIS Gaertn.

#### 1. *A. minima* (L.) Dumort. LAMB SUCCORY.

Fernald, 1922, reports this tiny annual plant from gravelly railroad bed and near the station at Belleville, Yarmouth Co. The plant may be easily over-looked, but

with the present-day spraying of the railroad right-of-way it is doubtful if this plant still exists at that place.

Sparingly introduced from Eu. into eastern N. A.; known from no other place in Canada.

### 38. CICHORIUM (Tourn.) L.

#### 1. *C. Intybus* L. CHICORY. Fig. 125, e.

Becoming common, especially along the roadsides of the Annapolis Valley. where the plant has often spread along the roadsides for a mile or more; occasionally seen about towns, ports, and waste places elsewhere throughout the province. It is rapidly spreading and is destined to be a common weed. July-Sept.

Introduced from Eu.; Nfid. to Wash south to Fla. & Calif.

### 39. HYPOCHAERIS L.

#### 1. *H. radicata* L. Fig. 125, d. CAT'S EAR.

This plant is now a bad weed in lawns, along roadsides and in fields about Yarmouth and at least to Arcadia. It is apparently of recent introduction and is known from no other place in N. S.; undoubtedly a bad weed.

Introduced from Eu.; Nfid. to Ohio & Penn.; Colorado and on the West Coast.

### 40. LEONTODON L.

#### 1. *L. autumnalis* L. Fig. 125, c. FALL DANDELION, AUGUST FLOWER.

Common throughout, especially characteristic of roadsides and lawns after the grass has been mown. Var. *pratensis* (Link) Koch is a slightly larger plant with the involucre and the tips of the peduncles densely soft-pubescent with blackish hairs. This is about as abundant as the species in N. S. Late June-Oct. (*Apargia* Scop.).

Nfid. to Mich. south to Penn. & Ohio; introduced from Eu.

### 41. TRAGOPOGON (Tourn.) L.

#### a. Flowers yellow; peduncle little thickened below the flower-head.

##### 1. *T. pratensis*



a. Flowers purplish; peduncle thickened and hollow just below the flower-head. 2. *T. porrifolius*

1. **T. pratensis** L. Fig. 125, b. GOAT'S-BEARD.

Reported in Macoun's Catalog as luxuriant at Prince's Church, Pictou; Robinson (1906) says that it had not yet spread beyond the limits of the town. It is now a common and troublesome weed in grass lands and meadows along the intervalles of Pictou County. Elsewhere in the province it is frequent along railroads, roadsides, on grassy banks and occasionally in meadows from Annapolis to C. B. It is a rapidly spreading and persistent weed. *T. dubius* Scop., with involucre bracts exceeding the flowers and with the peduncles thickened at the top, is becoming common across the continent and may be present. *T. pratensis*, however, seems to be the form around Truro. July.

Introduced from Eu.; N. S. to Man. south to N. J. & Colo.

2. **T. porrifolius** L. SALSIFY, OYSTERPLANT.

This garden plant occasionally escapes or persists; rare, collected near an old estate on the ridge above Grand Pre, Kings Co.

Introduced from Eu.; N. S. to B. C. south to Ga. & Calif.

**42. TARAXACUM** (Haller) Ludwig DANDELION

a. Achenes brownish-green; few or none of the outer bracts of the involucre with a callosity near the summit; leaves coarsely and usually shallowly lobed.

b. Outer bracts of the involucre elongated, conspicuously reflexed even in bud. 1. *T. officinale*

b. Outer bracts rather short, lanceolate to deltoid-ovate, ascending to spreading. *T. officinale* var. *palustre*

a. Achenes reddish; most of the outer bracts with a callosity near the summit on the back; leaves deeply lobed nearly to the midrib with narrow lobes, usually reddish at the base. 2. *T. laevigatum*

1. **T. officinale** Weber. DANDELION.

Common throughout and an aggressive weed along roadsides, in lawns, pastures, and cultivated soils. May-June. (*T. palustre* (Lyons) Lam. & DC., var. *vulgare* (Sm.) Blytt. according to Fernald in *Rhodora* **35**: 380. 1933). Early introduced from Eu.; Nfld. to Alaska southwards.

Var. **palustre** (Sm.) Blytt. is common in low pastures, on wet slopes, and roadsides, usually small and less common than the species. Care must be taken not to confuse this plant with the next species, which it closely resembles. Introduced from Eu.; Nfld. & Que. to southern N. Eng. & Penn.

2. **T. laevigatum** (Wild.) DC. RED SEEDED DANDELION. Fig. 126, b. Scattered throughout much of the province, and common in the Annapolis Valley. It prefers drier soils than the preceding species, and is often found on dry hillsides, new clearings in woods, and in old pastures. This species, being smaller and less aggressive, usually chooses thinner, more open turfed areas. (*T. erythrospermum* Andrz.).

Introduced from Eu.; N. S. to Alta. south to N. C. & Wyo.

### 43. SONCHUS (Tourn.) L. SOW THISTLE

a. Perennial with creeping rootstocks; plant to 2 m high; flower-heads about 4 cm wide; achenes 2-3 mm long.

b. Involucre and peduncles glandular hairy. 1. *S. arvensis*

b. Involucre and peduncles glabrous or nearly so.

*S. arvensis* var. *glabrescens*

a. Annual, with fibrous roots only; flower heads 1.2-2.5 cm wide; achenes 1-1.5 mm long.

c. Stem-leaves spiny-toothed, scarcely divided, the auricles at the base rounded; achenes not transversely wrinkled, with 3 longitudinal nerves on each side. 2. *S. asper*

c. Stem-leaves slightly or not at all spiny-toothed; often deeply lobed, the auricles at the base pointed; achenes transversely wrinkled, with more than 3 longitudinal nerves on each side.

3. *S. oleraceus*

1. **S. arvensis** L. 126, a. PERENNIAL SOW THISTLE.

Becoming a common weed, especially along roadsides, about towns, along dykes and around ports. In places, as in Cumberland Co., it has become a troublesome weed in cultivated fields and grain fields. It is rapidly spreading in the Annapolis Valley and elsewhere in the province. Naturalized from Eu.; Nfld. to Minn. & B. C. south to N. J. & Colo.

Var. **glabrescens** Guenther, Grab. & Wimm., see *Rhodora* 30: 19, 1938, is rarer than the species. It has apparently been introduced from the Prairie Region in grains and feeds, and is becoming established in orchards, around farmyards and occasionally along roadsides. This



Fig. 126.—*Sonchus*. a, *S. arvensis*,  $\times \frac{1}{2}$ . *Taraxacum*. b, *T. laevigatum*, plant,  $\times \frac{1}{2}$ ; achene,  $\times 5$ . *Lactuca*. c, *L. canadensis*, leaf and flowers,  $\times \frac{1}{2}$ ; achene,  $\times 5$ . *Prenanthes*. d, *P. altissima*,  $\times \frac{1}{2}$ .

plant, once established, appears to be the more aggressive form.

Native of Eu.; widely introduced.

2. *S. asper* (L.) Hill. SPINY SOW THISTLE.

Scattered in cultivated fields and gardens throughout; it is usually not an aggressive weed but is found in small numbers in rich soil or about buildings and orchards. Several forms of this and the next species exist and may grow together, so that at times it is rather difficult to know just which species is concerned.

Introduced from Eu.; throughout the world.

3. *S. oleraceus* L. ANNUAL SOW THISTLE.

Scattered to common in cultivated fields, waste places, along roadsides and in orchards, found in similar habitats and very similar to the preceding species.

Native of Eu.; now spread throughout the world.

**44. LACTUCA (Tourn.) L. WILD LETTUCE**

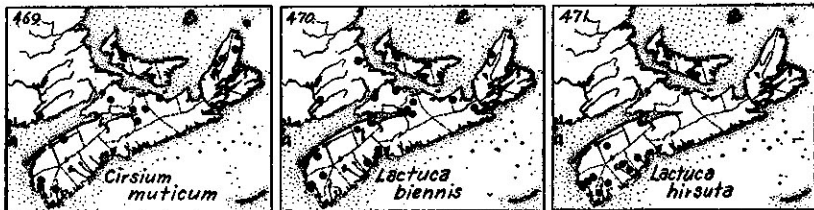
Wiegand, K.M. Variations of *Lactuca canadensis* L. *Rhodora* 22: 9-11. 1920. Fernald, M.L. *Lactuca*. *Rhodora* 40: 477-481. 1938.

- a. Achenes beakless or nearly so; flowers bluish; pappus hairs tawny.
  - 1. *L. biennis*
- a. Achenes with a long slender beak; flowers cream-colored; pappus whitish.
- b. Involucre 10-14 mm long; achenes 3-3.5 mm long; pappus hairs 5-7 mm long.
- c. Leaves all unlobed, with a clasping base. 2. *L. canadensis*
- c. Leaves all, or at least the lower, lobed.
- d. Leaves with the lobes narrow and curved, the upper unlobed leaves linear, pointed or arrow-shaped at the base.
  - L. canadensis* var. *longifolia*
  - d. Leaves with the lobes much broader, often toothed, obliquely truncate at the tip; upper leaves wider, winged and clasping at the base. *L. canadensis* var. *latifolia*
- b. Involucre 16-22 mm long; achenes 7-9 mm long; pappus hairs 9-12 mm long. 3. *L. hirsuta*

1. **L. biennis** (Moench.) Fern., *Rhodora* 42: 300. 1940 Map 470. FALL WILD LETTUCE.

Scattered throughout, and common from Annapolis Co. to northern C. B.; along roadsides, in clearings, waste places and pastures. It is very conspicuous along roadsides in the northern part of the province in late summer, July-Sept. [*L. spicata* (Lam.) Hitch.].

Nfld. to Man. south to Tenn. & Colo.



2. **L. canadensis** L. Fig. 126, c. WILD LETTUCE.

Scattered throughout; a weed of waste places, roadsides, edges of thickets and open woodlands (*L. integrifolia* Bigel.). July-Aug. N. S. to Wis. south to Ga. & Okla.

Var. **longifolia** (Michx.) Farw. is a common weed; waste places, roadsides and burnt-over land. N. S. to B. C. south to La.

Var. *latifolia* O. Ktze is rare; found occasionally in open woods and along roadsides; perhaps an ecological form. N. S. to Wisc. south to Fla.

3. *L. hirsuta* Muhl., var. *sanguinea* (Bigel.) Fern., *Rhodor*a 40: 481. 1938. Map 471.

Scattered in Yarmouth, Shelburne and Queens Cos.; east to Kings Co.; P.E.I., where it is rare. Aug.

P.E.I. to N.Y. and south to Va., La. & Tex.

#### 45. PRENANTHES (Vaill.) L.

- a. Heads slender, nearly erect, mostly 12-16-flowered; involucre pubescent; leaves sessile. 1. *P. racemosa*
- a. Heads stouter, commonly pendulous, 5-12-flowered (Fig. 126, d); involucre glabrous; leaves mostly pectioled.
- b. Heads 8-12-flowered; principal involucre bracts 8.
- c. Plant 1.5-15 dm high; inflorescence paniculate; outer involucre bracts lance-deltoid, the longest 1.5-2.5 mm long. 2. *P. trifoliolata*
- c. Plant 0.5-7.5 dm high; stem unbranched and the inflorescence a panicle, rarely more branched; outer involucre bracts ovate to ovate-lanceolate, very unequal, the longest 3-6 mm long. *T. trifoliolata* var. *nana*
- b. Heads 5-6-flowered; principal involucre bracts 5. 3. *P. altissima*

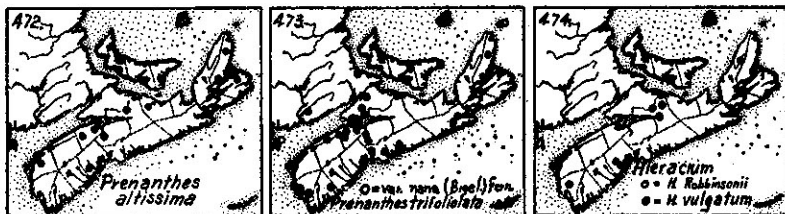
#### 1. *P. racemosa* Michx. RATTLESNAKE ROOT.

Reported in Macoun's Catalog as common at Sydney Mines; the only specimen seen from the Maritimes was from Saint John, N. B.

N. S. to Alberta south to N. Y.

#### 2. *P. trifoliolata* (Cass.) Fern. Map 473. LION'S-PAW.

Found in rich woods, or also in light open woods, in gravelly, sandy or more acid soils, along the edge of thickets and on wooded roadsides; common throughout; Nfld. to N. S. and Mo. south to N. C. & Tenn.



Var. **nana** (Bigel.) Fern. is found on mossy places, barrens, turfy crests, and around the cooler coasts of the province; scattered around the coast of C. B., rare elsewhere. Lab. & Nfld. to the coast of N. S. and the higher mountains of New England and northern N. Y.

3. **P. altissima** L. Map 472.

Rich woods from Digby Neck to northern Cape Breton; rare or absent in the southwestern counties. July-Aug. Forma **hispidula** Fern., *Rhodora* 23: 300. 1921, has the stem hairy and the leaves pubescent at least on the veins on the underside. Rich woods; Sandy Cove (Fernald, 1921).

Nfld. to Man. south to Tenn. & Ga.

46. **HIERACIUM** (Tourn.) L. HAWKWEED

- a. Leaves all basal, not toothed nor lobed; stolons present or absent.
- b. Flowers solitary, or with an additional one or two smaller ones.
  - c. Flowers solitary; leaves green above, strongly whitened beneath with stellate hairs; plants with strong spreading stolons.
    - 1. *H. Pilosella*
  - c. Flowers usually in 2's or 3's; leaves green on both sides; flowers smaller; stolons weakly spreading.
    - 2. *H. Auricula*
- b. Flowers numerous in a crowded corymb-like inflorescence, 2 cm or less in width.
  - d. Leaves setose to hirsute on both surfaces; stolons present, often rather weakly developed; plants not glaucous.
    - e. Flowers orange-red; leaves long-hirsute.
      - 3. *H. aurantiacum*
    - e. Flowers yellow; leaves setose only.
      - 4. *H. pratense*
  - d. Leaves glabrous to slightly hairy, but not densely setose, more or less glaucous; flowers yellow.
  - f. Rootstock slender and elongated; stolons numerous.
    - 5. *H. floribundum*
  - f. Rootstock short, stout and abruptly terminated; stolons absent or very weak.
    - 6. *H. florentinum*
- a. Leaves numerous and scattered along the stem, lanceolate to ovate, if mainly basal then deeply toothed or lobed; stolons absent; heads various, to 4.5 cm wide.
  - g. Leaves mainly basal, with one to several smaller ones often found along the stem, elliptical to ovate, toothed, the lower long petioled; flower-heads 2-4.5 cm wide.
  - h. Stem naked or with one or two leaves borne near the base; lowest leaves with rounded or cordate bases.
    - 7. *H. murorum*
  - h. Stem with several leaves which are rapidly reduced in size upwards; lowest leaves attenuate to the petioles.
  - i. Involucre and pedicels stipitate-glandular, with no or but few glandless hairs overtopping the glands.
    - 8. *H. vulgatum*

- i. Involucre and pedicels glandless or only very minutely glandular, copiously long-pilose or villous. 9. *H. Robinsonii*
- g. Leaves numerous, scattered along the stem, the lower ones not conspicuously larger than the stem-leaves.
- j. Plant very rough-hairy, stout; axils and branches of the inflorescence white-tomentose with numerous dark glands; leaves without a bloom, more or less hairy, nearly entire.
- k. Lower internodes, petioles and mid-ribs of the leaves with long slender hairs; leaves with scattered hairs on the upper surface. 10. *H. scabrum*
- k. Lower internodes often with a white tomentum, but only with short stiff hairs; leaves glabrous except for minute gland-tipped hairs. *H. scabrum* var. *leuocaule*
- j. Plant nearly glabrous or smooth; axis and branches of the inflorescence without glands; leaves conspicuously toothed.
- 1. Flower-heads 10-22 mm wide, on widely spreading, slender, glabrous flexuous branches. 11. *H. paniculatum*
- 1. Flower-heads 25-45 mm wide, on stiff, erect pubescent branches.
- m. Involucre 8-13 mm high; upper internodes of the stem and branches without or with only a few scattered stiff hairs.
- n. Involucre dark; leaves mostly 8-20, remote; heads 1 to several in an open panicle. 12. *H. canadense*
- n. Involucre olive; leaves 25-50 or more, often crowded; heads many, crowded. *H. canadense* var. *fasciculatum*
- m. Involucre 5-10 mm high; upper internodes of the stem and branches copiously villous-hirsute. *H. canadense* var. *hirtirameum*

1. **H. Pilosella** L. Fig. 127. MOUSE-EAR HAWKWEED.

Abundant and one of the worst pasture weeds of the province. It was introduced about 40 years ago near Pictou, and has by now spread throughout the province. It is especially common in the eastern part of the province, and the abundance of the plant is correlated with open soils, bare slopes and over-grazed pastures. Var. *viride* Ser. is a coarser plant with the leaves green on both surfaces. This has been listed for the province, but has not been noticed in recent years. Late June-early Aug.

Introduced from Eu.; eastern America.

2. **H. Auricula** Lam.

This small species is local, but often covers considerable areas; leached pastures and bare slopes on the south side of the Annapolis Valley south of Kentville and at Waterville.

Introduced from Eu.; unknown elsewhere in America.

3. **H. aurantiacum** L. ORANGE HAWKWEED, DEVIL'S PAINT BRUSH

Local, but becoming more common. This species, like the following, has become established in back regions on leached, well-drained soils of old pastures and fields. At Advocate it extends for miles; in the Annapolis Valley it is slowly becoming established in many locations; and it is scattered elsewhere. Once established it is very persistent. June 20-July.

Introduced from Eu.; N. S. to Ont. & Penn.

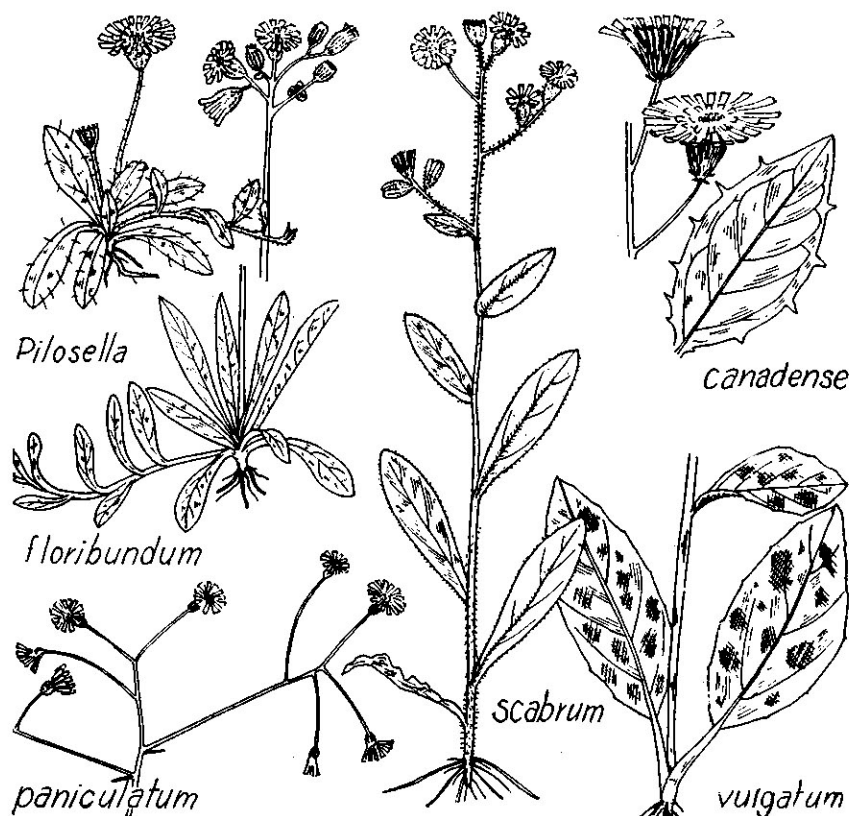


Fig. 127.—*Hieracium*.

4. **H. pratense** Tausch. HAWKWEED.

Scattered or local from Digby Co. to northern C. B. Along the Cobequids and in other hilly areas with leached and open soils it becomes abundant and often dominant along roadsides, in fields and open areas, rarely found in cultivated fields. The two following species are often con-



sidered as varieties of this one, but since they are distinct so far as Nova Scotia is concerned they are here kept separate. July-Aug.

Introduced from Eu.; N. S. to N. Y. & Penn.

5. **H. floribundum** Wimm. & Grab. KING DEVIL. Fig. 127.

This rapidly spreading plant is common in the northern part of the province, and scattered elsewhere; old fields, pastures, roadsides, etc.

Introduced from Eu. into eastern U.S. and Can.

6. **H. florentinum** All. KING DEVIL.

Rather rare northwards and confined to old fields, sandy roadsides and banks. This plant is tall in this part of the province, often over 5 dm high, and rather local. In the Annapolis Valley another and lower form is very common. In general the introduced hawkweeds are quite uniform in the province, since they have originated from one or a few scattered introductions.

Introduced from Eu.; N. S. to Ont. and N. Y.

7. **H. murorum** L. GOLDEN LUNGWORT.

Sparingly introduced; Sydney and Bridgewater.

Introduced from Eu.; N. S. to Que.

8. **H. vulgatum** Fries. Fig. 127. Map 474.

Local in Cumberland and Colchester Counties; often common along roadsides in the mountains, and scattered southward along the railroad to Halifax: rare elsewhere. July.

Introduced from Eu.; local from Nfld. and Que. to N. Y.

9. **H. Robinsonii** (Zahn) Fern., *Rhodora* 45: 317. 1943.

Gravel in river bottoms, Big Intervale, C. B., Macoun's collection no. 16,699. See Fernald in *Rhodora* 45: 319. 1943, for a key to this and the preceding two species.

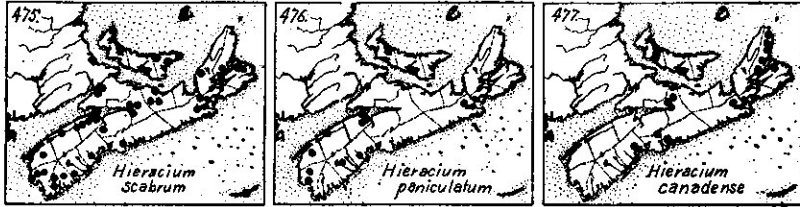
Nfld. to N. S., Me., N. H. & Que.

10. **H. scabrum** Michx. Fig. 127. Map 475. ROUGH HAWKWEED.

Common throughout; old fields, pastures, rough land and sandy soil. July-Aug. Fernald (1922) reports "a large colony exactly combining the characters of *H. paniculatum* and *H. scabrum* and more abundant than either of them, in dry pine and oak woods on steep slopes along the

Lahave River, Bridgewater." N. S. to Minn. south to Ga. & Kans.

Var. *leucocaule* Fern. & Saint John, *Rhodora* 16: 182. 1914, is known only from Sable Is.; scattered over the barrens.



11. *H. paniculatum* L. Fig. 127. Map 476.

Mixed or dry deciduous woods; occasional from Yarmouth east to Kings and Lunenburg Counties, rather common in oak and mixed woods near Kentville; found at Boylston, Guysborough Co.

N. S. to central Me. to Mich. south to Ga. & Ala.

12. *H. canadense* Michx. Fig. 127. Map 477. CANADA HAWKWEED.

Scattered in C. B. along streams, ravines, and on cliffs; grading into the next variety southward. Lab. to B. C. south to Me., Mich. and Ore.

Var. *fasciculatum* (Pursh) Fern., *Rhodora* 45: 320. 1943, is scattered, probably throughout the province, becoming common along the roadsides in the Cobequids; occasionally observed in large patches elsewhere. July-Sept.

Var. *hirtirameum* Fern., *Rhodora* 17: 19. 1915, is local, and not well known. Collections resembling it have been seen from Guysborough Co. and from Cape Breton.

Nfld. to Wisc. south to N. Eng. & Penn.

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### GLOSSARY

- Achene.* Dry one-celled one-seeded fruit.
- Acuminate.* Gradually tapering to a point or end.
- Acute.* Quickly tapering to a sharp point.
- Anther.* Pollen-bearing part of the stamen.
- Apetalous.* Without petals.
- Apiculate.* With a minute point.
- Appressed.* Lying close or flat against.
- Approximate.* Closely situated without running together.
- Areolate.* Reticulated, marked out into small areas.
- Aristate.* Tipped by a bristle.
- Articulate.* Jointed.
- Ascending.* Rising obliquely and curving upward.
- Attenuate.* Slenderly tapering.
- Awn.* A bristle-shaped appendage.
- Axil.* Angle formed by leaf or branch with the stem.
- Axillary.* Situated in an axil.
- Biennial.* Lasting two years.
- Bisexual.* With both stamens and pistils.
- Blade.* Expanded portion of a leaf.
- Bract.* Modified or scale-like leaf.
- Bracteate.* Having bracts.
- Bracteole.* Small bract.
- Campanulate.* Bell-shaped.
- Canaliculate.* Longitudinally channelled.
- Canescent.* Gray-pubescent.
- Capillary.* Hair-like.

- Capsule.* Dry fruit of more than one carpel, opening when ripe.
- Carpel.* A single pistil, or the equivalent of one in a compound pistil.
- Caruncle.* Growth or appendage near the hilum of the seed.
- Castaneous.* Dark-brown.
- Cespitose.* Growing in tufts.
- Chaff.* Thin scales or bracts, particularly on the receptacle of the Compositae.
- Ciliate.* Fringed with hairs.
- Ciliolate.* Minutely ciliate.
- Cinerous.* Ash-colored.
- Clasping.* Of the base of a leaf, partly surrounding the stem.
- Clavate.* Club-shaped.
- Cleistogamous.* Fertilized without the opening of the flower.
- Conduplicate.* Folded together.
- Convolute.* Rolled up longitudinally.
- Cordate.* Heart-shaped with point upwards.
- Corm.* Enlarged base of stem, bulb-like but solid.
- Coriaceous.* Leathery.
- Corymb.* Flat-topped or convex flower-cluster with the outer flowers opening first.
- Costate.* Ribbed.
- Cotyledon.* Seed-leaf, often the first to appear above ground.
- Crenate.* Toothed with rounded, shallow teeth.
- Crenulate.* Finely crenate.
- Culm.* Stem of grasses and sedges.
- Cuneate.* Wedge-shaped.
- Cuspidate.* Sharp-pointed with a rigid or hard point.
- Cyme.* Flat-topped flower-cluster with the central flowers opening first.
- Deciduous.* Quickly falling; not persistent.
- Decomound.* More than once divided.
- Decumbent.* Reclining with the ends ascending.
- Dehiscent.* Opening or splitting.
- Dentate.* Toothed with outwardly directed teeth.
- Denticulate.* Minutely dentate.
- Depressed.* Flattened from above.
- Dichotomous.* Forking.
- Diffuse.* Loosely or widely spreading.

- Dioecious.* Staminate and pistillate flowers on different plants.
- Distichous.* In two vertical ranks.
- Divaricate.* Widely spreading.
- Dorsal.* Relating to the back or the outer surface.
- Drupe.* A fleshy indehiscent fruit with a stone as in cherries.
- Drupelet.* A small drupe, as in Raspberry.
- Entire.* Without teeth or divisions.
- Epiphytic.* Growing on other plants.
- Excurrent.* With a projecting tip.
- Exocarp.* Outer layer of the fruit coat.
- Exserted.* Prolonged beyond the surrounding parts.
- Fastigiate.* With stems or branches erect and near each other.
- Fertile.* Capable of bearing fruit; or pollen in connection with anthers.
- Fibrillose.* With or broken up into fine fibers.
- Filament.* Stalk of the stamen.
- Filiform.* Thread-like.
- Fimbriate.* Fringed.
- Floret.* A small flower, usually one of a dense cluster.
- Foliaceous.* Leaf-like.
- Foliolate.* Having leaflets.
- Follicle.* Fruit of one carpel, opening by a ventral suture.
- Fronde.* Leaf of a fern.
- Fuscous.* Grayish-brown.
- Gibbous.* Swollen on one side.
- Glabrate.* Nearly glabrous or becoming so with age.
- Glabrous.* Not hairy.
- Glaucous.* Covered with a bluish-white or grayish bloom.
- Glomerule.* A small compact cluster.
- Halophyte.* Plant growing on brackish or salty locations.
- Hastate* or *halberd-shaped.* Like an arrow head, with the basal lobes pointing outward nearly at right-angles.
- Herbaceous.* Not woody; leaf-like in color and texture.
- Hilum.* Scar or point of attachment of the seed.
- Hirsute.* With coarse or stiff hairs.
- Hirtellous.* Minutely hirsute.
- Hispid.* With rigid or bristly hairs.
- Hispidulous.* Minutely hispid.
- Hyaline.* Transparent or translucent.
- Imbricate.* Overlapping.



- Incised.* Cut sharply and irregularly.
- Included.* Not protruding.
- Indefinite.* Very many, or inconstant in number.
- Indehiscent.* Not opening nor splitting.
- Indigenous.* Native and original to the area.
- Indurated.* Hardened.
- Indusium.* Covering of the fruiting dot or sorus in the ferns.
- Inferior ovary.* One joined to the calyx.
- Inflorescence.* Flowering part of the plant.
- Involucel.* Small or secondary whorl of bracts.
- Involucre.* A sheath or collection of bracts about a flower or inflorescence.
- Involute.* Rolled inward.
- Irregular.* Having the members of a whorl of flower-parts unequal in shape, size or union.
- Lacerate.* Irregularly cleft.
- Laciniate.* Cut into narrow pointed lobes.
- Lanceolate.* Several times longer than wide, widest below the middle and tapering to the apex.
- Leaflet.* A single division of a compound leaf.
- Lenticular.* Lens-shaped.
- Linear.* Long and narrow with parallel sides.
- Megaspore.* The larger size of spore in *Selaginella* or *Isoetes*.
- Moniliform.* Like a string of beads.
- Monoecious.* With stamens and pistils on separate flowers on the same plant.
- Mucronate.* With a short, small abrupt point.
- Nerve.* Unbranched vein or simple slender rib.
- Obcordate.* Inverted heart-shaped; with the point downwards.
- Ob lanceolate.* Lanceolate with the widest part above the middle.
- Oblong.* Longer than broad with nearly parallel sides.
- Obovate.* Inverted ovate, the broadest part above the middle.
- Obovoid.* Egg-shaped, the widest part uppermost.
- Obsolescent.* Becoming rudimentary or obsolete.
- Obtuse.* Blunt or rounded at the end.
- Ocrea.* A tubular stipule: Smaller ones being ocreolae.
- Ovary.* Part of the pistil containing the ovules; the enlarged base.

- Ovate.* With an outline like that of an egg, the broader end downward.
- Ovoid.* Solid with an oval outline.
- Ovule.* The part of the ovary which after fertilization becomes the seed.
- Palmately.* With the lobes or divisions coming from one point, or area.
- Panicle.* A loose irregular flower-cluster with stalked flowers.
- Pappus.* The modified calyx in the *Compositae* florets.
- Parthenogenetic.* Developing without fertilization.
- Pectinate.* Comb-like with narrow closely-set segments.
- Pedicel.* Stalk of an individual flower.
- Peduncle.* Stalk of an inflorescence or a solitary flower.
- Perfect.* With both stamens and pistils.
- Perfoliate.* Having the stem apparently pass through the leaf.
- Perianth.* Calyx and corolla together.
- Pericarp.* Wall of the fruit.
- Perigynium.* Inflated sac which encloses the ovary in *Carex*.
- Persistent.* Long-continuous or lasting.
- Petaloid.* Colored and resembling a petal.
- Petiole.* Stalk of a leaf.
- Pilose.* With soft hairs.
- Pinna.* One of the main divisions of a frond or leaf.
- Pinnate.* Compound with the leaflets arranged along each side of a common stalk or axis.
- Pinnule.* A division of a pinna.
- Placenta.* Any part of the inside of the ovary which bears ovules.
- Plicate.* Folded into plaits, usually lengthwise.
- Plumose.* With fine hairs on each side.
- Pome.* A fleshy fruit, like that of the apple.
- Puberulent.* Minutely pubescent.
- Pubescent.* Covered with hairs, especially short, soft ones.
- Pulverulent.* Powdered as if by grains of dust.
- Punctate.* Dotted with depressions, colored dots, or glands.
- Pyriform.* Pear-shaped.
- Raceme.* Inflorescence with stalked flowers upon an elongated axis.

- Radiate.* Spreading from a common center; with ray flowers.
- Receptacle.* Tip of the stem which bears the flower-parts.
- Regular.* Uniform in shape and function.
- Reniform.* Kidney-shaped.
- Reticulate.* In the form of a network.
- Rhachis.* Axis of a spike or of a compound leaf.
- Rhaphe.* Ridge along side of a seed formed by the fused stalk and seed-coat.
- Rhizome.* Prostrate or underground stem; rootstock.
- Rufous.* Reddish-brown.
- Sagittate.* Arrow-head shaped, the lobes directed downwards.
- Samara.* Indehiscent winged fruit.
- Scabrous.* Rough to the touch.
- Scape.* Peduncle rising from the ground, without leaves or nearly so.
- Scarious.* Thin, dry and papery, not green.
- Sepal.* Division of the calyx.
- Serrate.* With sharp teeth pointing forward.
- Serrulate.* Finely serrate.
- Sessile.* Without a stalk or petiole.
- Setaceous.* Bristle-like.
- Setose.* Beset with bristles.
- Setulose.* Having minute bristles.
- Simple.* Of one piece; not compound.
- Sorus.* Fruit-dot of a fern.
- Spadix.* Spike with a fleshy axis.
- Spathe.* Large bract or pair of bracts enclosing or lying behind an inflorescence.
- Spatulate.* Gradually narrowed downward from a rounded summit.
- Spiccate.* Resembling a spike.
- Spike.* Inflorescence with the flowers sessile or nearly so upon an elongated common axis.
- Spore.* Reproductive organs of ferns and their allies, corresponding to the seed of higher plants but much simpler.
- Stellate.* Star-shaped.
- Sterile.* Flower without a pistil or stamen without an anther.
- Stigma.* Tip of the pistil, for reception of the pollen.

- Stipe.* Stalk of a pistil; stalk of frond of a fern.
- Stipule.* Appendages, often leaf-like, at the base of the petiole or on each side.
- Stoloniferous.* Producing runners or stolons.
- Striate.* Marked with fine longitudinal lines.
- Strigose.* With appressed sharp stiff hairs.
- Style.* Upper part of the pistil connecting the ovary and stigma.
- Subulate.* Awl-shaped.
- Sulcate.* Grooved or furrowed.
- Superior.* (Ovary) Free from the calyx.
- Suture.* Line of union or splitting.
- Terete.* Having a circular cross-section.
- Ternate.* In threes.
- Testa.* Outer seed-coat.
- Tomentose.* Densely pubescent with matted wool.
- Trifoliolate.* With three leaflets.
- Trigonous.* Three-angled, as a buckwheat seed.
- Truncate.* Ending abruptly as if cut off transversely.
- Umbel.* Inflorescence with the pedicels or peduncles arise from the same point.
- Valve.* One of the pieces into which a capsule splits; sepal in *Rumex*.
- Verticillate.* Arranged in a whorl.
- Ventral.* Belonging to the front or inner surface of a part or organ.
- Villous.* Bearing long and soft hairs.
- Viscid.* Glutinous; sticky.

Abies	74	stolonifera	295	Arrow Grass	92	Beech	211
balsamea	74	Wiegandii	295	Arrow-head	93	Beech drops	455
Abutilon	353	Amphicarpa	334	Artemisia	512	Beggar-ticks	405
Theophrasti	353	bracteata	334	Absinthium	513	Bellis	489
Acalypha	340	ANACARDIACEAE		biennis	512	perennis	489
rhomboidea	340	Anagallis	409	Pontica	513	Bellwort	170
Acer	348	arvensis	409	Stelleriana	512	BERBERIDACEAE	
Negundo	348	Anaphalis	499	vulgaris	513	Berberis	262
pensylvanicum		margaritacea	500	Artichoke	505	vulgaris	262
plantanoides	350	Andromeda	398	Arum family	152	Thunbergii	262
rubrum	349	glaucophylla	398	ASCLEPIADACEAE		Berteroa	268
saccharinum	349	Anemone	259	Asclepias	416	incana	268
saccharum	349	quinquefolia	259	incarnata	416	Betula	205
spicatum	350	virginiana	259	syriaca	416	alba	208
ACERACEAE	338	Angelica	387	Ash	409	borealis	209
Achillea	509	atropurpurea	387	Asparagus	171	caerulea	208
splenifolia	510	stylvestris	387	officinalis	171	caerulea-gran-	
lanulosa	510	Antennaria	497	Aspen	191	dis	208
ligustica	510	canadensis	498	Asphodel, false	169	lenta	206
Millefolium	510	neglecta	498	Aspidium	48	lutea	206
Ptarinica	509	neodioca	499	Asplenium	45	papyrifera	208
Acorus	153	Parlinii	499	acrostichoides	46	pendula	208
Calamus	153	petaloidea	499	Fritz femina	46	populifolia	207
Actaea	261	plantagini-		thelymerioides	46	pumila	210
pachypoda	261	folia	499	Trichomanes	45	BETULACEAE	205
rubra	261	Anthemis	510	viride	45	Biens	505
Adder's Tongue	57	arvensis	510	Aster	489	Beckii	509
Family	56	Cotula	510	acadiensis	492	cernua	508
Adder's Mouth	193	Antirrhinum	439	acuminatus	494	connata	507
Adiantum	44	majus	439	Blakel	494	discoidea	506
pedatum	44	Apios	333	ciliolatus	492	frondosa	506
Adumia	265	americana	333	cordifolius	492	hyperborea	507
fungosa	265	APOCYNACEAE	414	foliaceus	493	vulgata	506
Aegopodium	383	Apocynum	415	juncus	493	Bilberry	295
Podagraria	383	androsaemi-		lateriflorus	492	Bindweed	418
Aethusa	385	folium	415	Lindlevianus	492	Black	231
Cynapium	385	hypericifol-		longifolius	493	Family	416
Agrimonia	316	ium	416	macrophyllus	491	Field	418
gryposepala	316	medium	415	nemoralis	494	Birch	206
striata	316	sibiricum	416	novae-angliae	493	Family	206
Agrimony	316	Apple	290	novi-belgii	493	Bird Cherry	323
Agrostemma	246	of-Peru	435	paniculatus	493	Bird's Eye	455
Githago	246	Thorn	436	punicus	493	Bistort	227
AIZOACEAE	239	AQUIFOLIACEAE		radula	491	Black Alder	346
Achemilla	316		346	Rolandi:	493	Medick	328
pratensis	316	Aquilegia	261	saxatilis	493	Locust	329
Alder	210	vulgaris	261	Tradescanti	492	Blackberry	308
Alfalfa	327	Arabis	280	umbellata	494	Black-eyed	
Alisma	94	Drummondii	280	undulatus	491	Susan	504
triviale	94	ARACEAE	152	Atriplex	234	Blackthorn	322
ALISMACEAE	93	Aralia	377	glabrituscula	235	Bladder Camp-	
Allium	170	hispidia	378	maritima	235	ion	247
Schoenopras-		nudicaulis	377	patula	235	Fern	53
um	170	racemosa	378	rosea	236	Bladderwort	450
trilocum	170	ARALIACEAE	377	August Flower	523	Blite, Sea	236
All-seed	335	Arbor Vitae	75	Avens	306	Bloodroot	262
Alnus	210	Arbutus, trail-		Awlwort	271	Bloodwort	
crispa	211	ing	398	Axyris	236	Family	177
incana	211	Arcuthobium	218	amarantoides	236	Blue Cohosh	262
mollis	211	pusillum	218	Azalea, alpine	396	Bluebell	472
rugosa	211	Arctium	518	Bachelor's		Blueberry	400
serrulata	211	Lappa	518	Button	521	Blue Devil	424
Alsike clover	328	minus	518	Bake-apple		Blue-eyed Grass	179
Alyssum, hoary	268	tormentosum	518	Berry	310	Bluets	465
Amaranth	239	Arctostaphylos	398	Ball Mustard	272	Bog Rosemary	398
Family	239	Uva-ursi	398	Balm-of-Gilead	209	Boneset	480
AMARANTHACEAE		Arenaria	243	Balmory	440	Borage	481
Amaranthus	239	groenlandica	243	Balsam	74	BORAGINACEAE	
graecizans	239	lateriflora	243	Poplar	202	Borago	481
retrofractus	239	peplioides	243	BALSAMINACEAE		officinalis	481
Ambrosia	502	Arethusa	188	Baneberry	350	Botrychium	57
artemisiae-		bulbosa	188	Barberry	262	dissectum	57
folia	503	Arisaema	153	Bartonia	413	Lunaria	58
coronopifolia	503	Stewardsonii	153	paniculata	413	matricariae-	
trifida	504	Armoracia	278	virginica	413	folium	58
Amelanchier	294	rusticana	278	Bartsia	448	multifidum	58
Bartramiana	295	Arnoseris	522	Basil	430	obliquum	58
canadensis	295	minima	522	Bayberry	204	ramosum	58
Fernaldii	295	Aronia	291	Beak Rush	111	simplex	58
laevis	295	arbutifolia	291	Bearberry	398	virginianum	58
neglecta	295	melanocarpa	291	Bedstraw	460	Bouncing Bet	248
		prunifolia	291				

Box Elder	348	parviflora	280	novae-angliae	129	demersum	250
Bracken	43	pennsylvanica	279	<i>Oederi</i>	137	Chaffweed	409
Brake	408	pratensis	279	oligosperma	150	Chaenorhinum	439
Bramble	308	<i>Cardaria</i>	271	ormostachya	133	minus	439
Brasenia	252	Carduus	519	paleacea	145	Chain Fern	44
Schreberi	252	acanthoides	519	pallescens	137	Chamaedaphne	358
Brassica	273	crispus	519	panicca	133	calyculata	358
alba	274	nuttans	519	pauciflora	146	Chamomile	510
arvensis	273	<i>Carex</i>	118	paupercula	140	Charlock	272
campestris	273	abacta	146	pedunculata	132	Checkerberry	399
hirta	274	acuta	142	pennsylvanica	130	Cheeses	354
juncea	273	adusta	128	polygama	140	Chelidonium	263
kaber	274	aenea	128	pratensis	128	majus	263
nigra	273	albicans	130	projecta	128	Chelone	440
Brier, Cat	176	albolutescens	128	Pseudo-Cyp-		glabra	440
Brooklime	455	anceps	134	erus	148	CHENOPODIAC-	
Brook-weed	406	angustior	123	radiata	118	EAE	232
Broom, Scotch	324	aquatilis	143	recta	145	Chenopodium	232
Crowberry	344	arctata	135	retrorsa	150	album	234
Broomrape	455	argyrantha	128	riparia	147	Bushmanum	234
Buckbean	414	atlantica	123	rosea	117	Bonus-Henri-	
Buckthorn	351	aurea	132	rostrata	149	cus	233
Buckwheat	231	Bebbii	127	rugosperma	131	Rotrys	233
Family	218	bromoides	124	salina	146	glaucum	233
Bugle Weed	430	brunnescens	120	scabrata	139	rubrum	233
Bugloss	423	bullata	149	scirpoidea	132	urubicum	233
Bull Thistle	519	Buxbaumii	140	scirpoides	123	Cherry	321
Bullace Plum	322	canescens	121	scoparia	126	Chickweed	244
Bulrush	103	castanea	135	serotina	136	Family	239
Bunchberry	388	cephalantha	123	silicea	127	Meadow	246
Burdock	518	comosa	147	spicata	118	Mouse-ear	249
Burnet	317	communis	130	sterilis	123	Chimaphila	392
Bur-reed	77	conioidea	133	stipata	119	umbellata	392
Bush Honey-		convoluta	117	straminea	128	Chiogenes	399
suckle	466	Crawfordii	126	stricta	143	hispidula	399
Butter and Eggs		cumulata	127	strictior	143	Choke Cherry	323
Buttercup	438	crinita	144	substricta	143	Chokeberry	291
Family	252	cryptolepis	137	Swanii	138	Christmas Fern	47
Butterwort	454	debilis	135	tenella	120	Chrysanthemum	
Buttonbush	464	deflexa	131	tonsa	131	Leucanthe-	
Cabbage, Skunk	153	deweyana	124	torta	143	mum	511
Cadlock	272	diandra	119	tribuloides	128	Chrysosplen-	
Cakile	272	disperma	120	trisperma	120	ium	285
edentula	272	eburnea	132	umbellata	131	americanum	285
Calamus	153	exillis	122	raria	130	Cichorium	523
Calamint	430	filiformis	138	vesicaria	149	Intybus	523
Calla	183	flacca	139	viridula	137	Cicuta	383
palustris	153	flava	137	vulpinoidea	118	bulbifera	383
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Callitriche	342	folliculata	146	Carum	384	Cinquefoil	300
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Calluna	399	gracillima	133	EAE	239	canadensis	373
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Calapogon	187	gynocrates	121	Castalia	251	tutetiana	373
pulchellus	187	hirta	138	Cat Brier	176	quadrisulcata	373
Caltha	260	hirtifolia	132	Catchfly	247	Cirsium	519
palustris	260	hormathodes	127	Catnip	427	arvense	519
Camelina	272	Houghtonii	138	Cat's-ear	523	lanceolatum	520
microcarpa	272	Howei	123	Cat-tail	77	muticum	520
Campanula	472	interior	123	Caulophyllum	262	palustre	520
aparinoides	474	intumescens	151	thalictroides	262	vulgare	519
rapunculoides	472	lacustris	147	Cedar	75	CISTACEAE	357
rotundifolia	473	lasiocarpa	138	Celan'ine	263	Cladium	113
CAMPANULAC-		laxiflora	133	Centauria	521	mariscoides	113
EAE	472	laxior	137	maculata	521	Claytonia	249
Campion	247	lenticularis	141	nigra	521	caroliniana	249
Bladder	247	lepidocarpa	137	Cyanus	521	Cleavers	462
Moss	247	leporina	126	Centaurium	411	Clematis	259
Red	246	leptalea	128	umbellatum	411	virginiana	259
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Canadian Burnet		limosa	140	Centunculus	409	borealis	172
Cancer-root	455	livida	133	minus	409	Cloudberry	310
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Capsella	271	lurida	150	Cerastium	245	Club Moss	63
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		nigra	142	Ceratophyllum	250	White	246
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<i>lucidum</i>	386	<i>succulenta</i>	300	Dock	221	<i>ciliatum</i>	371
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<i>linearis</i>	420	Hoary	268	Dogwood	388	<i>glandulosum</i>	370
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Comandra	217	Swine	271	<i>arabisans</i>	268	<i>palustre</i>	370
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<i>iana</i>	217	Yellow	278	Drosera	281	<i>Epipactis</i>	190
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<i>peregrina</i>	204	CRUCIFERAE	266	Dryopteris	48	<i>fluviatile</i>	62
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<i>chinense</i>	387	<i>Curcubita</i>	472	<i>cristata</i>	52	<i>litorale</i>	61
Conium	383	CUCURBITACEAE		<i>disjuncta</i>	50	<i>pratense</i>	61
<i>maculatum</i>	383	Cudweed	472	<i>Filix-mas</i>	51	<i>scirpoides</i>	63
Conopholis	455	Curly Grass	501	<i>fragrans</i>	50	<i>sylvaticum</i>	61
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