

White-flowered *A. Millefolium* has been found in P.E.I. and N.S. The red-flowered plants apparently sometimes cross with the white-flowered forms to produce intermediate shades of rays or disk florets. Rousseau (1938-a) discusses the inheritance of this pink color. This species is therefore considered scattered in N.S. but the common plant in most of the area is *A. lanulosa*.  $2n = 54$ .

Eurasia; introduced into N. Amer.

## 20. ANTHEMIS L. CHAMOMILE

Plants with finely divided leaves and daisy-like flowers, with the receptacle chaffy, at least towards the middle.

- a. Rays white; disk of the flower-head 5-12 mm wide; annuals.
- b. Receptacle chaffy only towards the center; rays sterile; plant strong-smelling, more or less branched.
  - 1. *A. Cotula*
- b. Receptacle chaffy throughout; rays pistillate; plants not strong-smelling, bushy-branched near the base.
  - 2. *A. arvensis*
- a. Rays yellow; disks 10-20 mm wide; plant perennial.
  - 3. *A. tinctoria*

### 1. *A. Cotula* L. Fig. 137, c. CHAMOMILE

Very common about farmyards, scattered along roadsides and in waste places throughout; usually growing where the soil is more or less compacted and competition from other vegetation is light. July-Oct. Introduced from Eu.; Nfld. to Alaska south.

### 2. *A. arvensis* L., var. *agrestis* (Wallr.) DC. CORN-CHAMOMILE.

Occasionally introduced and a more aggressive, weedy species than the last, growing in cultivated or neglected fields. Local but troublesome where it occurs. July-Aug.

Introduced from Eu.; N.S. to Mich. and Va.

### 3. *A. tinctoria* L. YELLOW CHAMOMILE

Growing as a cultivated flower in gardens, seeding abundantly and tending to be weedy. Found along the railroad track, Truro; escape at Martock in Hants Co.; edge of ballast heap, Point Pleasant Park, Halifax. This escape is now becoming well established in the central part of the Province (Smith and Erskine, 1954). Late June-Aug.

Introduced from Eu.; N.S. to B.C. south to N.J.

## 21. MATRICARIA L.

Herbaceous plants with very finely divided alternate leaves, very similar in appearance to the last genus but with the receptacle of the flower without chaffy scales.

- a. Flower-heads 3-4 cm wide, with showy white rays; plants usually over 3 dm high.
- b. Plants without a strong odor; receptacle hemispheric, rounded; achenes with 2 marginal and 1 ventral strongly-thickened ribs, minutely roughened.
  - 1. *M. maritima*
- b. Plants with a strong odor; receptacle conical and pointed at the apex; achenes with 2 marginal and 3 ventral weaker ribs, otherwise smooth.
  - 2. *M. Chamomilla*
- a. Flower-heads small, 5-9 mm wide, without rays, very conical; plant with a strong odor suggesting pineapple.
  - 3. *M. matricarioides*

### 1. *M. maritima* L. MAYWEED

Growing in much the same habitats as *Anthemis* and rather similar to it in appearance. It is, however, more confined to the areas near the sea-shore; common as a weed along the French Shore of Digby and Yarmouth Co., and along the Northumberland Strait; scattered elsewhere in towns, along roadsides and in waste places although rather rare inland. Mulligan (1959) points out that the plants of western N.Amer. have 36 chromosomes while the plants of the Maritimes have only 18, and that the plants examined from P.E.I. have at least one more chromosome than those from N.S. and N.B. The most probable explanation seems to be that the P.E.I. plants represent a separate introduction from Eu. (*M. inodora* L.). July-Aug.

Nfld. to Alta. south to Penn.; introduced from Eu.

### 2. *M. Chamomilla* L.

This plant is very similar to the preceding species and has also been widely introduced as a weed in eastern N.S. However, it is more local and much less common. It has been collected in both N.S. and N.B. but the distribution of the species is not well known and it is probably often overlooked.

N.S. to B.C. south to Penn.; introduced from Eu.

### 3. *M. matricarioides* (Less.) Porter. Fig. 137, d. PINEAPPLE-WEED

Very common along roadsides, about farm-yards and in waste places throughout, usually growing where the soil is disturbed or packed and competition from other weeds is light (*M. suaveolens* (Pursh) Buch.). July-Nov.

Nfld. to B.C. south to Del.; introduced from the Pacific States.

## 22. CHRYSANTHEMUM L. DAISY

Annual or usually perennial herbs with the receptacle of the flower-head flat and naked; pappus a mere crown or none; rays usually present, white or yellow. The yellow-flowered *C. segetum* L. with large flowers has been listed for N.S. but no recent stations have been found. *C. Balsamita* L., or Costmary, with large leaves which are almost or entirely

unlobed, and rays absent or very small, was found by I. V. Hall by a house at Morden, Kings Co. but it is doubtfully escaped. The chromosome races in the *Chrysanthemum leucanthemum* complex are described by Mulligan (1958).

a. Heads solitary or few, the disk 10-20 mm wide; rays white, 10-20 mm long.

1. *C. Leucanthemum*

a. Heads numerous, the disk 5-9 mm wide; rays white, 4-8 mm long.

2. *C. Parthenium*

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

Our common daisy exists in 2 forms in the Maritime Provinces, which may be distinguished as follows:

a. Basal leaves pinnatifid, sub-pinnatifid or coarsely and irregularly toothed; middle and upper stem-leaves narrowly oblong or oblanceolate, conspicuously sub-pinnatifid at the base.

1. *C. Leucanthemum*

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

*Tetraploid form*

The common daisy of pastures, cultivated land and waste places is found throughout. (Var. *pinnatifidum* Lecoq. & Lamotte). June-July. Lab. to B.C. south to Fla.

The tetraploid form is reported by Mulligan (1959) as being most common in Canada from Quebec City to the Gaspé and in Nova Scotia. This was reported by Fernald (1922) to be common in Annapolis Co.; and now it is found along roadsides near Annapolis Royal. Both forms are introduced from Eu.

Nfld. to Que. south to N.Y. and N.J.

### 2. *C. Parthenium* (L.) Bernh. FEVER-FEW

Scattered in Annapolis and Digby Co., rare elsewhere; Mill Brook, Pictou Co.; waste ground, Windsor; roadside, Victoria Beach, Digby Co.; occasionally seen along the French Shore in Digby Co. July-Oct.

N.S. to Ont. southward; B.C.

## 23. TANACETUM L. TANSY

### 1. *T. vulgare* L. Fig. 137, e. TANSY

Scattered throughout; in small patches near old houses or along roadsides, becoming a weed in fields and orchards on the deeper soils near the Minas Basin in Kings Co. and locally in good soils elsewhere. Forma *crispum* (L.) Hayek has the leaves finely divided and coarsely toothed with the teeth partly inturred. This is scattered in various parts of the Province. The strong odor, finely divided leaves, and button-like yellow rayless flower-heads are distinctive. July-Aug.

Introduced from Eu.; Nfld to B.C. south to Ga.

## 24. COTULA L.

1. *C. coronopifolia* L.

Low diffusely-branched plants with toothed to dissected leaves and hemispherical to globose discoid heads. Halifax Co.; salt marsh by the sea, Prospect, collected by M.S. Brown, 1938; edge of brackish pond, beach at Easten Passage. Known for 50 years from P.E.I., and more recently collected in N.B. on Grand Manan and at Lower Caraquet, Gloucester Co. (Erskine, D.S., 1951).

N.S. to Bonaventure Co., Que.; Pacific Coast; native of S. Amer.

## 25. ARTEMISIA L. WORMWOOD

Annual to perennial herbs with pinnately lobed or dissected leaves and numerous small discoid heads. About 40 North American species are known, many of which are widespread and highly variable. Several of ours are introduced from further west and others may be expected.

a. Leaves smooth and glabrous on both sides, thin and crowded, once-divided with triangular sharp teeth; heads small and crowded, the involucre 2-3 mm high.

2. *A. biennis*

a. Leaves finely pubescent to whitish-hairy on one or both sides.

b. Leaves densely whitish-woolly on both sides, the lobes rounded and about 5 mm wide; involucre 6-7.5 mm high; beaches along the coast.

4. *A. Stelleriana*

b. Leaves finely pubescent on both sides, or glabrous on the upper side only; involucre 2-4.5 mm high.

c. Leaves glabrous above and whitish-woolly beneath, partly twice-divided, with lobes 2-4 mm wide and tapering to a sharp tip, ordinarily with one or two pairs of stipule-like lobes at the base; plants 1-2 m tall.

5. *A. vulgaris*

c. Leaves finely pubescent on both sides, finely 2-3-times divided, the lobes without teeth, and not usually with stipule-like lobes at the base.

d. Receptacle of the flower-head with numerous long hairs between the florets; lobes of the leaves short, 2-3 mm wide; middle stem-leaves 3-6 cm long, the lower long-petioled; stem stout and tall.

6. *A. Absinthium*

d. Receptacle of the head without numerous long hairs; lobes of the leaves narrow, scarcely 1 mm wide.

c. Half-shrubby, the leaves commonly white-hairy on both sides and only 1-3 cm long with short divergent lobes; plant slender with the lower leaves short-petioled.

3. *A. pontica*

c. Herbaceous, rare northern plant, the leaves green and finely appressed pubescent, crowded at the base of the plant, with long narrow lobes.

1. *A. canadensis*

1. *A. canadensis* Michx.

Collected by Smith *et al.* from Lockhart Brook, Salmon R., Victoria Co. where it was abundant on talus slopes; in bud July 13, 1953. This is the more southern form of the subspecies *borealis* which Cronquist includes under the circumboreal *A. campestris* L. Rare and northern.

Lab. to B.C. south to C.B., N.B., Vt., Mich. and Colo.

2. *A. biennis* Willd. Map 532. BIENNIAL WORMWOOD

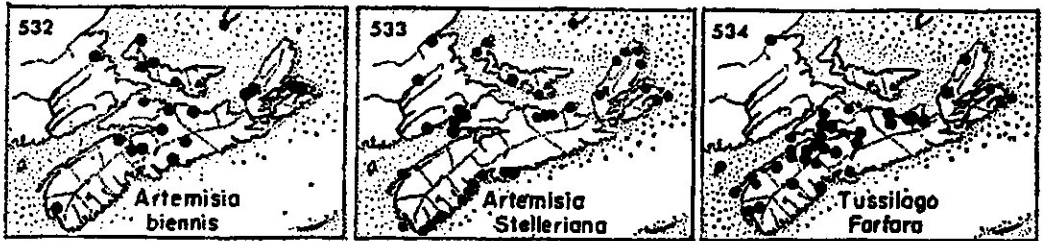
Reported by Lindsay from Windsor and Pictou; collected at Pictou and rather common along the North Shore in heavier soils; scattered westward and usually found only as scattered plants. Aug.-Sept.

Introduced from western Amer.; widely scattered south to Penn.

3. *A. pontica* L. ROMAN WORMWOOD

One of the species only rarely adventive in the East; known only from a collection from waste ground, Dartmouth (Fernald, 1922). Aug.

Introduced from Eu.; rare from N.S. to Man. south to Penn.



4. *A. Stelleriana* Bess. Map 533. BEACH-WORMWOOD

Scattered around the coast on rocky or sandy beaches; most common in northern C.B. and scattered along the Atlantic Coast to Yarmouth and Digby Co. Early Aug.

Introduced from ne. Asia and originally escaped from cultivation; lake shores, Mich. to Ont.; lower St. Lawrence R. to Va.; B.C.

5. *A. vulgaris* L. Fig. 138, a. COMMON WORMWOOD or MUGWORT

Orchards, roadsides, about dwellings and waste places about towns; common from Annapolis to Halifax and Pictou Co., and probably about towns throughout. This tall, much-branched plant is local but is conspicuous where it is found. The closely-related *A. ludoviciana* Nutt. should also be expected. This has the lobes of the leaves untoothed, or the leaves themselves not lobed.

Naturalized from Eu.; Nfld. to Sask. south to Ga. and Penn.; B.C.

6. *A. Absinthium* L. WORMWOOD

Rare; 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. Most locations now found will be from recent introductions. Aug.

Introduced from Eu.; widespread across Can. and the U.S. and as far south as N.C.

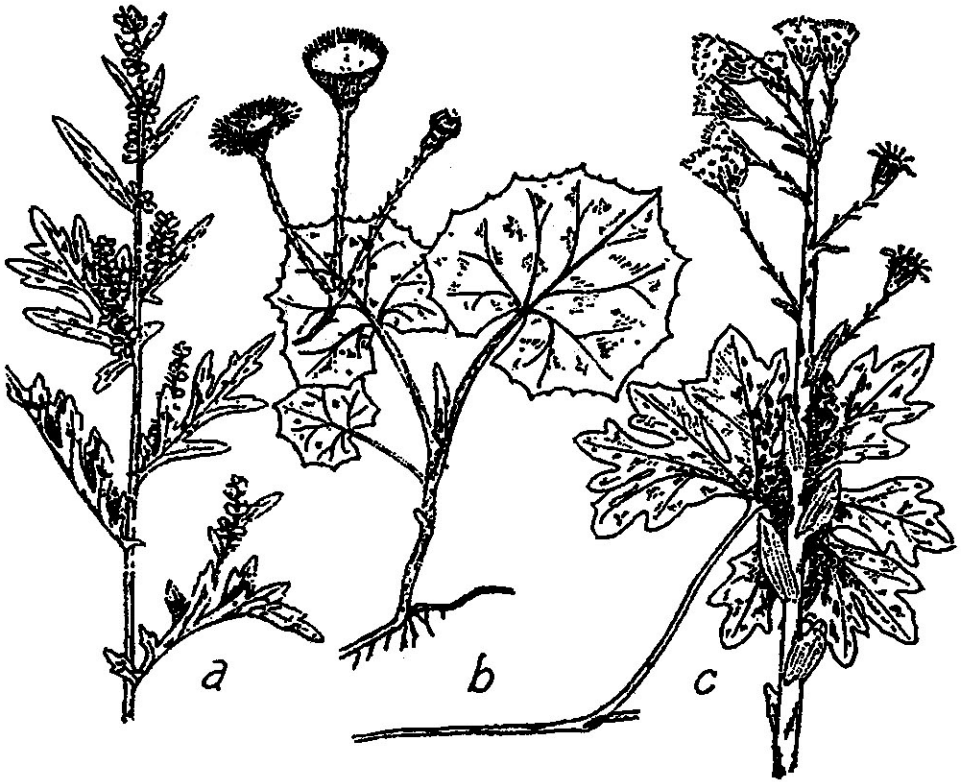


Fig. 138.—*Artemisia*: (a) *A. vulgaris*  $\times \frac{1}{2}$ . — *Tussilago*: (b) *T. Farfara*, flowering plant  $\times \frac{1}{2}$ , summer leaves  $\times \frac{1}{3}$ . — *Petasites*: (c) *P. palmatus*, flowering plant  $\times \frac{1}{2}$ , leaf  $\times \frac{1}{3}$ .

## 26. TUSSILAGO L. COLTSFOOT

This is an unusual plant in that the flowers appear in the early spring before the leaves; heads yellow, dandelion-like, but smaller and with disk flowers and numerous yellow rays.

### 1. *T. Farfara* L. Fig. 138, b. Map 534. 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 soils. Patches on lighter soils and on roadside shoulders seem to lose their vigor and gradually disappear. Late April-early May.

Introduced from Eu.; Nfld. to Minn. south to N.J. and Ohio; B.C.

## 27. PETASITES Mill.

This genus is closely related to *Tussilago* and it also has the flowers appearing before the leaves; heads several to numerous and silky white.

1. *P. palmatus* (Ait.) Gray Fig. 138, c. Map 535. SWEET COLTS-FOOT

Scattered in woods, swamps, recent clearings and low thickets from Belleville, Yarmouth Co., to Cumberland and east to Antigonish Co.; 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. Cronquist places this plant as one of 3 varieties of the circumpolar *P. frigidus* (L.) Fries.

Lab. to B.C. south to Mass., Mich. and Wisc.

28. ARNICA L.

1. *A. chionopappa* Fern.

Inverness Co.: growing on a nearly-perpendicular cliff, locally abundant though not conspicuous, south branch of the Grand Anse R. near the first waterfall (Smith and Schofield, 1952); cliff-ledges, Big Southwest Brook (Hounsell and Smith, 1966). This plant is perennial with solitary stems, opposite leaves, and 1-several yellow radiate flowers. Cronquist places this as a weak subspecies *chionopappa* (Fern.) Maguire of *A. lonchophylla* which occurs from the Rocky Mts. nearly to the Pole and east to Nfld.

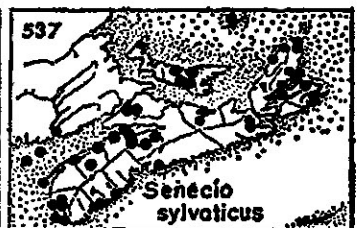
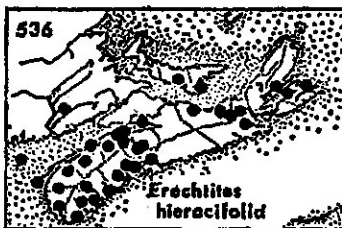
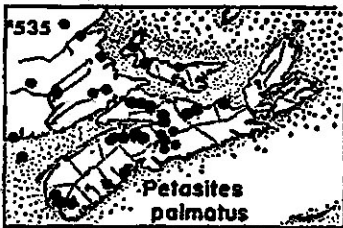
Nfld., Gaspé Pen., Anticosti I. and C.B.

29. ERECHTITES Raf.

1. *E. hieracifolia* (L.) Raf. Fig. 139, a. Map 536. FIREWEED

Common throughout, except in northern C.B.; moist woods, recently burnt areas and open thickets. Fernald has named 3 varieties upon the shape and size of the leaves. These characters appear to be variable. Var. *intermedia* Fern., according to this treatment, would be our commonest type. This has the leaves broad with somewhat clasping bases, rapidly reduced in size upwards to the inflorescence. Other collections, typical of the species, show large leaves up to the apex of the stem. July-Sept.

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



30. **SENECIO L.**

This is a large genus with over 1000 species. The flower-heads are yellowish, either discoid or radiate, and have the involucre bracts essentially of the same length in one series, with a few tiny bracteoles at the base; pappus of numerous white capillary bristles. See Barkley (1962).

- a. Plants leafy to the top, the leaves gradually becoming smaller upwards.
- b. Plants slender, 1-7 dm high, annual or occasionally biennial; leaves pinnately lobed; branches of the inflorescence and young tips without woolly hairs or only slightly flocculent; involucre 6-7 mm high, the bracts linear, only slightly exceeded by disk florets.
- c. Rays absent or very small and inconspicuous; leaves undulantly toothed with small often-blunt teeth.
- d. Rays absent; outer bracteoles around the base of the involucre numerous, small and black-tipped; involucre glabrous; achenes hairy.
  - 1. *S. vulgaris*
- d. Rays present, inconspicuous, often rolled outwards; outer bracteoles linear, not black-tipped.
- c. Plants lightly pubescent but not glandular; bracteoles very small; involucre pubescent but not glandular; achenes hairy.
  - 2. *S. sylvaticus*
- c. Plants, including the involucre, densely glandular-pubescent and viscid; bracteoles  $\frac{1}{2}$  to  $\frac{1}{2}$  the length of the involucre; achenes glabrous.
  - 3. *S. viscosus*
- c. Rays few, conspicuous, 5 mm long or more; leaf-blades or lobes with a few sharp and prominent teeth; plant glabrous.
  - 4. *S. squallidus*
- b. Plants stout, 3-12 dm high; biennials or perennials; leaves simple, or, if otherwise, finely twice to thrice divided; branches of the inflorescence and young tips densely flocculent-woolly; heads showy with conspicuous flat rays.
  - f. Leaves finely divided, smooth; flower-heads 1-1.5 cm wide; with involucre 3-4 mm high and much exceeded by the disk florets, the bracts widely lanceolate to ovate.
    - 5. *S. Jacobaea*
  - f. Leaves widely lanceolate and obscurely toothed, succulent, whitish-woolly beneath; flower-heads 2.5-5 cm wide; the involucre 10-16 mm high.
    - 6. *S. Pseudo-Arnica*
- a. Plants usually with many larger basal leaves which are merely toothed or shallowly lobed, and few and much smaller deeply-lobed stem-leaves; rays showy.
  - g. Basal and lower leaves ovate to oblong-lanceolate, squarish at the base (Fig. 139, e) or tapering.
  - 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.
    - 7. *S. pauperculus*
  - h. Basal leaves squarish or slightly cordate at the base, the principal ones 2-3 times longer than wide; stem and branches of the inflorescence glabrous or nearly so.
    - 8. *S. Robbinsii*
  - g. Basal leaves round or slightly oval, the principal ones cordate at the base (Fig. 139, d).
    - 9. *S. aureus*

1. *S. vulgaris* L. Fig. 139, b. **COMMON GROUNDSEL**

This common weed is well established in waste places, along roadsides, in towns and gardens, usually in rich soil; common in towns and gradually spreading out into the country; common around many of the



fishing villages and on the cliffs and beaches nearby. Annual and staying green and flowering until late autumn. June-Nov.

Introduced from Eu. and widespread in N. Amer.

2. *S. sylvaticus* L. Map 537.

Clearings, waste places and sea-coasts along the Bay of Fundy to Shelburne Co. and east to northern C.B., usually growing near the coast. This plant is much rarer than the preceding species and is found more in native habitats. It varies with ecological conditions from unbranched plants to much-branched ones with over 100 heads. June-Sept.

Introduced from Eu.; Nfld. and Gaspé south to Me.; locally westwards and on the Pacific coast.

3. *S. viscosus* L. CLAMMY GROUNDSEL

Common around towns and especially about railroads, weedy and very sticky or clammy so that the plants soon become covered with dirt. It is apparently rapidly spreading. July-Sept.

Introduced from Eu.; N.S. to Man. and in B.C.

4. *S. squalidus* L.

Halifax Co.; ballast heap, Steele's Pond, Point Pleasant Park, Halifax, collected by J. S. Erskine in 1949 (Smith and Erskine, 1954).

Adventive from Eu.; unknown elsewhere in N. Amer.

5. *S. Jacobaea* L. Fig. 139, f. RAGWORT, STINKING-WILLIE

Very common from Pictou east to northern C.B. in pastures, along roadsides, waste places and burnt-over ground and in clearings. It is becoming frequent in parts of Colchester and Cumberland Co.; and has been introduced into small areas in Yarmouth, Digby, Halifax and Kings Co. The weed is gradually spreading westward; common throughout P.E.I. Poisonous to livestock. Late July-Sept.

Nfld. to Gaspé south to e. Mass.; casual elsewhere; Pacific Coast.

6. *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-a) found it at Canso on a gravelly beach; it is abundant on the cobbly barrier beach below Yarmouth at Sand Beach; one station on the Bras d'Or L., C.B. Co. Early Aug.

Nfld. and Lab. to the lower St. Lawrence south to N.S. and sw. N.B.; Alaska and B.C.

7. *S. pauperculus* Michx., var. *neoscoticus* Fern. Fig. 139, c. Map 538.

Mainly confined to gypsum outcrops where it is sometimes an abundant and conspicuous element of the flora on the dryish cliffs and talus slopes. Scattered about Windsor and to Five-Mile R. in Hants

Co., Antigonish Harbour and Cape North; abundant on wet ledge of cliff, Lockhart Brook, Salmon R., in Victoria Co. The plants of N.S. are all placed in this variety, characterized by stout leafy plants, with the involucre about 4.5 mm high and more or less whitish woolly. Plants from Hants Co. show very dense woolly pubescence on the involucre but those from Lockhart Brook show only a trace of it and in its glabrescent character more resembles typical *S. pauperculus*. The stem-leaves however, are wide and lobed instead of being linear. The variety is reported from N.S. and the Gaspé Pen.

A variable species from Lab. to Alaska south to the uplands of Ga. and Ala. and Colo.

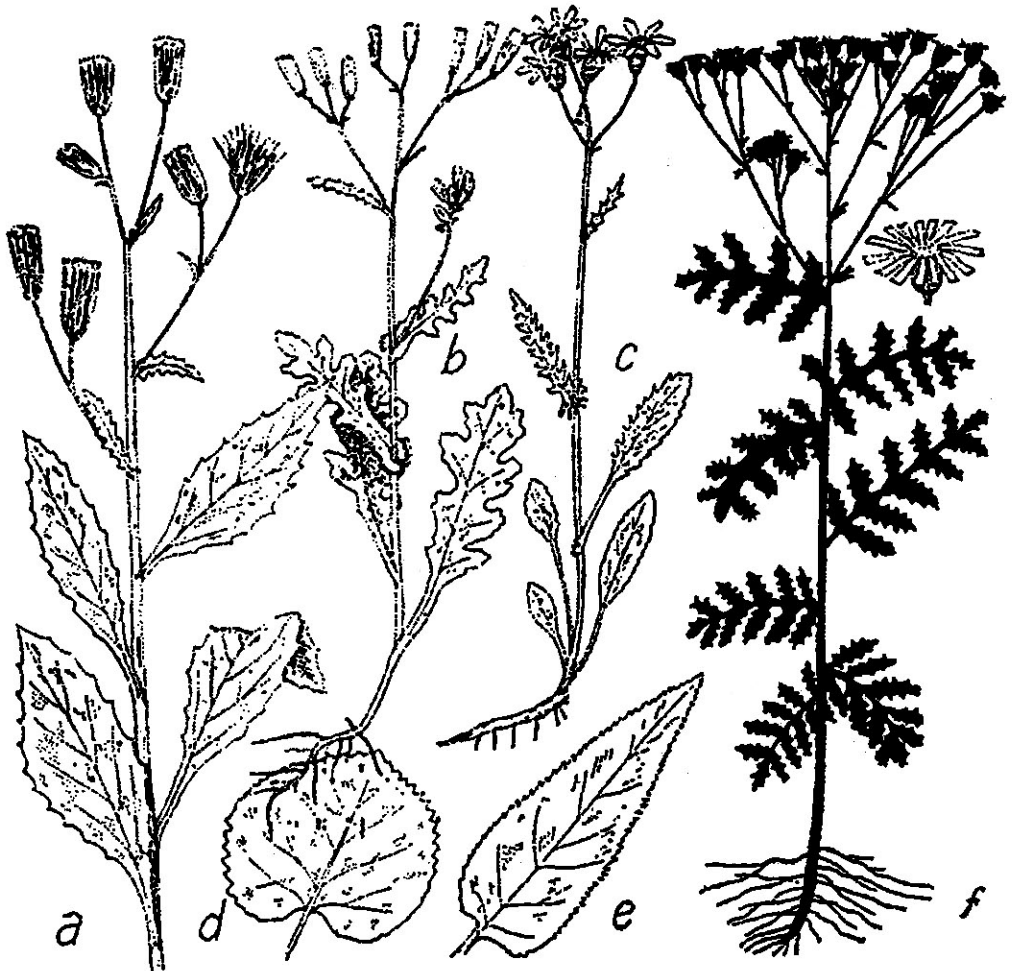


Fig. 139.—Erectites: (a) *E. hieractifolia*  $\times \frac{1}{2}$ . — Senecio: (b) *S. vulgaris*  $\times \frac{1}{2}$ , (c) *S. pauperculus*  $\times \frac{1}{2}$ , (d) *S. aureus*, leaf  $\times \frac{1}{2}$ , (e) *S. Robbinsii*, leaf  $\times \frac{1}{2}$ , (f) *S. Jacobaea*, plant  $\times \frac{1}{10}$ , flower  $\times 1$ .

8. *S. Robbinsii* Oakes Fig. 139, e. SWAMP-RAGWORT

Common in swamps, wet meadows, low fields and wet thickets throughout, especially abundant from Hants Co. to northern C.B. Conspicuous when in flower and low wet areas may be yellow with it. Mid-June to early July.

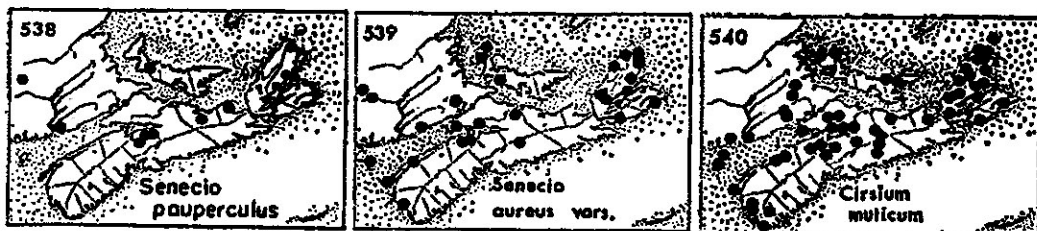
N.S. and w. Gaspé to N.H. and w. N.Y.; rare in the mts. of N.C. and Tenn.

9. *S. aureus* L. Fig. 139, d. Map 539. GOLDEN RAGWORT

Two varieties have been described by Fernald (1943-c). Var. *intercurtus* Fern. has smaller leaves which are shallowly cordate and with blunt teeth; and var. *aquilonius* Fern. with large basal leaves, deeply cordate and with sharp teeth or slightly lacerate. The plants found in the open fields or bogs as occasional from Yarmouth Co. and Brier I. through Colchester and Cumberland Co. to northern C.B. seem to belong to the first variety. Occasionally a pure stand will be found, as in a wet meadow west of Parrsboro, where it covered acres of ground. Growing in abundance on the edge of a mucky thicket along the edge of the Cornwallis R., Cambridge, Kings Co. (Schofield, 1949).

Var. *aquilonius* Fern. has been collected near the headwaters of the Barrachois R. in Victoria Co., originally quoted by Fernald; and from a swamp on the C.B. plateau north of Oregon. Rather similar plants have been collected in the intervale just above and below Middle Musquodoboit, Halifax Co. These seem much like very robust plants and may contain a trace of the characteristics of the western *S. pseud aureus* Rydb. Of these collections, only part of the ones from the Barrachois R. show sharp teeth. D. S. Erskine (1960) also mentions that most of the material from P.E.I. seems to be transitional. Mid-June to July.

Nfld. to Alta. south to n. Ala. and Mo., with var. *aquilonius* the more northern.



## 31. ARCTIUM L. BURDOCK

About 5 closely-related species of Eu. and Asia Minor introduced into N. Amer. and common as weeds.

- a. Involucre large and conspicuously woolly, 2-2.7 cm thick; inflorescence more or less a corymb with the heads mostly long-pedunculate; leaf-blades roundish-ovate and obtuse.

1. *A. tomentosum*

- a. Involucre smooth or slightly cobwebby; inflorescence with the heads mostly subsessile; leaf-blades usually more acute.
- b. Heads 2.5-3.5 cm thick; branches wide-spreading; heads often long-peduncled.
  - 2. *A. nemorosum*
- b. Heads 1.5-2.5 cm thick; branches more erect; heads short-peduncled or subsessile.
  - 3. *A. minus*.

### 1. *A. tomentosum* Mill.

A large woolly burdock common in the vicinity of Pugwash, Cumberland Co.; not seen elsewhere.

Introduced from Eu.; N.S. to Que. south to Penn. and Mo.

### 2. *A. nemorosum* Lej. & Court.

Reported by Fernald from Weymouth, Digby Co.; a collection by H. Groh, from Pictou, is also placed here. Considerable variation may be noticed in the form and head size of the burdocks and it is possible that the different species may cross. The extremes are quite different but it is questionable if this species should be kept distinct from the next. (*A. minus* var. *corymbosum* Wieg.).

Introduced from Eu.; Nfld. to Ont. and Kans. south to Va.

### 3. *A. minus* (Hill) Bernh. COMMON BURDOCK

Common in waste places, roadsides, orchards and around buildings throughout; rarely found in native habitats. Forma *pallidum* Farw. has whitish instead of purplish florets; occasional. July-Oct. Introduced from Eu. as a common weed.

Nfld. to B.C. south to Va., Mo. and Calif.

## 32. CARDUUS L. PLUMELESS THISTLE

About 100 species of thistle-like plants, some occasionally introduced from Eurasia; distinguished from *Cirsium* by the unbranched pappus hairs. See Mulligan and Frankton (1954).

- a. Heads nodding, large, solitary on long peduncles; involucre 3-4 cm wide; stems usually without spiny wings for some distance below the heads.
  - 1. *C. nutans*
- a. Heads clustered at the ends of winged branches; involucre 1.5-3 cm wide.
  - b. Leaves narrowly lanceolate, deeply incised with long spiny lobes which project backward, slightly hairy chiefly along the midvein; stems spiny-winged to the heads.
    - 2. *C. acanthoides*
  - b. Leaves widely lanceolate, shallowly incised with the spiny lobes pointing forward, whitish-woolly beneath; stem spiny-winged to just below the head.
    - 3. *C. crispus*

### 1. *C. nutans* L. NODDING THISTLE

Reported from N.S. but we have seen no specimens. It is sparingly introduced from Eu. about seaports and towns; and is rare to scattered in east-central N.B.

St. P. and Miq. to Sask. south to N.S., Md. and Mo.

2. *C. acanthoides* L.

Sparingly introduced in waste ground and on ballast; Yarmouth. Specimens reported from elsewhere belong to the following species (Fernald). Aug.-Sept.

Sparingly introduced from Eu.; N.S., Que., Ont. and B.C. south to Va.

3. *C. crispus* L. WELTED THISTLE

A collection from South Sydney was reported by Macoun. Other collections have been made from Pictou, Sydney, and from Pugwash in Cumberland Co. where it is very common.

Sparingly introduced from Eu.; N.S. and Ont. south to Conn. and Minn.

33. *CIRSIUM* Mill. THISTLE

About 200 species, of which one-quarter are native to N. Amer. This genus is distinguished from our other thistles by having the pappus plumose, or with fine side-branches.

- a. Heads large, with the involucre 2-4 cm high; plants not spreading by underground rootstocks, usually solitary and 1-2 m high.
  - b. Outer and inner involucral bracts long spine-tipped; leaves decurrent on the stem, very spiny.
    - 1. *C. vulgare*
  - b. A few of the outer bracts shortly spine-tipped, the inner soft and spineless; leaves not decurrent on the stem, less deeply cut with softer and smaller spines.
    - 3. *C. muticum*
- a. Heads small, the involucre 1-2 cm high, numerous; outer bracts of the involucre appressed and barely prickly-pointed.
  - c. Lower leaves, at least, strongly decurrent as narrow very spiny bands down the stem; plants solitary, not spreading by underground rootstocks.
    - 2. *C. palustre*
  - c. None of the leaves strongly decurrent; vigorously spreading by underground rootstocks and growing in patches.
    - 4. *C. arvense*

1. *C. vulgare* (Savi) Tenore Fig. 140, g. BULL THISTLE

Scattered throughout; open pastures, along roadsides and in waste ground, often in grazed areas but not found in cultivated ground, usually occurring as isolated or a few large plants (*C. lanceolatum* Scop.). July 15-Sept.

Introduced from Eu.; Nfld. to B.C. south.

2. *C. palustre* (L.) Scop.

This plant is rather similar in size to our Canada Thistle; scattered in the vicinity of Halifax where it was found in various localities by W. G. Dore and E. Gorham in the summer of 1944.

Nfld.; N.S. to Mich. and scattered to N.Y.; B.C.

3. *C. muticum* Michx. Map 540. SWAMP-THISTLE

Low ground, wooded swamps, meadows and moist places; probably throughout, often rather common and our only native thistle. Late July-Aug.

Nfld. to Sask. south to N.C. and La.

4. *C. arvensis* (L.) Scop. CANADA THISTLE

This is our most common thistle and one of the worst weeds of the Province; found throughout, scattered along roadsides, and often common in fields, pastures and dykelands where the plant is often propagated vegetatively by the long running rootstocks. Such clones often set very few seeds; and clones may occur with only staminate flowers. *Forma albiflorum* (Rand & Redf.) R. Hoffm. has white flowers and is locally common, as about Truro. Early July-Aug.

Introduced from Eu.; widespread.

## 34. ONOPORDUM L.

1. *O. Acanthium* L. SCOTCH THISTLE

This is rarely introduced but occasionally it is grown because it is considered to be the true Scotch Thistle; potentially it could become a bad weed.

Naturalized from Eu.; local from N.S. to Ont. and Mo. south to Ala.

## 35. SILYBUM Gaertn.

1. *S. marianum* (L.) Gaertn. LADY'S or MILK-THISTLE

An occasional garden escape, or weed of ballast or waste ground; collected at Halifax by H. Groh. This is a large, very prickly plant with the outer involucreal bracts leafy and tapering to a long sharp spine.

Locally introduced from the Mediterranean region.

## 36. CENTAUREA L. KNAPWEED

Coarse, annual to perennial plants with flower-heads discoid but sometimes with the outer florets enlarged so the flower is quite showy; the distinguishing feature is the comb-like or deeply-lobed margins to the lower involucreal bracts. About 400 species, ours introduced and weedy.

- a. Plants annual or occasionally biennial; leaves linear, entire; marginal flowers large and ray-like; garden escape. 1. *C. Cyanus*
- a. Plants perennial; lower leaves wide, more or less toothed or lobed.
  - b. Heads large, 12-20 mm wide, the involucreal bracts fringed to the base; leaves widely and shallowly lobed to nearly entire. 2. *C. nigra*
  - b. Heads smaller, 5-10 mm wide, the lower involucreal bracts fringed only at the tip; lobes of the leaves long and narrow, almost filiform. 3. *C. maculosa*

1. *C. Cyanus* L. BACHELOR'S-BUTTON, CORNFLOWER

This garden flower is occasionally found in waste places, around gardens or on dumps, not persisting for any length of time. Aug.-Sept.

Introduced from Eu.; widely grown and escaping.

2. *C. nigra* L. Fig. 140, a. KNAPWEED

Common along roadsides throughout, not as abundant as formerly because of the roadside mowing and spraying; often forming a band along newly-disturbed road-shoulders. It is occasionally a weed in hayfields and in parts of N.S. it is common in both fields and pastures. Var. *radiata* DC. has the outer circle of florets with the corolla long and ray-like to make an ornamental flower-head. This has been collected several times along roadsides in the vicinity of South Maitland, Hants Co.

The color of the involucre is variable from black to yellow and the pappus hairs are likewise very variable in size and number and may even occasionally be absent. Fernald (1950-b) reports *C. nigrescens* Willd. as occasional in our area; and he describes this species as having the leaves of the flowering branches blunt and the involucre bracts as having a fringe, only about as long as the breadth of the blade. It is doubtful if this species is worth recognizing here as *C. nigra* is rather variable in a number of respects. A white-flowered form, *forma pallenscens* Spenn., was collected at Scots Bay in Kings Co. by J. F. Hockey July, 1939; also found in an old field by the North Aspy R. and at Ingonish in Victoria Co. July-Aug.

Introduced from Eu.; Nfld. to Ont. south to Md. and Ohio; B.C.

3. *C. maculosa* Lam.

This slender form was collected in sandy soil and waste places, Woodside, Kings Co., by H. Groh, in 1936. It is spreading along roadsides in that area and near Canning. Chromosome number is  $2n = 36$  according to Moore and Frankton (1954). July-Sept.

Introduced from Eu.; N.S. to Ont. south to Va. and Kans.; B.C.

## 37. CNICUS L.

1. *C. benedictus* L. BLESSED THISTLE

Rare; not collected in recent years; occasionally introduced into N. Amer. on ballast, in waste places or about towns; or grown in gardens as a curiosity.

Adventive from Eu.; N.S. to Ill. southward.

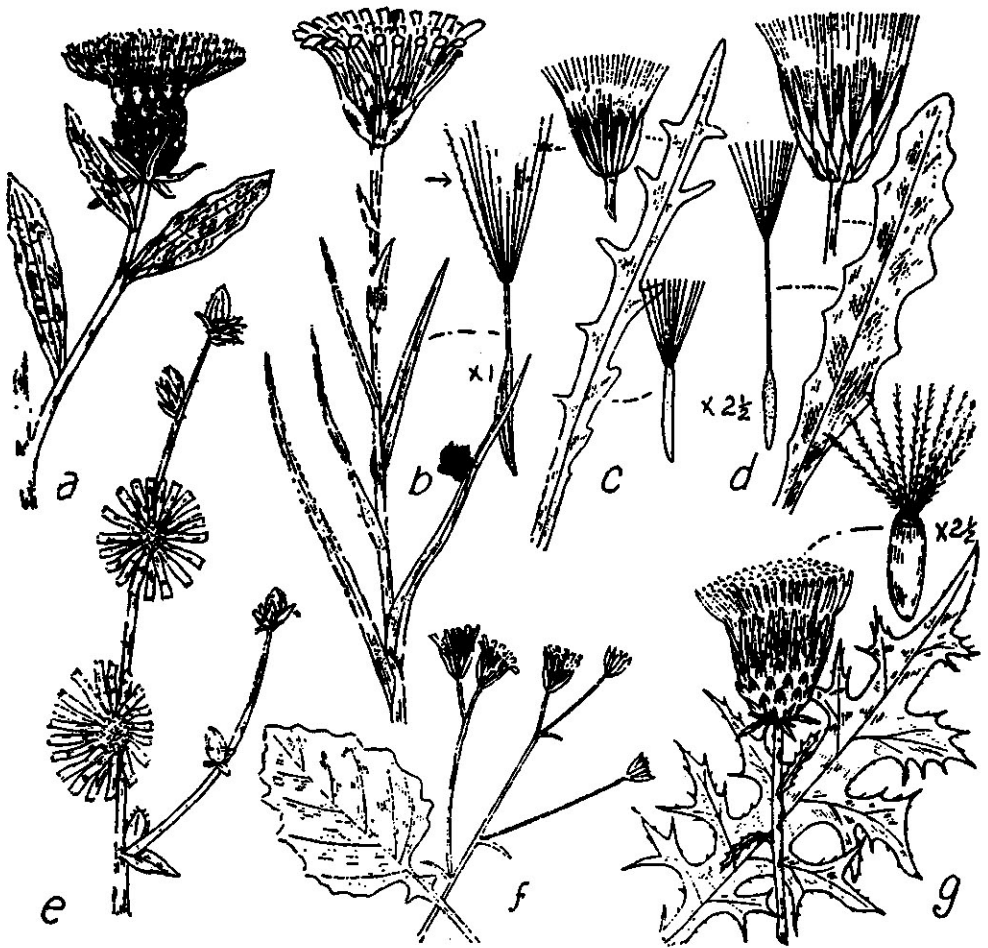


Fig. 140.—*Centaurea*: (a) *C. nigra*, flower  $\times \frac{1}{2}$ . — *Tragopogon*: (b) *T. pratense*, top of plant  $\times \frac{1}{2}$ , achene. — *Leontodon*: (c) *L. autumnalis*, leaf  $\times \frac{1}{2}$ , fruiting head  $\times 1$ . — *Hypochoeris*: (d) *H. radicata*, leaf  $\times \frac{1}{2}$ , 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.

### 38. LAPSANA L.

#### 1. *L. communis* L. Fig. 140, f. NIPPLEWORT

Scattered in towns or about greenhouses; Mahone Bay to Guysborough and Pictou Co., now becoming more wide-spread; Inverness Co.: common in old orchards and gardens, Hillsborough; Victoria Co.: edge of brook beach, west of Warren L. A persistent garden weed not previously reported from C.B. (Smith and Erskine, 1954). July-Sept.

N.S. to Ont. south to Va. and Mo; introduced from Eu.



## 39. ARNOSERIS Gaertn.

1. *A. minima* (L.) Schweigger & Koerte LAMB-SUCCORY

Fernald (1922) reports this tiny annual from a gravelly railroad bed and near the station at Belleville, Yarmouth Co. It is not known from any other location in N.S. although Erskine found it at Charlottetown, P.E.I.

Sparingly introduced from Eu.; local, N.S. to Mich.

## 40. CICHORIUM L. CHICORY

1. *C. Intybus* L. Fig. 140, e. COMMON CHICORY

Becoming common locally along the roadsides of the Annapolis Valley, and especially near Windsor where the plant has often spread along the roadsides for a mile or more; occasionally seen about towns, ports, and waste places elsewhere throughout and slowly spreading and becoming more abundant. July-Sept.

Introduced from Eu.; now cosmopolitan.

## 41. HYPOCHOERIS L.

1. *H. radicata* L. Fig. 140, d. CAT'S-EAR

This plant is very similar to our Fall Dandelion but it is coarser and the receptacle is chaffy. It is now a bad weed in lawns, along roadsides and in fields about Yarmouth and at least as far as Weymouth and Pubnico. It is rapidly spreading and is undoubtedly a bad weed. Other scattered introductions may occur as it was collected at the eastern end of the Province at Aspy Bay in a meadow by Miss M. S. Brown in 1946. June-Sept.

Introduced from Eu.; Nfld. to B.C. south to N.C.

## 42. LEONTODON L.

1. *L. autumnalis* L. Fig. 140, c. FALL-DANDELION, AUGUST-FLOWER

Common throughout, especially characteristic of roadsides, fields and lawns in early autumn after the grass has been mown. Var. *pratensis* (Link) Koch is a slightly larger plant with the involucre and tips of the peduncles densely soft-pubescent with blackish hairs, while those of the species are glabrous to slightly pubescent. The variety has a more northern distribution but in N.S. it is about as abundant as the species and grades into it. Plants which have been attacked by the Aster yellows virus are yellowish with the flowers greenish and unexpanded. Late June-Oct.

Greenland to N.J., becoming rarer inland to Mich.; introduced from Eu.

## 43. TRAGOPOGON L.

About 50 species of Eu. and N. Africa. The tall, little-branched stems and narrow erect leaves enable the plants to compete in grasslands; and the large orbicular dandelion-like heads of plumed achenes are very conspicuous during July.  $2n = 12$ .

- a. Flowers purplish; peduncle thickened and hollow just below the flower-head; involucrel bracts 2.5-4 cm long; achenes 25-35 mm long. 1. *T. porrifolius*
- a. Flowers yellow; peduncles not enlarged in flower and scarcely so in fruit; involucrel bracts 1.2-2.4 cm long; achenes 12-24 mm long. 2. *T. pratensis*

1. *T. porrifolius* L. SALSIFY

This garden plant occasionally escapes or persists; rare, collected on the ridge above Grand Pré, Kings Co. *T. dubius* Scop. is much like this species but has yellow flowers. This is also a common weed, particularly westwards, and undoubtedly is or will be introduced but has not as yet been recognized in N.S.

Introduced from Eu.; N.S. to Ont. south to Ga. and Kans.

2. *T. pratensis* L. Fig. 140, b. GOAT'S-BEARD

Reported in Macoun's Catalogue as luxuriant at Prince's Church, Pictou; Robinson (1907) says that it had not yet spread beyond the limits of the town. It is now a common and troublesome weed in grasslands and meadows along the intervalles of Pictou Co. Elsewhere in the Province it is frequent along railroads, on grassy banks and occasionally in meadows from Annapolis to C.B. It is a rapidly spreading and persistent weed. Mid-June to Aug.

Introduced from Eu.; N.S. to Alta. and Kans. south; B.C.

## 44. TARAXACUM Zinn DANDELION

The Dandelions present a varied and difficult group with hybridization, reproduction by asexual means, and polyploidy common. More than 1000 species have been described, many of them from the northern regions.

- 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. 1. *T. erythrospermum*
- 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. 2. *T. officinale*
- b. Outer bracts rather short, lanceolate to deltoid-ovate, ascending to spreading. *T. officinale* var. *palustre*

1. *T. erythrospermum* Andr. Fig. 141, b. RED-SEEDED DANDELION

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 grows in thinner, more open turfed areas. (*T. laevigatum* (Willd.) DC.). Late May-June.

Introduced from Eu.; N.S. to B.C. south to Va. and N. Mex.

2. *T. officinale* Weber DANDELION

Common throughout and an aggressive weed in lawns, pastures and sometimes even in cultivated soils. May-June. Early introduced from Eu.; Nfld. to Alaska southwards.

Var. *palustre* (Sm.) Blytt is common in low pastures, on wet slopes and roadside banks, usually small and less common than the species. Care must be taken not to confuse this plant with the previous species, which it closely resembles. Much variation exists in the leaf shape and other characteristics of the dandelions in our area. Introduced from Eu.; Nfld. to Que. and southern New Eng.

*T. latilobum* DC. is given a range by Fernald from Nfld. to western New Eng. This differs from our common species in having the achenes tuberculate nearly or quite to the base instead of only above the middle; it is reputed to be native.

## 45. SONCHUS L. SOW-THISTLE

Tall erect plants with dandelion-like flowers and bright-green shiny leaves. About 70 species of Eurasia and Africa, ours all introduced and common weeds.

- 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; bracts of the involucre an even color, the inner often paler.
  - 1. *S. arvensis*
- b. Involucre and peduncles glabrous or nearly so; bracts pale, mostly with white margins.
  - 2. *S. uliginosus*
- a. Annual, with fibrous roots only; flower-heads 1.2-2.5 cm wide; achenes 1-1.5 mm long.
- 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 rather obscure longitudinal nerves on each side.
  - 3. *S. oleraceus*
- c. Stem-leaves spiny-toothed, scarcely divided, the auricles at the base rounded; achenes not transversely wrinkled, with 3 prominent longitudinal nerves on each side.
  - 4. *S. asper*

1. *S. arvensis* L. Fig. 141, a. PERENNIAL SOW-THISTLE

Scattered weed 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. Perennial sow-thistle is most common near salt water where it can usually be found back of the beaches and on bars. However, although it is probably spreading inland in cultivated areas, it has rarely turned out to be the serious weed that was feared. Chromosome number of Amherst plants and elsewhere is  $2n = 54$  (Mulligan, 1957). July-Sept.

Introduced from Eu.; Nfld. to Alaska south to Del., Ind. and Oreg.

2. *S. uliginosus* Bieb.

Very similar to the last species and more recently introduced and rarer. 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 and in towns. This plant, once established, appears to be the more aggressive of the two. (*S. arvensis* var. *glabrescens*).  $2n = 36$  (Mulligan, 1957).

Native of southeast Eu.; more common further west.

3. *S. oleraceus* L. ANNUAL SOW-THISTLE

Scattered to common in cultivated fields, waste places and commonly a garden weed or about towns. Both this and the following species are variable in respect to leaf shape and are best identified by the achenes. July-Oct.

Nfld. to B.C. southward; introduced from Eu.

4. *S. asper* (L.) Hill. SPINY SOW-THISTLE

Scattered in cultivated fields and gardens throughout; it is not usually an aggressive weed but, like the preceding, is found in small numbers in rich soil or about buildings and orchards. July-Oct.

Introduced from Eu.; throughout the world.

## 46. LACTUCA L. WILD LETTUCE

Tall coarse herbs with milky juice and small flowers. The garden lettuce is *L. sativa* L. The introduced *L. Scariola* L., with the beak of the achene much longer than the body, is also becoming established in eastern Can.; flowers yellow.

- a. Achenes with a long slender beak; flowers cream-colored; pappus whitish.
- b. Involucre 10-14 mm high; achenes, including the beak, 5-6 mm long; pappus hairs 5-7 mm long.
- c. Leaves all unlobed, with a clasping base. 1. *L. canadensis*
- c. Leaves all, or at least the lower, lobed.
- d. Leaves with the lobes narrow and curved, the upper unlobed and 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 high; achenes 7-10 mm long; pappus hairs 7-12 mm long.

2. *L. hirsuta*

a. Achenes beakless or short and thick; flowers bluish; pappus hairs light brown.

3. *L. biennis*

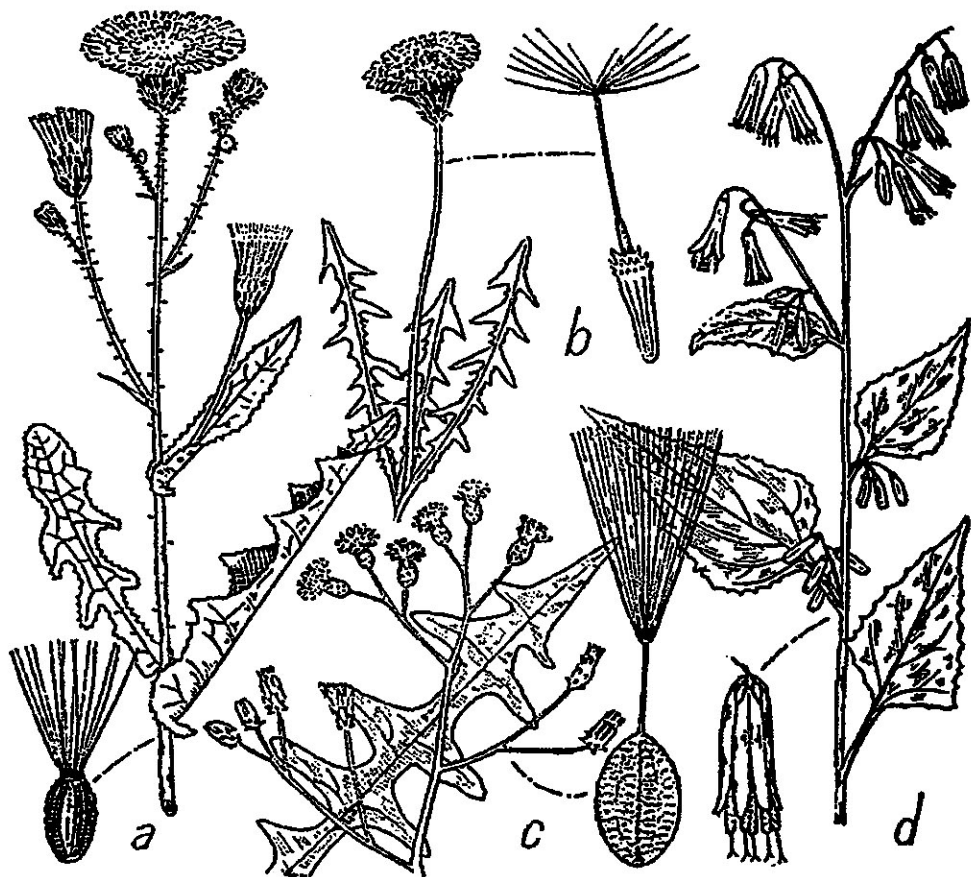


Fig. 141.—*Sonchus*: (a) *S. arvensis*  $\times \frac{1}{2}$ . — *Taraxacum*: (b) *T. laevigatum*, plant  $\times \frac{1}{2}$ , achene  $\times 5$ . — *Lactuca*: (c) *L. canadensis*, leaf and flowers  $\times \frac{1}{2}$ , achene  $\times 5$ . — *Prenanthes*: (d) *P. altissima*  $\times \frac{1}{2}$ .

### 1. *L. canadensis* L. Fig. 141, c. WILD LETTUCE

Scattered throughout; a weed of waste places, edges of thickets and open woodlands and cut-over areas (*L. integrifolia* Bigel.). July-Aug.

N.S. to Minn. south to Ga. and Okla., B.C.

Var. *longifolia* (Michx.) Farw. is a common weed; waste places, roadsides, burnt-over land and clearings. N.S. to Sask. south to N.C.; B.C. to Calif.

Var. *latifolia* Ktze. is rare; found occasionally in open woods and cleared areas, like the last occurring much throughout the range of the species and intergrading with the other varieties.

2. *L. hirsuta* Muhl., var. *sanguinea* (Bigel.) Fern. Map 541.

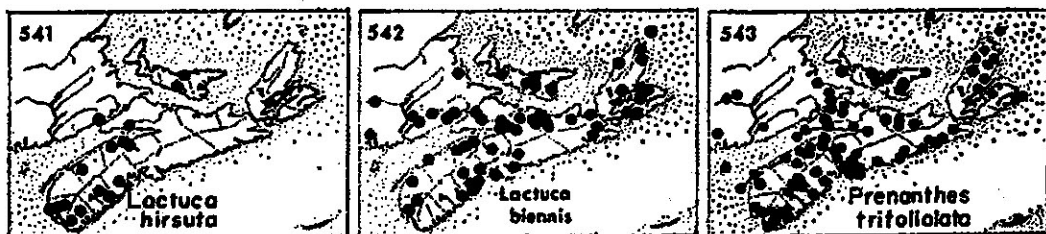
Scattered in Yarmouth, Shelburne and Queens Co.; east to Kings Co. and northward; P.E.I. where it is rare. Aug. The variety is the more northern form.

N.S. to Ont. south to Va. and Tex.

3. *L. biennis* (Moench) Fern. Map 542. BLUE WILD LETTUCE

Scattered throughout and common from Annapolis Co. to northern C.B.; along roadsides, in clearings, waste places and in rough pastures. It is very conspicuous along roadsides and near the edge of the cleared areas in the northern part of the Province in late summer. (*L. spicata* (Lam.) Hitchc.). July-Sept.

Nfld. to B.C. south to N.C. and Tenn.



## 47. CREPIS L.

Small annual or biennial plants like small Fall Dandelions but with the pappus bristles simple instead of plumose.

1. *C. capillaris* (L.) Wallr. HAWK'S-BEARD

Well established in a pasture half a mile northeast of the Villagedale dunes in Shelburne Co. (Erskine, J.S., 1953); a large patch in an old field on the road from Arcadia to Wedgeport, Yarmouth Co. These plants are conspicuous when in flower and, as they were not earlier noticed, probably have been introduced rather recently in clover or grass seed. The very similar *C. tectorum* L. is reported for Abrams R., P.E.I. (Erskine, D.S., 1960). This has the inner involucre bracts pubescent within, instead of glabrous; and the achenes dark purplish brown, instead of pale brown. August.

Introduced from Eu.; widely scattered to the Pacific.

## 48. PRENANTHES L.

Coarse woodland plants, our common species with the flowers bell-like and nodding; achenes cylindrical and not long-beaked.

- a. Heads slender, nearly erect, mostly 12-16-flowered, pink to purplish; involucre pubescent with coarse hairs; upper leaves sessile. 1. *P. racemosa*
- a. Heads stouter, commonly pendulous, 5-12-flowered (Fig. 141,d); involucre glabrous; leaves mostly petioled.
- b. Heads 8-12-flowered; principal involucre bracts 8.
- c. Plant 1.5-15 dm high; inflorescence paniculate; outer involucral 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 involucral bracts ovate to ovate-lanceolate, very unequal, the longest 3-6 mm long, blackish. *P. trifoliolata* var. *nana*
- b. Heads 5-6-flowered; principal involucral bracts 5. 3. *P. altissima*

### 1. *P. racemosa* Michx. RATTLESNAKE-ROOT

Rare; reported in Macoun's Catalog as common at Sydney Mines; Digby Co.: cliff-edge, Sandy Cove, 1948 (Erskine, D.S., 1951). Known also from St. John, N.B. A return visit to Sandy Cove yielded only one plant of this species and one plant which appears to be a hybrid between this and *P. trifoliolata*, x *P. mainensis* Gray (Smith and Erskine, 1954). N.S. to Alta., south to northern N.J., N.Y. and Mo.

### 2. *P. trifoliolata* (Cass.) Fern. Map 543. LION'S-PAW

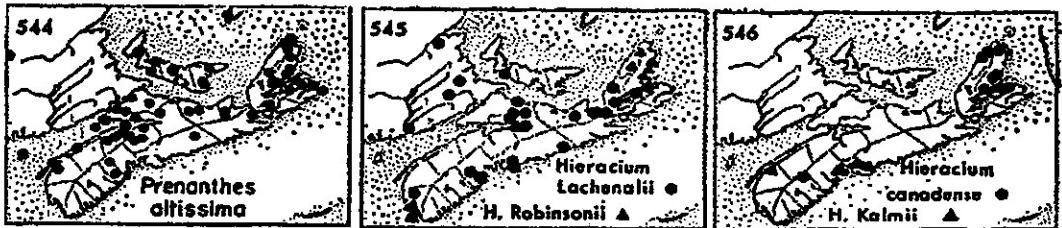
Found in rich woods, or also in light open woods in gravelly, sandy or more acid soils, along the edge of thickets and on wooded roadsides; common throughout. Nfld. to Ohio south N.C. and Tenn.

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. Nfld. and Lab. to the coast of N.S. and the higher mountains of New Eng. and northern N.Y.

### 3. *P. altissima* L. Fig. 141, d. Map 544.

Rich woods from Digby Neck to northern C.B.; rare or absent in the southwestern counties. July-Aug. Forma *hispidula* Fern. has the stem hairy and the leaves pubescent on the veins on the underside. Rich woods; Sandy Cove, Digby Co. (Fernald, 1921).

N.S. to Ont. south to Ga. and Tenn.



## 49. HIERACIUM L. HAWKWEEDS

Nearly 10,000 species have been described, mostly in Europe; our introduced species are rather few and in general they are well defined

although some do show considerable variation. The florets are all ligulate; achenes smooth and not flattened, truncate at the top, with capillary white or often sordid hairs (Fig. 142).

- a. Leaves all basal, or nearly so, not toothed nor lobed; stolons present or absent; aggressive and often very common weeds.
- b. Flowers solitary, or in some smaller forms as many as 4 on some plants.
- c. Flowers small with involucre 6-8 mm high, in 2's-4's; leaves green on both sides, 0.5-1.5 cm wide; whole plant small and slender. 1. *H. Auricula*
- c. Flowers large, 2.5-3 cm wide, with involucre over 8 mm high, usually solitary or occasionally in pairs on the peduncle; leaves wider and the plant stouter.
- d. Leaves spreading, whitish beneath and strongly tomentose with stellate hairs; plants with strong spreading stolons; heads solitary. 2. *H. Ptilosella*
- d. Leaves larger, tending to be more erect, green beneath and in general less hairy; stolons short, sometimes upturned; heads 2-4. 3. *H. flagellare*
- b. Flowers numerous in a crowded corymb-like inflorescence, 2 cm or less in width.
- e. Leaves setose to hirsute on both surfaces; plants not glaucous; leaves rather dull.
- f. Flowers orange-red; leaves long-hirsute; plants rather stoloniferous. 4. *H. aurantiacum*
- f. Flowers yellow; leaves setose only; plants not stoloniferous or but weakly so. 5. *H. caespitosum*
- e. Leaves glabrous to slightly hairy but not densely setose, more or less glaucous, the surface smooth and shiny green.
- g. Footstock slender and elongated; stolons numerous. 6. *H. floribundum*
- g. Rootstocks short, stout and abruptly terminated; stolons absent or very weak. 7. *H. piloselloides*
- a. Leaves numerous and scattered along the stem or, if basal, 2-5 cm wide and more or less toothed or even lobed; stolons absent; heads various, to 4.5 cm wide.
- h. Leaves mainly basal, with one to several smaller ones along the stem, elliptical to ovate, toothed, the lower long-petioled; flower-heads 2-4.5 cm wide; involucre bracts dark, long and attenuate at the end.
- i. Stem naked or with one or two leaves borne near the base; lower leaves with rounded or cordate bases, sometimes lobes; peduncles glandular. 8. *H. murorum*
- i. Stem with several leaves which are rapidly reduced in size upwards; lowest leaves attenuate to the petioles, often with purple markings or blotches.
- j. Involucre and pedicels stipitate-glandular, with no or but few glandless hairs overtopping the glands; basal leaves 2-5 cm wide; plant 1.5-10 dm high. 9. *H. Lachenalii*
- j. Involucre and pedicels glandless or only very minutely glandular, copiously long-pilose or villous; basal leaves less than 2 cm wide; plants 1-4 dm high. 10. *H. Robinsonii*
- h. Leaves numerous, scattered along the stem, the lower not conspicuously larger than the stem-leaves, often absent at flowering time.
- k. Leaves bright green, smooth and nearly glabrous with a few scattered hairs to slightly scabrous, not rough and setose; axis and branches of the inflorescence without glands or occasionally with scattered ones; leaves with conspicuous dentate teeth.
- l. Flower-heads 25-45 mm wide on stiff, erect, pubescent peduncles; heads 40-100-flowered, with involucre 8-13 mm high.



- m. Leaves more or less scabrous, at least on the margin; middle involucre bracts 1.5-2.5 mm wide, without glandular hairs.
  - 11. *H. scabriusculum*
- m. Leaves not scabrous; middle involucre bracts 1-1.5 mm wide.
- n. Styles yellow; upper leaves triangular, cordate or truncate at the base; bracts of the involucre glandular, the median oblong-lanceolate.
  - o. Hairs of the stem, leaves and pedicels about 1 mm long.
    - 12. *H. canadense*
  - o. Hairs of the stem, leaves and pedicels 1.5-3 mm long, mixed with shorter ones.
    - H. canadense* var. *hirtirameum*
- n. Styles brown; upper leaves not triangular, rounded to cuneate at the base; bracts of the involucre glandular to glabrous, the median ones attenuate.
  - p. Plant slender on the average, the leaves entire, denticulate or uniformly toothed; involucre bracts often tinted with purple, generally less than 10 mm long.
    - 13. *H. Kalmii*
  - p. Plant robust; leaves numerous with irregular teeth; inflorescence often very branched.
    - H. Kalmii* var. *fasciculatum*
- l. Flower-heads 10-22 mm wide, on widely spreading, slender flexuous branches; heads 10-30-flowered.
  - 14. *H. paniculatum*
- k. Leaves dark green, rough and with stiff hairs; teeth of the leaves very small or absent; peduncles densely and conspicuously glandular-hairy.
  - 15. *H. scabrum*

### 1. *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, at Waterville, and in a few other scattered locations.

Introduced from Eu.; N.S. and N.Y.

### 2. *H. Pilosella* L. Fig. 142. MOUSE-EAR HAWKWEED

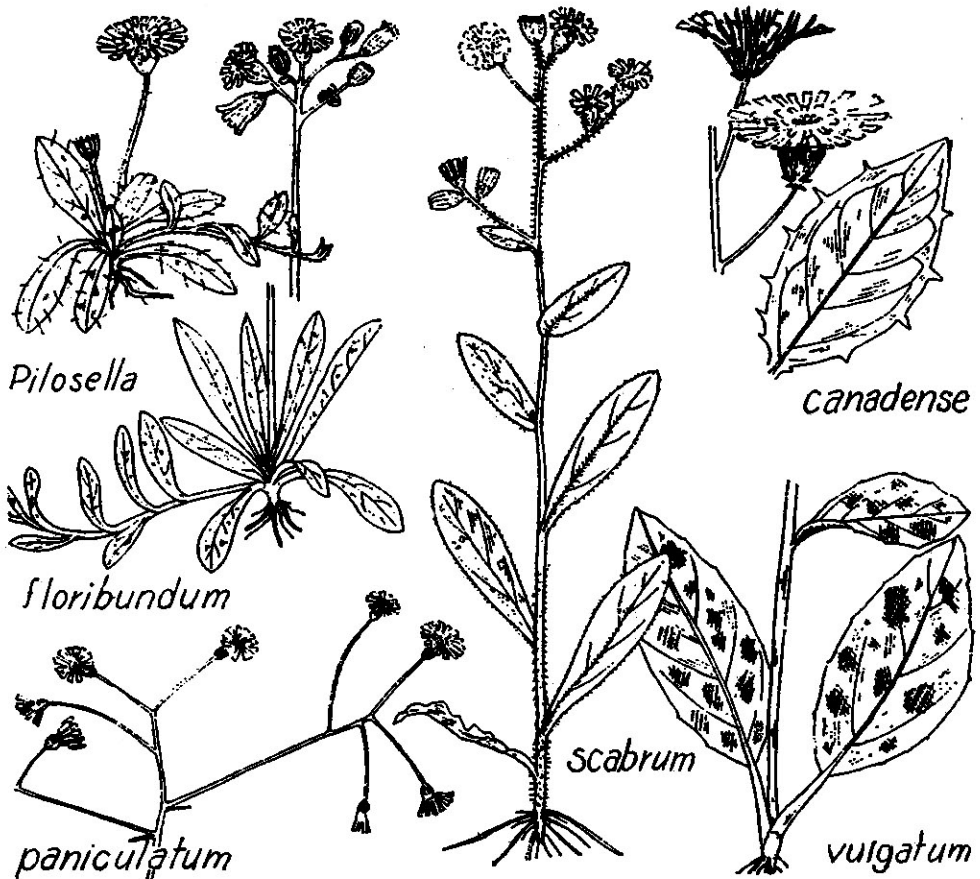
Abundant and one of the worst pasture weeds. It was introduced near Pictou some 60 years ago and has by now spread throughout the Province. It is especially common in eastern N.S. and the abundance of the plant is correlated with open soils, bare slopes and over-grazed pastures; often found on very light soils in the Annapolis Valley. Mid-June to early Aug., conspicuous in early summer.

Introduced from Eu.; Nfld. to Ont. south to N.C.

### 3. *X H. flagellare* Willd.

This plant is a hybrid between *H. Pilosella* and *H. caespitosum* and can be expected to occur wherever the two parents are growing together. It is a larger and greener plant than *H. Pilosella* and more or less intermediate between the two parents or closer to *H. Pilosella*. The styles of the florets may be brown instead of yellow; and the outer ligules have only a short band or terminal blotches of red at the tip instead of having a long band with yellow margins. Collections are mostly from western N.S. from Digby and Shelburne Co. to Cumberland Co. and Halifax; Ciboux I., Victoria Co.

N.S. to Mich. south to Va.

Fig. 142.—*Hieracium* spp.

4. *H. aurantiacum* L. Map 549. ORANGE HAWKWEED,  
DEVIL'S PAINT-BRUSH

Local but becoming more common. This species has become established in a number of areas on leached, well-drained soils of old pastures and fields. Very common at Advocate, Cumberland Co., now known in many local areas in the Annapolis Valley and to Antigonish Co.; scattered elsewhere. Once established it is very persistent. Our plants are said not to belong to *H. aurantiacum* but to a closely related European species. June 20-July.

Introduced from Eu.; Nfld. to B.C. south to Va. and Iowa.

5. *H. caespitosum* Dumort. HAWKWEED

Scattered or local from Digby Co. to northern C.B. Along the Cobequids and in other hilly areas with leached and well-drained soils it is often abundant and becomes the dominant species along roadsides, in fields and pastures; rarely found in cultivated soils. Late June-July. This name antedates *H. pratense* Tausch.

N.S. to Ont. south to N.C.; B.C.

6. *H. floribundum* Wimm. & Grab. Fig. 142. KING-DEVIL

This aggressive weed is common in most parts of the Province and roadsides and fields may often be yellow when it is in flower. It produces abundant stolons and spreads rapidly. Mid June-July.

Widespread; Nfld. to B.C., introduced from Eu.

7. *H. piloselloides* Vill.

The common low forms without spreading stolons are grouped under this name. Various forms are present and sometimes taller strains are conspicuous along roadsides. This species seems more variable than our other species and various races may be present. (*H. florentinum* All. and *H. praealtum* Gochnat). Mid June-July.

Nfld. to Ont. southwards; introduced from Eu.

8. *H. murorum* L. GOLDEN LUNGWORT

Sparingly introduced, as at Sydney, Bridgewater and Tusket. These collections show the leaves partly cordate at the base and very coarsely dentate on the lower half: Oregon in Victoria Co. and wooded slopes at Karsdale in Annapolis Co. Collections from near Folley L., Cumberland Co., show the leaves more tapering at the base and barely denticulate, somewhat towards *H. Lachenalii*, into which this species apparently grades.

Introduced from Eu.; Nfld. to Mich. south to N.J. and Penn.

9. *H. Lachenalii* C.C. Gmel. Fig. 142. Map 545.

Local in Cumberland and Colchester Co.; often common along roadsides in the mountains and scattered southward along the railroad to Halifax and to C.B.; rare elsewhere. The leaves of this plant are usually lightly blotched with purple. *H. vulgatum* Fries of American authors. See Lepage (1958). July.

Introduced from Eu.; Nfld. to Mich. south to Penn.

10. *H. Robinsonii* (Zahn) Fern. Map 545.

This plant sometimes somewhat resembles *H. Lachenalii* but is smaller and presumed to be a native plant. The first N.S. record is one mentioned by Fernald (1943-a): gravel in river bottoms, Big Intervale, C.B., collected by Macoun. It is now found scattered in rock crevices and cliffs along streams in northern Victoria and Inverness Co.: on cobble river beach at Forest Glen. Plants from Victoria Park at Truro resemble it; and collections made by J. S. Erskine on the Tusket I. in Yarmouth Co. are even more like this species.

Nfld. to N.S., Me., N.H. and Que.

11. *H. scabriusculum* Schwein.

Our interpretation of this and the following two species follows the treatment of Lepage (1960). This plant does not seem to be common

but collections are noted from near Tidnish in Cumberland Co. and Brooklyn in Kings Co.; weed near poultry plant, Truro.

James Bay to Alaska south to Mo. and Ill.; isolated stations in Que., N.B., N.S. and P.E.I.

12. *H. canadense* Michx. Fig. 142. Map 546. CANADA HAWK-WEED

This plant has been found most often in northern C.B.; Victoria and Inverness Co.; George R. and North Sydney; Baddeck Bay, Indian Brook and the Oregon Trail; Red R. and Cap Rouge. Lab. and Nfld. to Mich. and Me.

Var. *hirtiframeum* Fern. is local and not well known. Collections from Guysborough Co. and from C.B. resemble it. Our more hairy plants probably belong to forma *pilosius* Lepage (1961), which differs only by the presence of longer hairs, to 1.5 mm long, on the leaves, stems and branches. Holotype: on cliff near Eskasoni Brook, Aug. 21, 1951, collected by Smith *et al.*

The variety has much the range of the species; to Minn. and Mich.

13. *H. Kalmii* L. Map 546.

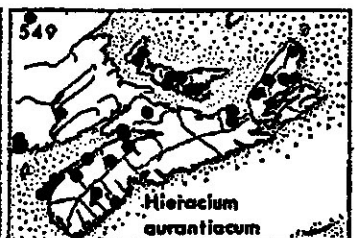
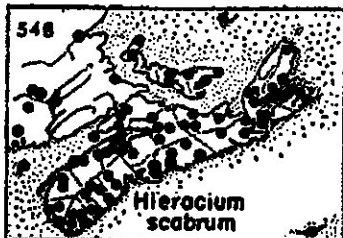
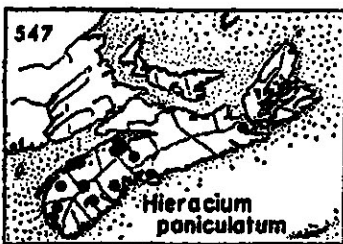
Scattered along roadsides and in open soils: Mistake L., Digby Co.; Chester Basin; Hammonds Plains and Halifax; and north of Earltown in Colchester Co. The leaves are rather narrowly lanceolate. N.S. to Minn. south to Ohio and N.Y.

Var. *fasciculatum* (Pursh) Lepage is a larger, more branched plant; found near Halifax and east of Dartmouth. Its general range is much the same as the species.

14. *H. paniculatum* L. Fig. 142. Map 547.

Mixed or dry deciduous woods; occasional from Yarmouth east to Kings and Lunenburg Co., rather common in oak and mixed woods near Kentville; found at Boylston, Guysborough Co. The Kentville collections have the peduncles lightly stipitate-glandular and belong to forma *glandulosum* R. Hoffm. Aug.-Sept.

N.S. to southern Ont. and Mich. south to Ga. and Ala.



15. *H. scabrum* Michx. Fig. 142. Map 548. ROUGH HAWK-WEED

Common throughout; old fields, pastures, rough land and sandy soils. 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 R., Bridgewater".

Var. *leuococaula* Fern. & St. John is a Sable I. variety, scattered over the barrens. It differs in having the lower internodes of the stem whitish-woolly mixed with dark glands; both leaf-surfaces are minutely pubescent with gland-tipped hairs.

N.S. to Minn. south to Ga. and Kans.

## GLOSSARY

## A

- Achene.** Dry one-seeded one-celled fruit.
- Acicular.** Slenderly needle-shaped.
- Acuminate.** Gradually tapering to an end or point.
- Acute.** Evenly tapering to a sharp point or definite angle.
- Aggregated.** Crowded into a dense cluster.
- Anther.** Pollen-bearing part of the stamen.
- Anthesis.** The time during which the flower is fully expanded.
- Apetalous.** Without petals.
- Apiculate.** With a minute sharp-pointed tip.
- Appressed.** Lying close or flat against.
- Approximate.** Closely situated without running together.
- Arcuate.** Curved or arching.
- Areolate.** Reticulated, marked out into small areas.
- Apomixis.** Production of identical new plants from seed without fertilization.
- Aristate.** Tipped by a bristle or bristle-like projection.
- Armature.** Prickles, spines, thorns and bristles for protection.
- Articulate.** Jointed.
- Ascending.** Rising obliquely and curving upward.
- Attenuate.** Slenderly tapering.
- Auricle.** An ear-shaped lobe, usually at or near the base.
- Awn.** A bristle-shaped appendage.
- Axil.** Angle formed by the leaf or branch with the stem.
- Axillary.** Situated in an axil, usually of a leaf.

## B

- Barbellate.** With very tiny barbs along the side or edge.
- Biennial.** Lasting two years; a plant which remains vegetative the first season and flowers and fruits the second year.
- Bisexual.** With both stamens and pistils.
- Blade.** Expanded portion of a leaf.
- Bract.** Modified or scale-like leaf associated with the flower or inflorescence.
- Bracteate.** Having bracts.
- Bracteole.** Small bract.

## C

- Calyx.** The outer whorl of flower parts; (plural) calyces.
- Campanulate.** Bell-shaped.
- Canaliculate.** Longitudinally channeled.

- Canescent.** Grayish with pubescence or fine hairs.
- 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, or a chestnut color.
- Catkin.** A dry scaly spike, erect or drooping, usually unisexual, as in the willows, birches and related plants.
- Cespitose.** Growing in tufts or forming mats.
- Chaff.** Thin scales or bracts, particularly on the receptacle of the *Compositae*.
- Chartaceous.** Pale or white with the texture of writing paper.
- Ciliate.** Fringed with hairs.
- Ciliolate.** Minutely ciliate.
- Cinereous.** Ash-colored.
- Circumscissile.** Opening by a transverse circular line.
- Clasping.** Of the base of a leaf, partly surrounding the stem.
- Clavate.** Club-shaped.
- Cleistogamous.** Flowers small and fertilized without opening.
- Clone.** Group of plants derived vegetatively from a single individual.
- Conduplicate.** Folded together lengthwise, as leaves in the bud.
- Convolute.** Rolled up longitudinally.
- Cordate.** Heart-shaped with the point at the apex.
- Corm.** Enlarged thickened base of the stem, for food storage.
- Coriaceous.** Leathery.
- Corolla.** Inner part of the perianth of the flower, composed of petals, sometimes absent.
- Corymb.** Flat-topped or convex flower-cluster with the outer flowers opening first.
- Costate.** With one or more longitudinal ribs or nerves.
- Cotyledon.** The one, two, or more primary leaves of the embryo in the seed, 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 or narrowly triangular with the point downwards.
- Cuspidate.** Sharp-pointed with a rigid or firm point.
- Cyme, cymose.** Flat-topped flower-cluster with the central flowers opening earliest.

## D

- Deciduous.** Quickly falling; not persistent.
- Decomposed.** More than once divided, or the larger divisions again divided.

- Decumbent.** Reclining with the ends ascending.
- Decurrent.** Extending downward from the point of insertion, usually referring to the leaf running down along the stem.
- Dehiscent.** Opening or splitting.
- Deltoid.** Triangular.
- Dentate.** Toothed with outwardly directed teeth.
- Denticle, denticulate.** A minute tooth, minutely toothed.
- Depressed.** Flattened from above.
- Dichotomous.** Forking.
- Diffuse.** Loosely or widely spreading.
- Dioecious.** Staminate and pistillate flowers on different plants.
- Discoid.** In the *Compositae*, with the florets all disk florets without rays.
- Distichous.** In two vertical ranks.
- Divaricate.** Widely spreading or diverging.
- Dorsal.** Relating to the back or outer surface of an organ.
- Drupe.** A fleshy fruit with a stone, as in cherries and plums.
- Drupelet.** A small drupe, as in the raspberries and blackberries.

## E

- Ellipsoid.** Solid with an elliptical outline, as with a football.
- Entire.** Without teeth or divisions.
- Epiphytic.** Growing on other plants.
- Excurrent.** With a projecting tip, usually referring to a nerve or vein.
- Exocarp.** Outer layer of the fruit-coat.
- Exserted.** Prolonged beyond the surrounding parts.

## F

- Fasicle.** A bundle or cluster.
- Fastigate.** With the stems or branches erect and near each other.
- Fertile.** Capable of bearing fruit, or pollen in connection with the anther.
- Fibrillose.** With or broken up into fine fibers.
- Filament.** Stalk of the stamen.
- Filiform.** Thread-like.
- Fimbriate.** Fringed.
- Flexuous.** Curved alternately in opposite directions.
- Flocculent.** With small tufts or patches of soft hair or wool.
- Floret.** Small flower, usually one of a dense cluster.
- Foliaceous.** Leaf-like.
- Foliate.** Having leaflets.
- Follicle.** Dry fruit of one carpel, splitting along one side or suture.
- Frond.** Leaf of a fern.
- Fulvous.** Brownish-yellow, tawny.
- Fuscous.** Grayish-brown.



## G

- Geniculate.** Bent abruptly, as at a knee.  
**Gibbous.** Swollen on one side.  
**Glabrate.** Nearly glabrous or becoming so with age.  
**Glabrous.** Without hairs or pubescence.  
**Glaucous.** Covered with a bluish-white or grayish bloom.  
**Globose.** Almost spherical or round.  
**Glomerule.** A small compact cluster.  
**Glume.** One of two bracts at the base of the spikelet of grasses.  
**Glutinous.** Covered with a sticky substance.  
**Grain.** The one-seeded fruit of grasses.

## H

- Halophyte.** Plant adapted to brackish or salty locations.  
**Hastate or halberd-shaped.** Like an arrow-head, with the basal lobes pointing outward nearly at right-angles.  
**Head.** A dense cluster of sessile or very short-stalked flowers or fruit on a short axis or receptacle.  
**Herbaceous.** Not woody; leaf-like in color and texture.  
**Hilum.** Scar or point of attachment of the seed to the fruit.  
**Hirsute.** With coarse or stiff hairs.  
**Hirtellous.** Minutely hirsute.  
**Hispid.** With rigid or bristly hairs.  
**Hispidulous.** Minutely hispid.  
**Hyaline.** Transparent or translucent.

## I

- Imbricate.** Overlapping.  
**Incised.** Cut sharply and irregularly.  
**Included.** Not protruding beyond the surrounding parts.  
**Indefinite.** Very many, or inconstant in number.  
**Indehiscent.** Not opening or splitting.  
**Indigenous.** Native and original to the area.  
**Indurated.** Hardened.  
**Indusium.** Covering of the fruiting dot or sorus in the ferns.  
**Inferior ovary.** One surrounded by and fused to the receptacle or calyx so the calyx-lobes appear above it.  
**Inflorescence.** Flowering part of the plant.  
**Involucel.** Small or secondary whorl of bracts.  
**Involucre.** A circle or collection of bracts about a flower-cluster, head  
**Involute.** Rolled inward.  
**Irregular.** Having the members of a whorl of flower-parts unequal in shape, size or union.

## K, L

- Keel.** A sharp longitudinal ridge, as with the keel of a boat.
- Lacerate.** Irregularly cleft.
- Lacinate.** 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.
- Legume.** The fruit of the legume family, commonly called a pod.
- Lemma.** The lower of the two bracts enclosing the floret of a grass spikelet.
- Lenticular.** Lens-shaped.
- Ligulate.** Provided with a ligule, a strap-shaped appendage; applying to the ray-flowers of the *Compositae*.
- Linear.** Long and narrow with parallel sides.

## M, N

- Megaspore.** The larger size of spore in *Selaginella* or *Isoetes*.
- Membranous.** Thin, and often somewhat translucent and pliable.
- Mericarp.** Portion of a fruit which splits away as a separate part.
- 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.

## O

- Obcordate.** Inverted heart-shaped; with the point downwards.
- Oblanceolate.** Lanceolate but with the widest part above the middle.
- Oblong.** Several times 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 surrounding the stem at the base of the leaf; smaller ones being ocreolae.
- Olivaceous.** Olive-green.
- Orbicular.** Circular.
- Ovary.** Enlarged base of the pistil, containing the ovules.
- 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.

## P

- Palate.** Rounded projection on the lower lip of a flower, closing the throat.
- Palea.** The upper of the two bracts surrounding the floret of a grass.
- Palmately.** With the lobes or divisions or veins radiating from one point.
- Panicle.** A loose irregular flower-cluster with stalked flowers.
- Paniculate.** Resembling a panicle.
- Papillose.** Bearing minute nipple-like projections.
- Pappus.** The modified calyx in the *Compositae* florets, later often very evident as hairs or scales around the summit of the achene.
- Parasitic.** Growing upon and deriving nourishment from another living plant.
- 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.
- Peltate.** Shield-shaped with the stalk or petiole attached to the lower surface.
- Perfect.** With both stamens and pistils.
- Perfoliate.** With the stem apparently passing through the leaf.
- Perianth.** Calyx and corolla taken together.
- Pericarp.** Wall of the fruit.
- Perigynium.** Inflated sac which encloses the ovary and fruit in the sedges.
- Persistent.** Long-continuous or lasting.
- Petal.** Main division of the corolla, usually colored.
- Petaloid.** Colored and resembling a petal.
- Petiole.** Stalk of a leaf.
- Petiolule.** Stalk of an individual leaflet.
- Pilose.** With long 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.
- Pistil.** Seed-bearing organ of the flower, consisting of the ovary, style and stigma.
- 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, as on the pappus bristles of the thistles.
- Polyploidy.** Condition in which several sets of chromosomes are present in each cell.
- Pome.** A fleshy fruit from an inferior ovary with several locules with the inner part of the wall of the ovary papery or hard.

- Prostrate.** Lying flat upon the ground.  
**Procumbent.** Lying flat on the ground but without rooting at the nodes.  
**Puberulent.** Minutely pubescent or hairy.  
**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.

## R

- Raceme.** Inflorescence with stalked flowers upon an elongated axis.  
**Rachilla.** The axis of the spikelet of a grass, along which the floret or florets are arranged.  
**Rachis.** Axis of a spike or of a compound leaf or frond.  
**Radiate.** Spreading from a common center; with both disk and ray flowers.  
**Raphe.** A ridge where the stalk is fused with the coat of a seed.  
**Receptacle.** Expanded tip of the stalk which bears the flower-parts or the florets of a compound flower.  
**Regular.** Uniform in shape and function.  
**Reniform.** Kidney-shaped.  
**Reticulate.** In the form of a network; netted-veined.  
**Retrorse.** Directed backward or downward.  
**Revolute.** Rolled backward from the tip or margin.  
**Rhizome.** Prostrate or underground stem; rootstock.  
**Rhombic.** With four equal, oblique sides.  
**Rufous.** Reddish-brown.  
**Rugose.** Wrinkled or rough.

## S

- Saccate.** Sac-shaped.  
**Sagittate.** Arrow-head shaped, the lobes directed downwards.  
**Samara.** Indehiscent winged fruit as in the maple, ash and elm.  
**Scabrous.** Rough to the touch.  
**Scale.** A thin scarios body, usually a much-reduced leaf.  
**Scape.** Peduncle rising from near the ground, without leaves or nearly so.  
**Scapose.** Resembling a scape.  
**Scarios.** Thin, dry and papery, not green.  
**Secund.** Arranged along one side of an axis or stem.  
**Sepal.** Main 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 as in the *Araceae*.
- Spathe.** Large bract or pair of bracts enclosing or lying behind an inflorescence.
- Spatulate.** Gradually narrowed downward from a rounded summit.
- Spicate.** Resembling a spike.
- Spike.** Inflorescence with the flowers sessile or nearly so upon an elongated common axis.
- Spikelet.** A small spike; a small secondary spike in the inflorescence of a grass or in the sedge family.
- Sporangium.** The structures in which the microscopic spores are borne in the ferns and their allies.
- Spore.** Reproductive cells of ferns and their allies, corresponding to the seed of higher plants but microscopic.
- Stamen.** The pollen-bearing organ of the flower.
- Stellate.** Star-shaped.
- Sterile.** Flower without a pistil, or a stamen without an anther.
- Stigma.** Tip of the pistil for reception of the pollen.
- Stipe.** Stalk of a pistil; stalk of the 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.
- Strobilus.** A cone-like structure composed of bracts bearing sporangia.
- Style.** Upper part of the pistil connecting the ovary and the stigma.
- Subsessile.** Nearly sessile, or with a very short stalk.
- Subtended.** Enclosed in an axil, as by a leaf or bract.
- Subulate.** Awl-shaped.
- Succulent.** Fleshy and juicy.
- Sulcate.** Grooved or furrowed.
- Superior ovary.** One above and free from the sepals.
- Suture.** Line of union or splitting.

## T, U, V

- Tendril.** A slender twining or clasping part of a leaf or stem.
- Terete.** Having a circular cross-section.
- Ternate.** In threes, as the main divisions of a leaf.
- Testa.** The outer seed-coat, commonly hard and brittle.
- Tomentose.** Densely pubescent with matted hairs.
- Tomentum.** Covering of close woolly hairs.

**Trifoliate.** With three leaflets.

**Trigonous.** Three-angled, as a buckwheat seed.

**Truncate.** Ending abruptly as if cut off transversely.

**Tuber.** Short, thick underground stem with buds or eyes.

**Umbel.** Inflorescence with the pedicels or peduncles arising from the same point.

**Unisexual.** Of one sex, with either only pistils or only stamens.

**Ventral.** Belonging to the front or inner surface of a part or organ, as opposed to the dorsal.

**Villous.** Bearing long and soft hairs.

**Viscid.** Glutinous; sticky.

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Abies	41	All-seed	486	AQUIFOLIACEAE		macrophyllus	667
balsamea	41	Alnus	339	Aquilegia	499	memoralis	672
Abutilon	510	crispa	340	vulgaris	395	novae-angliae	669
Theophrasti	510	incana	340	Arabis	418	novi-belgii	671
Acacia, Rose-	478	rugosa	340	Drummondii	419	paniculatus	670
Acalypha	491	serrulata	340	hirsuta	419	parviceps	670
rhomboidea	491	Alopecurus	109	ARACEAE	187	pilosus	669
Acer	502	aequalis	110	Aralia	539	punicus	669
Negundo	504	geniculatus	110	hispidula	540	radula	669
pensylvanicum	502	pratensis	109	nudicaulis	540	saxatilis	670
platanoides	503	Alpine woodsia	29	racemosa	540	simplex	670
rubrum	504	Alsike clover	474	ARALIACEAE	539	subspicatus	671
saccharinum	504	Alyssum, Hoary	406	Arbor Vitae	45	tardiflorus	669
saccharophorum	503	Amaranth	370	Arbutus, Trailing	564	Tradesanti	670
saccharum	503	Family	370	Arceuthobium	346	umbellatus	673
spicatum	502	AMARANTHA- CEAE	370	pusillum	346	undulatus	668
ACERACEAE	501	Amaranthus	370	Arctium	700	Astragalus	478
Achillea	688	albus	370	minus	701	Robbinsii	478
borealis	688	hybridus	370	memorosum	701	Athyrium	36
lanulosa	689	retroflexus	370	tomentosum	701	Filix-femina	37
Millefolium	689	Ambrosia	681	Arctostaphylos	565	thelypteroides	36
Ptarmica	688	artemisiaefolia	681	Uva-ursi	565	Atriplex	366
Aconitum	396	psilostachya	682	Arenaria	375	glabriuscula	367
bicolor	396	trifida	681	groenlandica	376	patula	367
Napellus	396	Amelanchier	435	lateriflora	376	sabulosa	367
variegatum	396	Bartramiana	438	pepoides	376	August-flower	706
Acorus	189	canadensis	436	serpyllifolia	376	Avena	99
Calamus	189	Fernaldii	437	Arethusa	225	fatua	99
Actaea	397	intermedia	436	bulbosa	225	sativa	99
pachypoda	397	laevis	437	Arisaema	187	Avens	450
rubra	397	lucida	437	Stewardsonii	187	Awlwort	409
Adder's-mouth	230	neglecta	437	Armoracia	416	Axyris	367
Adder's-tongue	25	stolonifera	437	lapathi folia	416	amaranthoides	367
Family	22	Wiegandii	436	rusticana	416	Bachelor's-button	704
Adiantum	39	Ammophila	106	Arnica	696	Bakeapple	454
pedatum	39	breviligulata	106	chionopappa	696	Ball-Mustard	411
Adiumia	400	Amoracia	416	Arnoseri	706	Balm-of-Gilead	331
fungosa	400	rusticana	416	minima	706	Balmory	613
Aegopodium	548	Amphicarpa	485	Aronia	433	Balsam-Fir	41
Podagraria	548	bracteata	485	arbutifolia	433	Balsam-Poplar	331
Aethusa	549	ANACARDIACEAE	498	melanocarpa	433	BALSAMINACEAE	505
Cynapium	549	Anagallis	575	prunifolia	433	Baneberry	397
Agalinis	619	arvensis	575	Arrhenatherum	97	Barbarea	417
Agrimonia	463	Anaphalis	677	elatius	97	vulgaris	417
gryosepala	463	margaritacea	678	Arrow-grass	63	Barberry	398
striata	463	Andromeda	563	Arrow-head	65	Family	397
Agrimony	463	glaucochylla	563	Artemisia	693	Barley	94
Agropyron	91	Anerhone	393	Absinthium	694	Barnyard-grass	127
pungens	92	canadensis	394	biennis	694	Bartonia	581
repens	92	quinquefolia	394	canadensis	693	paniculata	582
trachycaulum	91	riparia	394	pontica	694	virginica	582
Agrostemma	380	virginiana	394	Stelleriana	694	Bartsia	623
Githago	380	Angelica	550	vulgaris	694	Basil	602
Agrostis	106	atropurpurea	550	Artichoke	684	Basswood	508
alba	107	sylvestris	550	Arum Family	187	Bastard Toadflax	346
canina	108	Antennaria	675	ASCLEPIADACEAE	585	Bayberry	332
palustris	107	canadensis	676	Asclepias	585	Beach-grass	106
perennans	108	neglecta	676	incarnata	585	Beach-Senecio	698
scabra	108	neodioica	677	Syriaca	585	Beak-rush	146
stolonifera	107	Parlinii	677	Ash	577	Bearberry	565
tenuis	107	petaloidea	677	Asparagus	207	Beard-tongue	613
Aira	100	plantaginifolia	677	officinalis	207	Bedstraw	634
praecox	100	Anthemis	690	Aspen	328	Beech	341
AIZOACEAE	370	arvensis	690	Asphodel, False	205	Beech-drops	624
Alchemilla	461	Cotula	690	Asplenium	37	Beggar-ticks	685
arvensis	462	tinctoria	690	Trichomanes	38	Bellis	656
filicaulis	463	Anthoxanthum	117	viride	37	perennis	656
minor	463	odoratum	117	Aster	665	Bellwort	206
monticola	463	Antirrhinum	609	acadiensis	670	Bentgrass	106
pratensis	462	Apios	484	acuminatus	672	BERBERIDACEAE	397
venosa	462	americana	484	Blakei	672	Berberis	398
vulgaris	462	APOCYNACEAE	583	borealis	671	Thunbergii	398
xanthochlora	462	Apocynum	584	ciliolatus	668	vulgaris	398
Alder	339	androsaemifolium	584	cordifolius	667	Berteroa	406
Alfalfa	476			crenifolius	671	incana	406
Alisma	65			ericoides	669	Betula	334
triviale	65			foliaceus	671	alba	337
ALISMATACEAE	65			junctiformis	671	alleghehiensis	335
Allium	206			lateriflorus	670	borealis	338
Schoenoprasum	206			Lindleyanus	668	caerulea	336
triccocum	206						

\*Italicized names refer to species mentioned as alternate or closely related to those described in the text.

- caerulea-grandis* 336  
*cordifolia* 337  
*glandulosa* 338  
*lutea* 335  
 Michauxii 338  
*nana* 338  
*occidentalis* 338  
*papyrifera* 337  
*pendula* 336  
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*discoidea* 687  
*frondosa* 687  
*hyperborea* 686  
*tripartita* 686  
*vulgata* 686  
 Bilberry 437  
 Dwarf 567  
 Bindweed 586  
 Family 585  
 Field- 587  
 Birch 334  
 Paper- 337  
 Wire- 335  
 Yellow- 335  
 Bird-cherry 469  
 Bird's-eye 618  
 Bittersweet 606  
 Black  
 Alder 499  
 Medick 476  
 Locust 478  
 Blackberry 452  
 Black-eyed Susan 683  
 Blackthorn 469  
 Bladder-Campion 382  
 Bladder-Fern 30  
 Bladderwort 625  
 Blite, Sea- 368  
 Strawberry 366  
 Bloodroot 399  
 Blue  
 Cohosh 398  
 Devil 591  
 Flag 216  
 Bluebell 647  
 Blueberry 566  
 Highbush- 569  
 Blue-eyed Grass 215  
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Goat's-beard	707	Velvet Bent	108	Sphondylium	551	punctatum	512
Golden Alexanders	546	Wedge, slender	98	Herb-Robert	488	virginicum	513
Golden Crest	214	Wheat, slender	91	-Mercury	491	Hypochoeris	706
Golden-pert	614	Wire-	101	Hesperis	414	radicata	706
Goldenrod	656	Witch-	124	matronalis	414	Hyssoop	602
Goldthread	395	Wood-reed-	108	Hibiscus	510	Hyssopus	602
Good King Henry	365	Yellow-eyed	190	Trionum	510	officinalis	602
Goodyera	227	Gratiola	614	Hieracium	712	Hystrix	95
repens	228	aurea	614	aurantiacum	715	patula	95
oblongifolia	228	neglecta	614	Auricula	714	flex	499
tesellata	228	Ground		caespitosum	715	glabra	500
Gooseberry	427	-Cherry	608	canadense	717	verticillata	499
Goosefoot	365	-Hemlock	39	flagellare	714	Impatiens	505
oak-leaved	365	-Ivy	598	florentinum	716	biflora	505
Goosegrass	635	-Nut	484, 540	floribundum	716	capensis	505
Goutweed	548	-Pine	19	Kalmii	717	glandulifera	506
Gourd Family	647	Groundsel	697	Lachenalii	716	pallida	505
<b>GRAMINEAE</b>	67	Habenaria	219	murorum	716	parviflora	506
Grape Family	507	Andrewsii	223	paniculatum	717	Indian	
Grass		blephariglossis	222	Pilosella	714	Cucumber-root	211
Annual Blue	83	clavellata	220	piloselloides	716	Hemp	584
Arrow-	63	dilatata	221	praealtium	716	-pipe	559
Barnyard-	127	fimbriata	224	pyratense	715	-tobacco	649
Beach-	106	flava	220	Robinsonii	716	Inkberry	500
Bent	106	Hookeri	221	scabriusculum	716	Interrupted Fern	26
Bottle-brush	95	hyperborea	221	scabrum	718	Inula	679
Blue	82	lacera	222	vulgatum	716	Helenium	679
Blue-eyed	214	macrophylla	222	Hierochloa	118	<b>IRIDACEAE</b>	
Blue-joint	104	obtusata	222	odorata	118	Iris	215
Broad-leaf	114	orbiculata	222	<b>HIPPURIDACEAE</b>		Hookeri	216
Brome-	70	psychodes	224	Hippuris	538	prismatica	216
Brown Top	107	viridis	220	vulgaris	538	Pseudacorus	216
Canada Blue	83	Hackmatack	43	Hoary Alyssum	406	setosa	216
Chess	71	<b>HAEMODORAC-</b>		Hobblebush	644	versicolor	216
Cord-	114	EAE	213	Holcus lanatus	98	Isoetaceae	20
Cotton-	143	Hairgrass	100	Holly	499	Isoetes	20
Couch-	92	Halimololax	581	False	501	Braunii	21
Crab-	119	<b>HALORAGACEAE</b>		Holly-Fern	35	macrosperma	22
Creeping Bent	107	EAE	535	Honeysuckle	641	muricata	21
Ditch-	61	<b>HAMAMELIDAC-</b>		Bush-	641	Tuckermanni	22
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Drop-seed	104	Hamamelis	428	Fly-	641	frutescens	680
Dune-	94	virginiana	428	Hop-Hornbeam	334	xanthifolia	681
Eel	50	Hardhack	432	Hops	343	Ivy,	
Fescue-	74	Harebell	648	Hordeum	93	Boston	507
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Green	128	Hawkeed	712	montanense	94	Poison	499
Meadow	109	Mouse-ear	714	vulgare	94	Jack-in-the-pulpit	187
Yellow	128	Orange	715	Horehound	598	Jerusalem Artichoke	684
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Kentucky	84	Heal-all	598	radish	416	Johnny-jump-up	523
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Melic, false	73	Heedeoma	602	Hound's-tongue	592	acuminatus	193
Moor Mat-	87	pulegioides	602	Houstonia	639	alpinus	201
Nut-	130	Hedge-Mustard	413	caerulea	639		202
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balticus	198	Lechea	516	multifidum	93	Alcea	510
brevicaudatus	200	intermedia	516	perenne	93	moschata	510
bufonius	195	Ledum	561	Lombardy Poplar	330	neglecta	509
bulbosus	201	groenlandicum	561	Lonicera	641	rotundifolia	510
canadensis	199	Leek	206	caerulea	641	sylvestris	509
compressus	196	Leersia	118	canadensis	642	verticillata	509
Dudleyi	197	oryzoides	118	Periclymenum	642	MALVACEAE	508
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Greeni	197	minor	190	Family	524	Marrubium	598
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tenuis	196	Cardiaca	599	uliginosus	477	Chamomilla	691
trifidus	196	Lepidium	406	Lousewort	624	inodora	691
Vaseyi	197	campestre	407	Lovage	550	maritima	691
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Juniper	45	Draba	408	Ludwigia	526	Matrimony-vine	608
Juniperus	45	ruderalis	408	palustris	526	Mayflower	564
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hirsuta	711	Limosella	615	annotinum	16	alba	476
spicata	711	subulata	615	clavatum	18	altissima	475
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Lady Fern	37	Linaria	611	flabelliforme	19	officinalis	475
Lady's		canadensis	612	inundatum	18	Mentha	604
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-slipper	217	repens	612	obscurum	19	arvensis	605
-Thistle	703	vulgaris	612	sabinaefolium	19	cardiaca	605
-thumb	359	Linden	508	Selago	17	citrata	605
La mckill	563	Lindernia	615	tristachyum	19	piperita	605
Lamb's-quarters	364	dubia	615	Lycopsis	591	spicata	604
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Lamium	600	Linnaea	642	americanus	603	trifoliata	583
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Lapsana	705	Loeselii	231	thrysiiflora	574	maritima	593
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palustris	483	Dortmanna	649	brachypoda	230	Mimulus	613
pratensis	483	inflata	649	unifolia	230	moschatus	614
Laurel,		Kalmii	649	Mallow	509	ringens	614
Sheep-	563	spicata	649	Maltese-cross	381	Mint	604
Great	562	Locust	477	Malus	432	Family	594
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False	425	Hedge-	601	virginiana	334	canariensis	116
Molinia	87	Hemp-	599	OXALIDACEAE	486	Phleum	109
caerulea	87	Red Dead-	601	Oxalis	486	alpinum	109
Mollugo	370	Stinging	344	Acetosella	486	pratense	109
verticillata	371	Wood-	344	corniculata	487	Phragmites	89
Moneses	556	Nicandra	608	Dillenii	487	communis	89
uniflora	556	physalodes	608	europaea	487	Phlox	589
Moneywort	574	Nightshade	607	montana	486	paniculata	589
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Monkshood	396	Nipplewort	705	stricta	486	Phyllodoce	563
Monotropa	558	Nodding Lady's		Ox-eye-Daisy	692	caerulea	563
Hypopithys	559	Tresses	226	Oxycoccus	570	Physalis	608
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Montia	371	microphyllum	384	digyna	347	Picea	42
Moonwort	23	rubrodiscum	384	Oxytropis	478	Abies	42
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-Campion	382	odorata	385	trifolius	540	rubens	42
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Muskflower	614	maricata	532	spretum	125	Pinesap	559
Mustard	411	novae-scotiae	532	subvillosum	126	Pineweed	375
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Black	412	perennis	533	xanthophyllum	127	vulgaris	629
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discolor	593	Acanthium	703	Fool's-	549	EAE	630
laxa	593	OPHIOGLOSSAC-		Hemlock-	549	Plantago	630
scorpioides	592	EAE	22	Parsnip	550	indica	633
sylvatica	593	Ophioglossum	25	Cow-	551	juncoides	632
versicolor	593	vulgatum	25	Water-	548	lancoolata	632
Myrica	332	Orach	366	Parthenocissus	507	oliganthos	632
Gale	332	Orchard-Grass	87	inserta	508	major	631
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peregrina	333	ORCHIDACEAE	216	Partridge-berry	638	Rugelii	632
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Naiad	62	asperifolia	112	Pedicularis	624	costata	85
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Najas	62	pungens	113	Penny-Cress	406	nemorialis	85
flexilis	63	Osier	328	Pennyroyal	602	palustris	86
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Nardus	91	chilensis	545	Pentstemon	613	saltuensis	85
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| Staghorn-Sumach          | 498 | Teasel Family         | 646 | <i>Twayblade</i>        | 229 | <i>Vervain, Blue</i>   | 594 |
| Star                     |     | <i>Teucrium</i>       | 596 | <i>Twig-rush</i>        | 148 | <i>Vetch</i>           | 480 |
| -flower                  | 575 | <i>canadense</i>      | 596 | <i>Twinflower</i>       | 642 | <i>Vetchling</i>       | 483 |
| -of-Bethlehem            | 207 | <i>Thalictrum</i>     | 392 | <i>Twisted-stalk</i>    | 210 | <i>Viburnum</i>        | 643 |
| Starwort                 | 379 | <i>confine</i>        | 392 | <i>Typha</i>            | 46  | <i>alnifolium</i>      | 644 |
| Steeple-bush             | 432 | <i>polygamum</i>      | 393 | <i>angustifolia</i>     | 47  | <i>cassinoides</i>     | 644 |
| <i>Steyronema</i>        | 573 | <i>Thimbleweed</i>    | 394 | <i>latifolia</i>        | 47  | <i>edule</i>           | 645 |
| Stellaria                | 377 | Thistle               | 702 | <b>TYPHACEAE</b>        | 46  | <i>lantanoides</i>     | 644 |
| <i>Alsine</i>            | 378 | Blessed               | 704 | <b>ULMACEAE</b>         | 342 | <i>Opulus</i>          | 645 |
| <i>borealis</i>          | 379 | Bull-                 | 702 | <i>Ulmus</i>            | 342 | <i>pauciflorum</i>     | 645 |
| <i>calycantha</i>        | 379 | Canada-               | 703 | <i>americana</i>        | 343 | <i>trilobum</i>        | 645 |
| <i>crassifolia</i>       | 379 | Lady's-               | 703 | <i>glabra</i>           | 343 | <i>Vicia</i>           | 480 |
| <i>graminea</i>          | 377 | Nodding               | 701 | <b>UMBELLIFERAE</b>     |     | <i>angustifolia</i>    | 480 |
| <i>humifusa</i>          | 379 | Plumeless             | 701 | <i>Urtica</i>           | 540 | <i>Cracca</i>          | 481 |
| <i>longifolia</i>        | 378 | Russian               | 369 | <i>dioica</i>           | 344 | <i>hirsuta</i>         | 481 |
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villosa	481	Yellow	522	White Cockle	381	virginica	38
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minor	583	Virginia Creeper	507	Whortleberry	567	Mustard	415
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