

Fig. 61.—*Betula*: (a) *B. populifolia*, leaf $\times \frac{1}{2}$; fruit $\times 3$, (b) *B. papyrifera*, leaf $\times \frac{1}{2}$, fruiting catkin $\times \frac{1}{2}$; staminate catkins in winter $\times \frac{1}{2}$; fruit $\times 5$, (c) *B. allegheniensis*, leaf, fruiting catkin, staminate catkins and fruit.

3. *B. pendula* Roth

Commonly planted about towns and dwellings because of its size and weeping habit; rarely persisting or escaping to road-sides. The cut-leaf variety is forma *dalecarlica* (L.f.) Schneid.

N.S. to Ont. south to Penn., Mich. and Iowa; introduced.

4. X *B. caerulea-grandis* Blanch. BLUE BIRCH

Numerous collections of this birch have been made in the Maritime Provinces in recent years (see Brayshaw, 1966-b): Noel Shore in Hants Co., Brier I., Guysborough Co., Jackson in Cumberland Co., and in north-central C.B. It is apparently scattered in southern N.B. and is also found in P.E.I. The chromosome number is $2n = 28$; and Brittain and Grant (1967) suggest that it is a hybrid with *B. populifolia* as one of the parents and *B. cordifolia*, instead of *B. papyrifera* as usually presumed, as the other. A back-cross with *B. populifolia* would give an intermediate representing *B. caerulea* Blanch.; while a collection from Frizzleton in Inverness Co. is considered to represent the back-cross to *B. cordifolia*. The scattered trees are found in our area along roadsides, in pastures and other open or disturbed areas where both the parents are found. The leaves are often bluer in color than those of *B. papyrifera*.

N.S. to Que. south to New Eng.

5. *B. alba* L. WHITE BIRCH

An introduced tree which may be planted along roadsides or about dwellings. Erskine reports this for Brackley Point Road in P.E.I. but no collections have been made in N.S. although it probably occurs here. (*B. pubescens* Ehrh.).

Introduced from Eu.; Nfld. to Mich. and New Eng.

6. *B. papyrifera* Marsh. Fig. 61, b. WHITE, PAPER or CANOE BIRCH

For a discussion of our white birches see Fernald (1922, 1945-b) and Brittain and Grant (1965-a).

The white birch is one of the most variable trees of eastern Canada with the shape of the leaves, color of bark, and the size and shape of the bracts of the fertile catkins all very diverse. The tree is common throughout; scattered in the original forest but more common eastward and near the Bay of Fundy. It sometimes forms almost pure stands after a fire. Chromosome numbers for our material, determined by Brittain and Grant (1967), are 56, 70 and 84, with apparently little barrier to hybridization between the different types.

Various varieties have been proposed by Fernald. Var. *pensilis* Fern. has the leaves nearly lanceolate and the branches pendulous. Trees of this type seem to represent merely extreme variations or abnormal forms and do not seem to represent a good variety.

Trees with the bark brownish, the outer layers only tardily flaking off have been referred to the western variety *commutata* (Regel) Fern. This type is found in northern C.B. from Scatarie I. to Margaree; and on Brier I. off Digby Neck. Brittain and Grant (1966) review the B.C. type and compare it with the plants of Brier I. They conclude that there are small but constant differences between the two. There is still a question as to whether our dark-barked type deserves a formal name. $2n = 70$ and 84.

Large-fruited trees with the mature fertile bracts 7-10 mm long and the catkins 6-8 mm wide have been named var. *macrostachya* Fern. The type collection is from dry mixed woods, Hectanooga, Digby Co.; spruce woods, Brier I. and on Isle Haute in the Bay of Fundy. Specimens from Mackenzie Mt., northern Inverness Co., also have very wide pistillate catkins. The chromosome count on material from West LaHave, Lunenburg Co., was found to be $2n = 84$. Northern Nfld. south to n. Me. and N.S.

Lab. to Alaska south to Penn. and W.Va.

7. *B. cordifolia* Regel. Map 238. (Brittain and Grant, 1965-b).

This tree is now generally considered to be a separate species. The chromosome number is usually $2n = 28$, although outside our area two triploids and a tetraploid were found. This tree is scattered throughout near the coast; occasional in Yarmouth Co.; Cape Blomidon; becoming more common eastward and in C.B.

Lab. to w. Ont. south to N.Y. and Wisc.

8. *B. occidentalis* Spach Map 239.

This northern representative of the white-birch group has been found only in a few locations in northern Inverness and Victoria Co.; along a path on top of Cape North and on high barrens above Lockhart Brook; St. Paul I.; and fields on Mt. Young near Mabou. The type of *B. borealis* Spach, the name formerly used for this plant, is said by Boivin to belong to *B. pumila*.

Nfld. to Alaska south to northern Vt. and N.S., often montane.

9. *B. pumila* L. Map 240. BOG-BIRCH

Casual on St. Paul's I. (Perry, 1931); C.B. where it is found only in northern Victoria and Inverness Co.; bogs, bog-meadows, and mixed with alders, rather local but sometimes covering large areas on the higher parts of the plateau; not found at lower altitudes.

Var. *renifolia* Fern. The smaller, or more prostrate, extreme with the leaves round or wider than long and rounded at the base and more persistently pubescent beneath, grows in more exposed situations and at higher altitudes. This is reported from St. Paul's I., on P.E.I. and the Magdalens northward. A collection from the edge of an alder thicket, margin of a bog at the top of French Mountain, Inverness Co., shows these characteristics. A hybrid between *B. cordifolia* and *B. pumila* is reported for French Mountain, Inverness Co.

This species is quite variable and is said to present in North America a continuous series of variations to the more northern *B. nana* L. and to the next species. *B. pumila* could thus be classified as *B. nana* var. *renifolia* (Fern.) Boivin; and the following species as *B. nana* var. *sibirica* Led.

Nfld. and Lab. to Mich. south to N.J. and Ohio.

10. *B. glandulosa* Michx.

This is a small species with bright, glossy leaves and twigs covered with large sessile glands. Victoria Co.: near the margin of Twin Island L., Ingonish Barrens, at an elevation of 1300 ft. Here it was luxuriant in a colony of considerable extent (Smith and Schofield, 1952).

Nfld. to Alaska south to the mts. of Me., N.H. and N.Y.

11. *B. Michauxii* Spach Map 240. See Rousseau and Raymond (1950).

This is a neat, dwarf species with very small, fan-shaped leaves. Only three stations are known in N.S.: first collected by E. R. Faribault in 1884, near the Liscomb R. in Guysborough Co.; a single colony in grassy sphagnous bog, near the mouth of Gaspereau Brook in the same county; locally abundant in wet parts of a peat bog, Big Meadow, Brier I., Digby Co. (Smith and Erskine, 1954).

Lab. and northern Que. south to Nfld. and the coast of N.S.

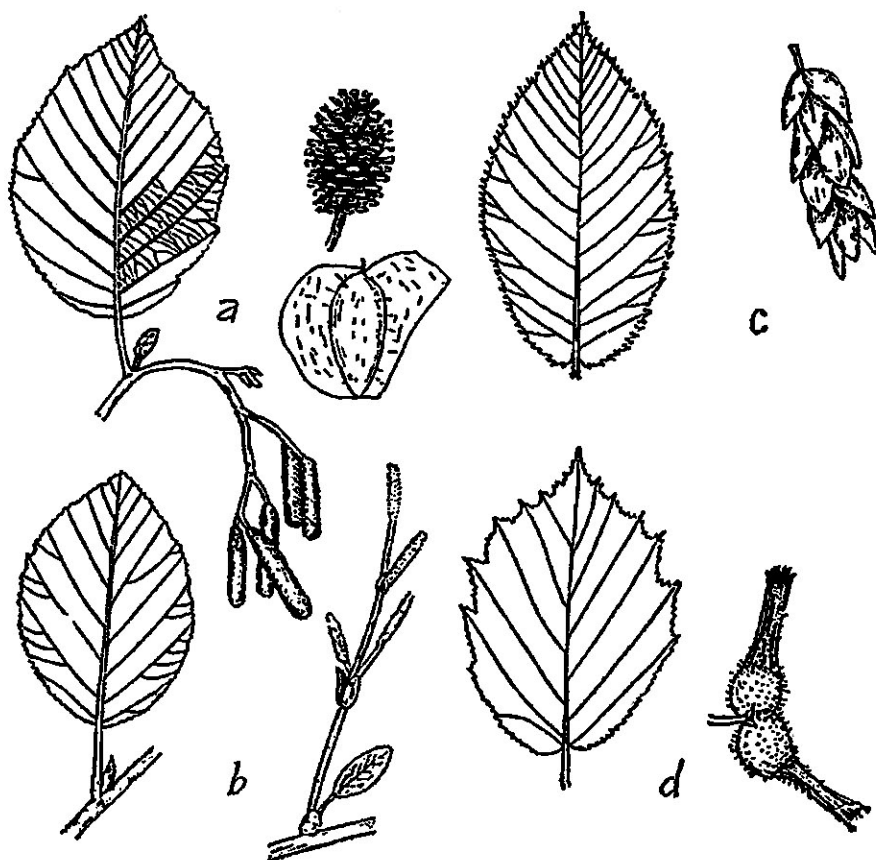
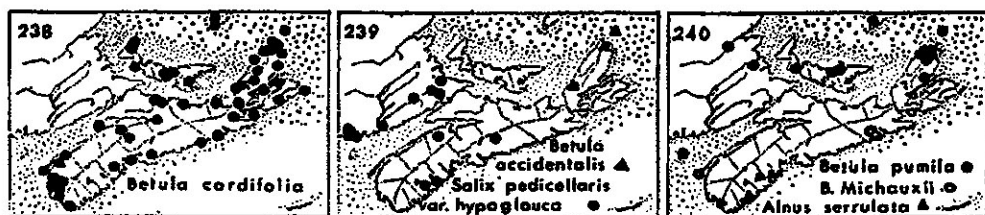


Fig. 62.—*Alnus*: (a) *A. rugosa*, branch in autumn with leaf, stalked bud, and naked overwintering staminate and pistillate cones $\times \frac{1}{2}$; mature cone $\times \frac{1}{2}$, fruit $\times 5$, (b) *A. crispa*, leaf and opening bud with pistillate cones $\times \frac{1}{2}$. — *Ostrya*, (c) leaf and fruit cluster $\times \frac{1}{2}$. — *Corylus*, (d) leaf and fruit $\times \frac{1}{2}$.



4. ALNUS B. Ehrh. ALDER

Our alders are tall shrubs with pendulous staminate catkins and erect pistillate ones which become woody and persistent when mature (Fernald, 1945-c; Steele, 1961).

- a. Buds sessile, with 3-6 unequal scales; pistillate catkins enclosed in the bud during winter; leaves with 6-8 pairs of main veins (Fig. 62, b). 1. *A. crispa*

- a. Buds stalked, with 2-3 scales of equal length; pistillate catkins naked over winter; leaves with 8-11 pairs of main veins.
- b. Leaves broadest near or below the middle, with rounded or cordate bases, often doubly serrate, the mature blades with prominent cross-veins between the main ones (Fig. 62, a), becoming glaucous beneath. 2. *A. rugosa*
- b. Leaves broadest above the middle, wedge-shaped or but slightly rounded at the base, sharply and almost regularly serrulate, glutinous when young, the mature leaves finely reticulated with only weak cross-veins, greenish beneath. 3. *A. serrulata*

1. *A. crispa* (Ait.) Pursh Fig. 62, b. Map 241. DOWNY ALDER

Common throughout, abundant northwards and in C.B.; poorly-drained soils, mountain slopes, sea-shores, bluffs, headlands, deserted pastures on heavier soils and in heath associations. Closely related to *A. viridis* of Eurasia; our southern, more pubescent extreme of a species ranging from Lab. to Alaska has been separated as var. *mollis* Fern.

Nfld. to Lake Winnipeg south to Mass. and N.Y.

2. *A. rugosa* (DuRoi) Spreng. Fig. 62, a. SPECKLED ALDER

Found in low ground throughout and our common alder in alluvial soils. The plants in the northern part of the range have the leaves whitish-glaucous beneath, instead of green, and are named var. *americana* (Regel) Fern. Considerable variation exists in the pubescence and the extreme with the lower surface of the leaves soft hairy or pilose is forma *hypomalaca* Fern.

Plants with the leaves greenish and not glaucous beneath have been reported from Yarmouth Co. east to Bridgewater and Italy Cross in Lunenburg Co. These may belong to the more southern typical variety but the probability is that they are due to introgression between this and the following species. Our plants are closely related to *A. incana* (L.) Moench of Europe.

Lab. to Sask. south to W.Va.

3. *A. serrulata* (Ait.) Willd. Map 240.

First found by Weatherby (1942) in thickets on the banks of Cameron and First Christopher L. and along the shores of Ponhook L. by the side of the road in the center of Queens Co.; now known also from a lake-edge at Hibernia in Queens Co., along the swampy edge of French L., Middle West Pubnico L., Yarmouth Co. and along the south edge of a lake at Italy Cross and at Wallace L. in Lunenburg Co. At this latter station the shrubs grow over 3 m high and the leaves are more elliptical and rounded at the base.

Fla. to La. north to central Me. and Mo.; western N.S.

33. FAGACEAE BEECH FAMILY

Trees, producing large nuts partly or wholly surrounded by a scaly involucre; staminate flowers in catkins, as the leaves unfold; the pistillate, solitary, or a few in a cluster.

- a. Leaves coarsely serrate to nearly entire (Fig. 63, c); nuts triangular, surrounded by a 4-parted involucre. 1. *Fagus*
- a. Leaves deeply lobed (Fig. 63, a, b); nut round, surrounded at the base by a cup-like involucre. 2. *Quercus*

1. FAGUS L. BEECH

1. *F. grandifolia* Ehrh. Fig. 63, c. BEECH

Very common throughout the northern hardwood area from Annapolis to northern C.B., mixed with sugar maple or occurring in pure stands on the drier ridges and hilltops; scattered elsewhere, very variable as to flowers and fruit. All the beech in N.S. is severely affected by the *Nectria* beech canker. Forma *pubescens* Fern. & Rehd. has the leaves more or less pubescent beneath, especially on the veins; frequently found. Late May. The European beech, *F. sylvatica* L., is commonly planted.

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

2. QUERCUS L. OAK

Large trees with thick, pinnately lobed leaves. Other species are occasionally planted as ornamental trees.

- a. Lobes of the leaf rounded, not bristle-tipped; acorn oblong to elliptical, (Fig. 63, b). 1. *Q. robur*
- a. Lobes of the leaf acute, bristle-tipped; acorns about as wide as long. 2. *Q. borealis*

1. *Q. robur* L. Fig. 63, b. ENGLISH OAK

Scattered as a roadside tree, at least from Annapolis to Halifax and Truro where it spreads out into surrounding bushes, particularly at Falmouth, Mt. Uniacke and at Rawdon; leaves remaining on the trees until early winter.

Introduced from Eu.

2. *Q. borealis* Michx. f. Fig. 63, a. RED OAK

Throughout in light or well-drained soils; scattered in the granitic areas, local on the sands of the Annapolis Valley where it was apparently much more common in the past; and scattered or local eastward to C.B. In some localities, as at Pleasant Bay and in the vicinity of Cape North, it forms a locally important constituent of the forest; in other regions it may be absent. (*Q. rubra* L., var. *borealis* (Michx. f.) Farw.).

Var. *maxima* (Marsh.) Ashe is a generally more southern form with a wider, shallower cup and larger acorns; the cup 2.5-3 cm wide and flattened at the base and the acorn or nut up to 3 cm long, while the typical variety has the cup only 1.5-2 cm wide and tending to be conical at the base, with the nut up to 2.5 cm long. Fernald(1922) reports this as scattered in southwestern N.S.; dry woods near Canoe L., Yarmouth Co.

and woods bordering Boot L., Annapolis Co. There may be an intergradation here with these two varieties of oak as there is on Digby Neck with sugar and black maples (*Q. rubra* L.).

N.S. to Minn. south to Penn. and Iowa.

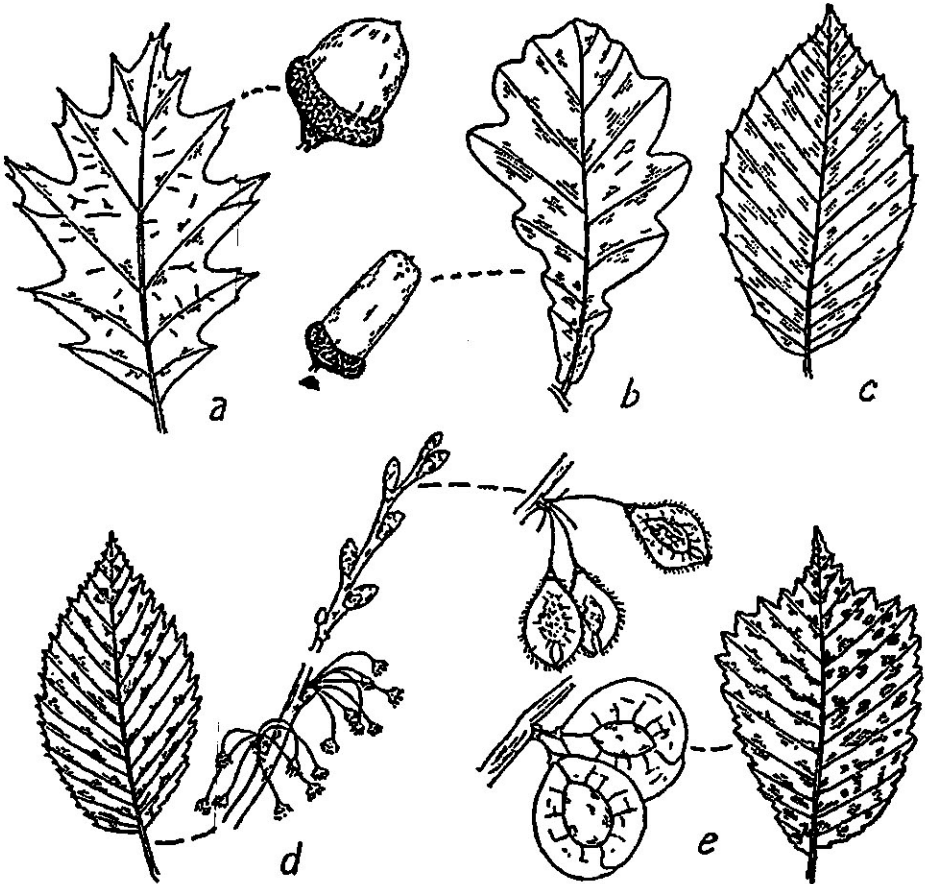


Fig. 63.—*Quercus*: (a) *Q. borealis*, leaf $\times \frac{1}{2}$, acorn $\times \frac{1}{2}$, (b) *Q. robur*, leaf and acorn $\times \frac{1}{2}$. — *Fagus*: (c) leaf $\times \frac{1}{2}$. — *Ulmus*: (d) *U. americana*, leaf, flowers, and winter buds $\times \frac{1}{2}$, fruit $\times 1$, (e) *U. glabra*, leaf and fruits $\times \frac{1}{2}$.

34. ULMACEAE ELM FAMILY

1. ULMUS L. ELM

The elms have tufts of small, perfect flowers with the calyx 4-9-lobed, no corolla, and stamens as many as the calyx lobes; flowering early in the spring and forming fruit in May before the leaves fully unfold. The leaves can usually be identified because of the unequal sides at the base of the blade.

- a. Branches soon rough and corky; petioles 5-8 mm long; flowers on pedicels 1-2 cm long, with 7-8 stamens; fruit about 1 cm long, fringed. 1. *U. americana*
 a. Branches long remaining smooth, yellowish; petioles 3-6 mm long; flowers in clusters, with 5-6 stamens; fruit broad, 2-2.5 cm long, smooth. 2. *U. glabra*

1. *U. americana* L. Fig. 63, d. AMERICAN ELM

Scattered throughout on the intervalles, best developed along the river valleys of the central and northern counties. Most elms now are growing close to cultivated fields or meadows but they are undoubtedly native. It is extensively planted as a shade tree; and elms in general are very variable in the shape of the tree and in the leaves.

Nfld. to Man. south to Fla. and Tex.

2. *U. glabra* Huds. Fig. 63, e. SCOTCH ELM

Very common in the towns and villages where it was formerly much planted as an ornamental tree. It does not show any tendency to escape. The very large orbicular fruits are conspicuous in early June. The small-leaved Chinese elm is also planted to some extent, but does not seem too hardy.

35. CANNABINACEAE HEMP FAMILY

1. HUMULUS L. HOPS

1. *H. Lupulus* L. Fig. 64, d. HOPS

Formerly planted; occasionally found around old dwellings in waste places and rarely as an escape. This plant is probably gradually disappearing. The native plants are sometimes separated from introduced European ones as *H. americanus* but the differences are said to be evasive.

N.S. to Man. and Calif. south to N.C.

36. URTICACEAE NETTLE FAMILY

Herbs with clusters of small greenish flowers, the whole plant in our forms armed with stinging hairs.

- a. Leaves opposite; sepals 4.
 a. Leaves alternate; sepals 5.

1. *Urtica*
 2. *Laportea*

1. URTICA L. NETTLE

- a. Plants perennial, 1-3 m high, little or not at all branched; petiole relatively short; inflorescence long, with ascending branches.
 b. Leaves rounded at the base; lower surface of blades and the upper part of the stem sparingly or not at all setulose, glabrous and finely pilose.
 c. Petiole slender and elongate, 2-5 cm long; blade averaging 17 pairs of teeth, nearly glabrous beneath, rather wide and thin. 1. *U. gracilis*

- c. Petiole stout, 0.5-2 cm long; blade averaging 25 pairs of teeth, cinereous-puberulent beneath, often thickish. (Fig. 64, b). 2. *U. procera*
- b. Leaves plainly cordate at the base, coarsely toothed with 13-18 teeth; lower surface of blades and upper part of the stem densely setulose and very pilose (Fig. 64, a). 3. *U. dioica*
- a. Plants annual, 1-4 dm high, usually much branched; petiole one-half the length of the blade or longer; inflorescence short, open, with widely divergent branches. 4. *U. urens*

1. *U. gracilis* Ait., see Fernald (1926) for discussion of this and the following species. Our first 3 species are often all included in *U. dioica*.

The status of this northern extreme, in particular, is uncertain. It may be merely an ecological variation but in general it appears distinct. In our area it is apparently confined to rich woods in the eastern counties: collected by Macoun from Big Intervale, Inverness Co., and by Hamilton from Boylston, Guysborough Co. Later collections are from rich woods, Grand Anse, and from a wooded slope above the Margaree R., both in Inverness Co.

The range is from Nfld. to northern Me. and N.Y. west to Alaska and Oreg.

2. *U. procera* Muhl. Fig. 64, b. TALL NETTLE

Open woods, damp thickets, along roadsides and edges of fields in organic and muck soils where the moisture and fertility is high; more common and perhaps confined to the northern part of the Province and rarely abundant.

N.S. and Que. to N.D. south to N.C. and La.

3. *U. dioica* L. Fig. 64, a. STINGING NETTLE

Waste places and roadsides, mostly near towns; rather common throughout and our commonest member of the genus, often appearing as if introduced. The leaves are not always plainly cordate even though they may be relatively wide. Some authors place this and the two preceding species as variations of one intergrading species.

Native of Eu.; naturalized from Nfld. to Man. south to Va.

4. *U. urens* L. BURNING NETTLE

Occasionally introduced as a weed about towns and in waste places, particularly in the eastern part of the Province; often near the shore; collected by J. S. Erskine at Candlewax and Seal I. in Yarmouth Co. and Cape Sable in Shelburne Co.

Native of Eu.; widely introduced.

2. LAPORTEA Gaud. WOOD-NETTLE

1. *L. canadensis* (L.) Wedd Fig. 64, c. Map 242. WOOD-NETTLE

Alluvial woods and hardwood forests, scattered from Coldbrook, Kings Co. through the north-central part of the Province to northern

Inverness Co.; characteristic of the higher parts of flood-plains in northern C.B. (Nichols, 1918), but it must be very local since recent collections have not been made in this area. This plant is rather rare and found only on the richest locations.

St. Pierre and Miq. to Man. south to Fla., Miss. and Okla.

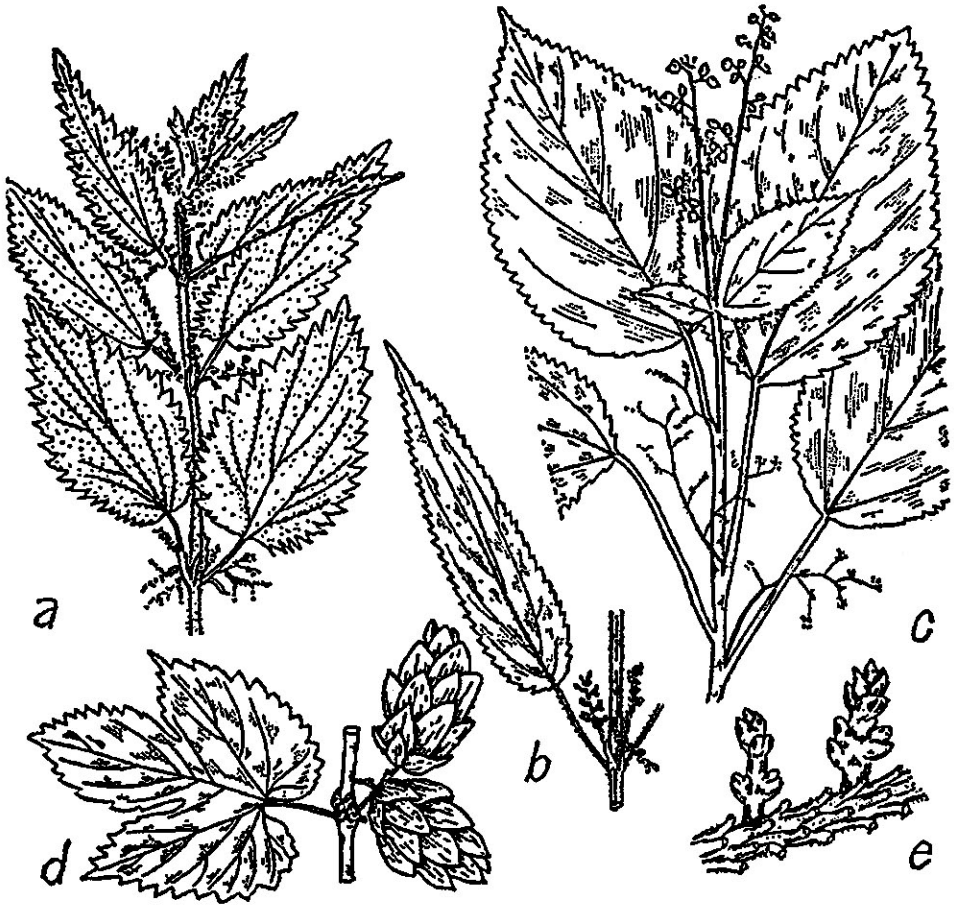
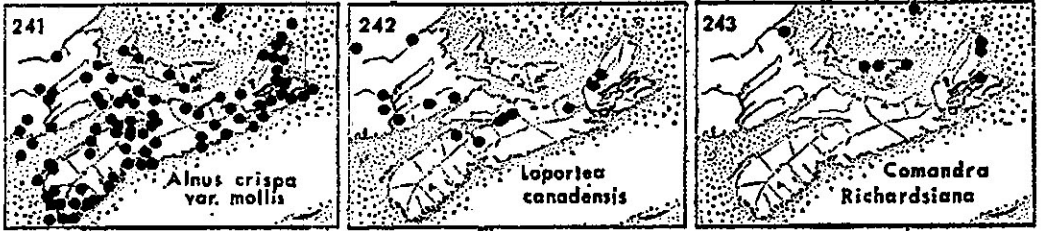


Fig. 64.—*Urtica*: (a) *U. dioica*, tip of plant $\times \frac{1}{2}$, (b) *U. procera* $\times \frac{1}{2}$. — *Laportea*: (c) top of plant $\times \frac{1}{2}$. — *Humulus*: (d) leaf and fruit $\times \frac{1}{2}$. — *Arceuthobium*: (e) plants on black spruce $\times 3$.

37. SANTALACEAE SANDALWOOD FAMILY

Small, erect, usually unbranched herbs to 3 dm high; leaves alternate and entire; sepals 5 with 5 stamens opposite them; petals absent.

- a. Rootstocks corky or papery; flowers in terminal corymbs or umbels; style filiform and prolonged; fruit a dry and coriaceous nut. 1. *Comandra*
 a. Rootstocks smooth and brown; flowers 1-3 in the axils of the middle leaves; style conical and very short; fruit juicy and drupe-like. 2. *Geocaulon*



1. COMANDRA Nutt.

1. *C. Richardsiana* Fern. Map 243. BASTARD TOADFLAX

Rare and local in northern C.B.: collected by Macoun in 1883 in damp sandy soil, Sydney Mines, Victoria Co.: abundant among grasses and *Empetrum nigrum* on an exposed headland, Black Point (Smith and Schofield, 1952); a few large clumps under spruce on sand dunes, South Pond, Aspy Bay; locally abundant at the edge of pond behind beach, one mile south of Black Brook mouth (Smith and Erskine, 1954.)

Nfld., the Magdalen Is., P.E.I. and C.B. west to n. Vt., Ky. and Kans.

2. GEOCAULON Fern.

1. *G. lividum* (Richards.) Fern. Map 244. NORTHERN COMANDRA

Sandy shores, Kingston, Kings Co., Macoun in 1883, and collected recently from among heaths of a moist bog, Auburn; widespread but local in C.B. (Schofield, 1955); Spicer's Cove in Cumberland Co.; usually growing in acid and peaty locations or on sterile soils and damp sands.

Lab. to Alaska south to N.S., Me. and the mts. of New Eng. and N.Y.

38. LORANTHACEAE MISTLETOE FAMILY

A mostly tropical family of woody parasitic plants. Our representative is only several mm high and grows on the branches of spruce trees.

1. ARCEUTHOBIUM Bieb.

1. *A. pusillum* Peck Fig. 64, e. Map 245, DWARF MISTLETOE

This small parasitic plant sometimes seriously injures the trees and forms irregular witches' brooms on the spruce trees along the Atlantic Coast from Yarmouth to northern C.B.; most common on coastal locations, around most of the coast, rarer inland as around Minas Basin, Monastery, Mabou Harbour and west of Whycomomagh.

Nfld. to Man. south to Penn.

39. POLYGONACEAE BUCKWHEAT FAMILY

Herbaceous plants with simple, alternate leaves with conspicuous sheaths formed by the stipules extending around the stem above the nodes; flowers numerous and small with no corolla; sepals 3-6, stamens 4-9, and fruit an achene. Buckwheat and the rhubarb, *Rheum Rhaponticum* L., are typical examples of the family.

- a. Achenes with 2-3 broad flat wings, much exceeding the calyx; sepals 4; leaf-blade nearly round; rare, northern C.B. 1. *Oxyria*
- a. Achenes lenticular, or 3-angled, mostly enclosed by the calyx, not winged; leaf-blade elongate or, if wider, then cordate at the base.
- b. Sepals 6, the outer smaller and reflexed, the inner 3 erect and much enlarged in fruit (except in *R. Acetosella*); stigma tufted or star-shaped (Fig. 65). 2. *Rumex*
- b. Sepals 4-6, erect, all about the same size and not enlarged in fruit; stigmas not tufted.
- c. Flowers axillary or in narrow terminal panicles; leaves not hastate, or else hastate and very prickly; achenes usually enclosed by the sepals (Fig. 66, 67). 3. *Polygonum*
- c. Flowers in axillary or terminal panicles; leaves hastate, not prickly; achene much exerted, 3-angled; buckwheats. 4. *Fagopyrum*

1. OXYRIA Hill

1. *O. digyna* (L.) Hill MOUNTAIN-SORREL

This arctic plant has been found only once in N.S. in Inverness Co.: locally abundant on shelves of dripping cliffs, Big Southwest Brook. The plants were very vigorous and differed from much arctic material in that they were almost devoid of red coloring and the leaves were relatively flaccid (Smith and Schofield, 1952).

Nfld., Gaspé and N.H.; mts. of western Amer.; Eurasia.

2. RUMEX L. SORRELS AND DOCKS

The genus *Rumex* consists of coarse herbs, with small greenish flowers which are whorled in a branched inflorescence. The inner sepals are often greatly enlarged so that the triangular achene becomes surrounded by 3 wings. The docks are relatively coarse plants with the unlobed leaves mild in taste while the sorrels are sour and have leaves with backward-flaring lobes (Rechinger, 1937; St. John, 1915).

- a. Leaves tapering or heart-shaped at the base, not lobed; coarse large plants; docks (Fig. 65).
- b. Stems tending to produce leafy shoots in the axils of the leaves; leaves long and narrow, thickish, and pale; large sepals (valves) not toothed, bearing 4 large conspicuous grains or swellings at their midribs.
- c. Plants erect, not essentially maritime; width of the grains much less than half the width of the valves, the grains much surpassed by the valves at the tip.

1. *R. triangulivalvis*

- c. Plant prostrate, much branched, restricted to sea-shores; width of grain over half the width of the valves, so that the valves appear very narrow; valves little longer than the grain. 2. *R. pallidus*
- b. Plants erect, usually without axillary branches; leaves greenish.
- d. Valves of the fruit without enlarged grains, or with one diminutive one.
- e. Basal leaves lanceolate.
- f. Valves rounded, often broader than long, one sometimes with a diminutive grain; pedicels of fruit with an enlarged swollen joint near the middle. 3. *R. domesticus*
- f. Valves round-cordate, longer than wide, never with a suggestion of a grain; pedicels without swollen joints. 4. *R. fenestratus*
- e. Basal leaves very large, the blades almost round, broadly rounded at the apex and deeply and broadly cordate at the base. 5. *R. alpinus*
- d. Valves of the fruit with at least one distinct grain and usually with three.
- g. Valves not toothed.
- h. Leaves broad, flat, the veins nearly at right-angles to the midrib and distinct halfway to the margin; grain longer than broad; pedicel with an obscure joint (Fig. 65). 6. *R. orbiculatus*
- h. Leaves lanceolate, crisped and undulate, the veins oblique and soon branching; grain 1.5 times longer than wide; pedicel with a conspicuous joint (Fig. 65). 7. *R. crispus*
- g. Valves of the fruit plainly toothed.
- i. Teeth of the valve shallow, much shorter than the width of the central portion; plants tall, common weeds.
- j. Lower leaves broad and rather blunt. 8. *R. obtusifolius*
- j. Lower leaves oblong-lanceolate, acute. *R. obtusifolius* var. *sylvestris*
- i. Teeth of the valves bristle-like, several times the width of the central portion or longer; prominent grains 3; plants usually prostrate, found near salt water (Fig. 65).
- k. Grains ellipsoid and rounded at the summit, nearly covering the breadth of the valve; bristles about as wide as the body of the valve; plant with leaves very crisped and undulate and with a fuzzy inflorescence. 9. *R. persicarioides*
- k. Grains narrowly lanceolate and tapering to the tip, not concealing the sides of the valve; bristles up to nearly twice the length of the valve. 10. *R. maritimus*
- a. Leaves with flaring or backward-pointing lobes at the base, making them hastate- or halberd-shaped; plants with a very sour taste; sorrels.
- l. Leaves with the basal lobes flaring outward; plants small, slender, to 4 dm high; valves small, not larger than the achene. 11. *R. Acetosella*
- l. Leaves with the basal lobes not flaring, halberd-shaped; plant to 10 dm high; valves about 5 mm wide (Fig. 65). 12. *R. Acetosa*

1. *R. triangulivalvis* (Danser.) Rech. f.

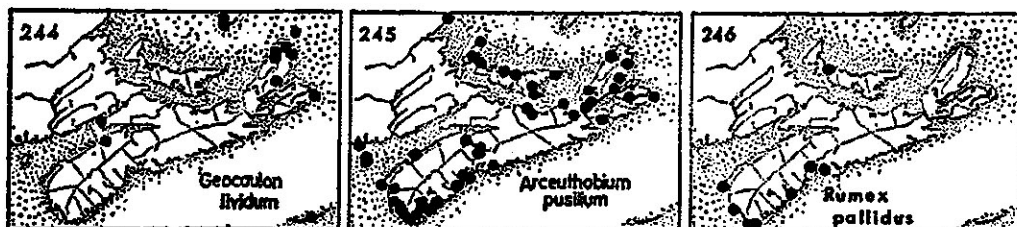
Sarkar (1958) gives the wide-ranging northern plant this name, while the closely related *R. mexicanus* Meisn. with which our plants are sometimes associated is said to be confined to the vicinity of Mexico. This plant is seldom collected but it may possibly be often overlooked. J.S. Erskine collected it at Sweets Corner, Hants Co. and from a brook-beach west of River Inhabitants in Inverness Co.; he also found it to be abundant on the river-bank below the bridge at Kentville. $2n = 20$.

N.S. to northern B.C. south to N.Y., Ind. and Mex.

2. *R. pallidus* Bigel. Fig. 65. Map 246. SEABEACH-DOCK

This sprawling easily-recognized plant is often seen on rocky or gravelly sea-beaches in Yarmouth and Shelburne Co. and along the Atlantic Coast to northern C.B. It grows on the sandy shore at Presqu'île in Inverness Co. but is apparently rare around the Bras d'Or L. and on the shores of Northumberland Strait, although it is found in eastern P.E.I. and around the Gaspé coast. $2n = 20$.

Gaspé and N.S. south to Mass.; shores of the Great Lakes.



3. *R. domesticus* Hartm. Fig. 65.

Scattered to rare throughout; about houses, in fields and waste places, or on damp ground back of beaches.

Native of western Eu.; Nfld. to Me. and sparingly west.

4. *R. fenestratus* Greene

Scattered, reported from N.S. but its distribution not well known. (*R. occidentalis* Wats.).

Wet soils, swamps and shores, Nfld. to Me.; widely distributed westward.

5. *R. alpinus* L.

Established in old fields at Rockville, Yarmouth Co.; a local introduction into Pictou Co., looking like a poor quality rhubarb; a rich colony in field, Red River, Inverness Co.

Introduced from Eu.; N.S. and s. Me.

6. *R. orbiculatus* Gray Fig. 65, Map 247. WATER-DOCK

Scattered to rather common throughout; swamps, edge of fresh-water ponds, around lake borders, often in cat-tail swales. Ganong places it among the subordinate species in the timothy fields of the dykelands; and Nichols lists it as characteristic of the estuaries of northern C.B.

Rehinger separates the stouter, lower, often thick-leaved plants with a compact short inflorescence, growing in northeastern N.S., as var. *borealis* Rech. The only N.S. plant listed is in a collection of St. John's from the swampy edge of a fresh-water pond, Sable I. (*R. Brittanica* L.).

Nfld. to Alta. south to Penn., Ohio and Nebr.

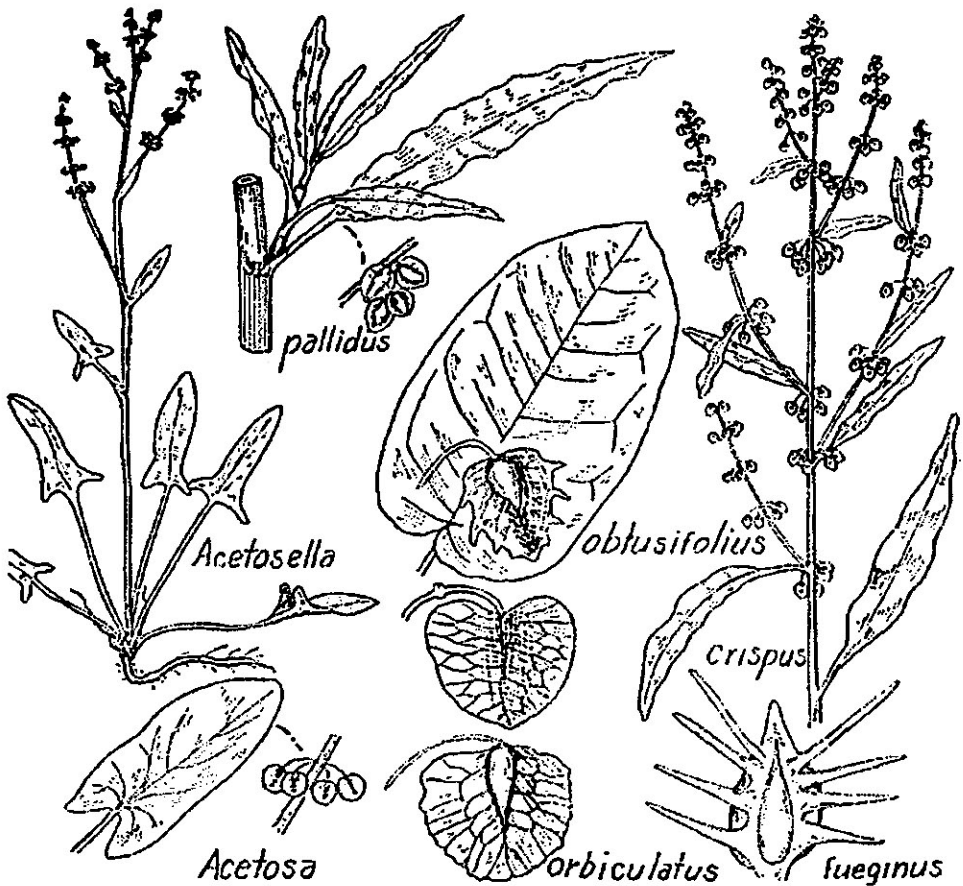


Fig. 65.—*Rumex* spp., habit sketches $\times \frac{1}{2}$, large fruits $\times 3$; *R. domesticus* is unlabelled in lower centre.

7. *R. crispus* L. Fig. 65. CURLED DOCK

Common throughout; waste places, cultivated ground, along roadsides and about dwellings. *R. elongatus* Guss. is now considered to be but a variation of this species.

Introduced from Eu.; throughout temperate Amer.

8. *R. obtusifolius* L. Fig. 65, Map 248. BLUNT-LEAVED DOCK

Rather common as a weed; roadsides, fields and waste places. Var. *sylvestris* (Lam.) Koch was reported (Fernald, 1921) from Sandy Cove, Digby Co.; and from Charlottetown, P.E.I.

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

9. *R. persicarioides* L.

Collected by Fernald; local in Queens Co.: moist cobble-beach near the mouth of Broad R., Central Port Mouton; also found on the sea beach, West Side, Port Herbert. The plant is more slender than the

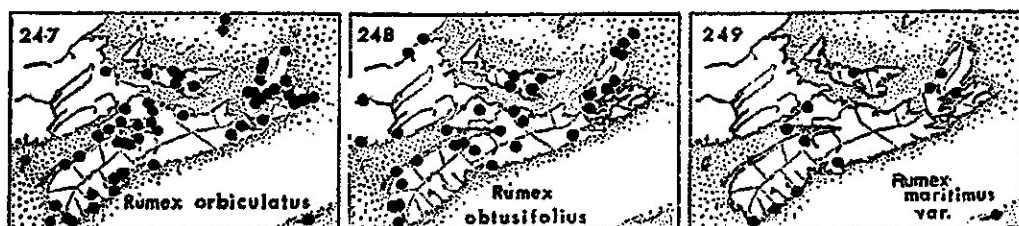
next species and has very undulate leaves.

Sandy beaches and coastal marshes; lower St. Lawrence, P.E.I., Magdalen I., sw. N.S. and ne. Mass.

10. *R. maritimus* L., var. *fueginus* (Phil.) Dusen. Fig. 65, Map 249.

Rare around the coast from Amherst and Advocate in Cumberland Co. to Lockeport in Shelburne Co., West Berlin in Queens Co., and Halifax; abundant on Sable I. on the brackish border of Wallace L., and on fields where seaweed is used as a fertilizer; scattered in western C.B.: West Mabou, Margaree Harbour, and at Iona on the Bras d'Or L.

Anticosti I. along the coast to Long I.; scattered westward to Calif.; S.Amer.



11. *R. Acetosella* L. Fig. 65. SHEEP-SORREL

Very common throughout in fields, roadsides, burnt lands and even in barrens, apparently growing wherever the competition of other plants is reduced or lacking. $2n = 42$; other variations may occur as 4 different chromosome-types occur in Europe. See Löve, A., (1943).

Introduced from Eu.; throughout N. Amer.

12. *R. Acetosa* L. Fig. 65. GARDEN-SORREL, SOURDOCK

Thoroughly naturalized and abundant in fields and meadows around Yarmouth, Windsor, Truro and at many other places in the Annapolis Valley and along the South Shore; rarer eastward to C.B. where it has been collected at Ingonish and River Denys. It is a very conspicuous and rapidly spreading weed; flowering in early June.

Introduced from Eurasia; locally abundant in northeastern Amer. and scattered west to B.C. and south to Penn.

3. POLYGONUM L. KNOTWEEDS

Plants with jointed stems with a sheath at each node; flowers small with the calyx 4-6-lobed and with 3-8 stamens; fruit a triangular or lenticular achene. This is a large cosmopolitan genus with several sections. The first 6 species, belonging to the section *Avicularia*, form a difficult group subject to various interpretations. They have the flowers scattered in the axils of the leaves. Section *Persicaria*, species 8-18, has the flowers crowded in terminal racemes. Mature fruits are necessary for

satisfactory identification. (See Löve and Löve, 1956; Mertens and Raven, 1965).

- a. [Plants not shrubby nor woody at the base; less than 1 m high; leaves rarely cordate.
- b. Stems not twining.
- c. Stems not armed with prickles; leaves linear to lanceolate in outline.
- d. Flowers borne in the axils of the leaves along the stem; plants often prostrate (Fig. 66, a).
- e. Plants erect, greenish, with strongly ascending branches, to 1 m high; achenes lanceolate, pale green, 4-6.5 mm long, a large proportion long-exserted.
 - 1. *P. exsertum*
- c. Plants low, loosely ascending to prostrate.
- f. Achenes smooth or nearly so, shining or lustrous.
- g. Calyx divided to the middle or below, the 3 outer sepals usually flat and exposing the inner ones.
- h. Sepals rather petaloid, narrowed at the base and exposing the tip of the achene; achene smooth and shining, green to olivaceous, 4-4.7 mm long or occasionally longer; plant usually glaucous.
 - 2. *P. Rail*
- h. Sepals not conspicuously petaloid, not narrowed towards the base, often closely appressed to the achene and hiding it, or with the achene slightly exerted; achene 2.75-3.5 mm long, slightly granular under high magnification, olivaceous to dark brown, the mature ones rather wide and abruptly tapering to a short beak.
 - 3. *P. Fowleri*
- g. Calyx divided only to above the middle, the tips of the outer sepals hooded and hiding the achene, bottle-shaped and constricted just below the apex; plants erect or spreading with elliptical or oval leaves broadly rounded above; achenes olivaceous, finely granular, 3 mm long.
 - 4. *P. achoreum*
- f. Achenes dull, with the surface finely pitted or minutely striate.
 - i. Leaves on the branches smaller than those on the main stems; calyx divided nearly to the base; achenes 2.5-3.5 mm long, with 3 equal concave sides.
 - 5. *P. aviculare*
 - i. Leaves essentially of equal size on both the branches and the main stems; calyx divided about half way to the base; achenes 1.5-2.75 mm long, with 2 convex and one shorter concave side.
 - 6. *P. arenastrum*
- d. Flowers numerous, in terminal or axillary inflorescences.
 - j. Leaves chiefly basal, oblong-ovate to lanceolate with broadly winged petioles; stem unbranched with a single dense raceme 1-2 cm thick.
 - 7. *P. Bistorta*
 - j. Leaves scattered on the stem; stem usually branched with several to numerous racemes.
 - k. Plants perennial, often trailing for a dm or more; spikes 1-3, very dense, 8-14 mm thick.
 - l. Peduncles hairy, often glandular-tipped; leaves lanceolate, acute to long attenuate, nearly glabrous to scabrous; spikes 3-18 cm long.
 - m. Leaves harshly scabrous, 1-3 cm wide; petiole 0.5-1 cm long, attached near the top of the sheath; racemes conical, less than 4 cm long.
 - 8. *P. amphibium*
 - m. Leaves pubescent, 3-6 cm wide; petiole 3-6 cm long, attached near the base of the sheath; racemes cylindrical, 4 cm long or longer.
 - 10. *P. coccineum*
 - l. Peduncles smooth; leaves floating, elliptic, obtuse or slightly acute, tapering to the base; racemes 1-4 cm long.
 - 9. *P. natans*
 - k. Plants perennial or annual, usually small and more slender; spikes several to numerous, less than 10 mm thick.

- n. Peduncles with glands below the spike or panicle; sheaths not ciliate; stamens 6 (Fig. 67, b).
- o. Glands stalked (Fig. 67, e); achenes 2.2-3.5 mm wide.
Leaves copiously stringose-pubescent beneath and often so above; achenes mostly 2.2-2.8 mm wide.
11. *P. pensylvanicum*
Leaves smooth or becoming so; achenes mostly 2.5-3.5 mm wide.
P. pensylvanicum var. *laevigatum*
- o. Glands not stalked, appearing gummy, often nearly absent.
Leaves glabrous or scabrous beneath; peduncles usually smooth or with a few sessile glands; spikes 1-3 cm long, erect; achenes less than 2 mm wide.
12. *P. lapathifolium*
Leaves, at least the lower ones, with woolly hairs beneath; peduncles with sessile glands; racemes 1-3 cm long, erect; achenes more than 2 mm wide.
13. *P. scabrum*
- n. Peduncles without glands below the panicle or spike.
- p. Sheaths not ciliate, except rarely the uppermost.
Plants erect.
Leaves glabrous or nearly so beneath; plant large, to 1 m high.
12. *P. lapathifolium*
Leaves more or less flocculose-woolly beneath; plant 2-5 dm high.
Var. *salicifolium*
Plants prostrate, diffusely branched. Var. *prostratum*.
- p. Sheaths ciliate with a row of bristles (except one Sable Is. variety of *P. hydropperoides*); Fig. 67, c.
- q. Sepals not dotted with dark glands.
- r. Upper part of the internodes of the stem usually glabrous; spikes erect, 1-4 cm long, the flowers crowded; plants annual, not trailing.
Plants stout; spikes 7-11 mm thick; achenes 2.5-3 mm wide; mature perianth usually reticulated or strongly nerved at the base; common weed; achenes mostly flattened.
15. *P. Persicaria*
Plant slender, much branched; spikes 4-6.5 mm thick; achenes 2 mm wide; perianth smooth or barely nerved; rare; achenes mostly trigonous.
16. *P. puritanorum*
- r. Upper part of the internodes more or less stiff-hairy just below the nodes; spikes more or less drooping, 5-7 cm long, the flowers loose or dense; plant long-trailing, perennial.
- s. Leaves pubescent on the midrib and margins; sheaths ciliate.
Plant 3-10 dm high; leaves lanceolate, shorter; spikes slender, nearly filiform.
18. *P. hydropperoides*
Plant 1-1.5 m high; leaves lanceolate-attenuate, 1-2 dm long; spikes dense, 5-10 mm thick, crowded at the tips of the branches.
Var. *digitatum*
- s. Leaves glabrous and comparatively short; sheaths smooth, without cilia; Sable Is. and Shelburne Co.
Var. *psilostachyum*
- q. Sepals dotted with dark glands.
- t. Achene rough and dull; plant purplish, the internodes 2-4 cm long; leaves thin; ocreolae of the upper flowers usually not ciliate.
14. *P. Hydropper*
- t. Achene smooth and shining; plant with the internodes 3-8 cm long, greenish; spikes stouter and less drooping.

Plant annual, not generally prostrate at the base; stamens 3-8; achenes mostly flat on one side and rounded on the other; racemes much interrupted at the base; flowers greenish.

17. *P. punctatum*

Plant perennial, the lower nodes prostrate and rooting; stamens 8; achenes (mostly) 3-angled; racemes scarcely interrupted; flowers white.

Var. *majus*

c. Stems armed with stout recurved prickles.

Leaves sagittate, the basal lobes not flaring outwards; peduncle smooth; achenes triangular (Fig. 66, f).

19. *P. sagittatum*

Leaves hastate, with wide-flaring lobes; peduncles glandular; achenes lenticular (Fig. 66, g).

20. *P. arifolium*

b. Stems slender and usually twining.

u. Calyx not prominently keeled nor winged on the fruits.

v. Seed smooth and shining; sheaths fringed at the nodes with downwardly-pointing hairs (Fig. 67, f).

21. *P. cilinode*

v. Seed dull and minutely striate; sheaths at the nodes not fringed at the base (Fig. 67, d).

22. *P. Convolvulus*

u. Calyx widely winged on the fruit; plant long-trailing; sheaths not fringed at the base; seed smooth and shining.

23. *P. scandens*

a. Plant shrubby and woody at the base, much-branched, 1-2 m high or more; leaves broadly lanceolate to round-cordate; ornamentals or escapes.

w. Leaves roundish to ovate; flowers in loose axillary clusters; calyx enlarged and winged in fruit.

x. Leaves roundish, truncate to slightly wedge-shaped at the base (Fig. 66, e).

24. *P. cuspidatum*

x. Leaves ovate, about twice as long as wide, heart-shaped at the base.

25. *P. sachalinense*

w. Leaves widely lanceolate with two rounded basal lobes; flowers in a dense terminal or sub-terminal inflorescence; calyx about 4 mm long, not enlarged nor winged in fruit.

26. *P. polystachyum*

1. *P. exsertum* Small Fig. 66, a.

This tall, erect, branched plant grows near the edge of the salt marshes and along the coast; common around the head of the Bay of Fundy and on Northumberland Strait; rare elsewhere. This plant with its long exserted achenes is one of our most distinctive species and occasionally may occur in abundance. Löve and Löve (1956) give the chromosome number as 60 and state that hybrids with other species are unknown. Other authors do not separate this plant from a similar species further south and therefore include our plants under *P. ramosissimum* Michx.

Around the coast from the St. Lawrence, N.B. and P.E.I. south to N.J.; prairies and shores in western N.Amer.

2. *P. Raii* Bab. Fig. 66, c. Map 250.

Damp sands and gravels of the coast in Shelburne and Queens Co.; through the Bras d'Or L., and one plant found on St. Paul I.; known



Fig. 66.—*Polygonum*: (a) *P. exsertum*, (b) *P. Fowleri*, (c) *P. Raii*, (d) *P. aviculare*, (e) *P. cuspidatum*, (f) *P. sagittatum*, (g) *P. arifolium*, all $\times \frac{1}{2}$.

from one collection from Sable I., possibly from brackish dune hollow; probably along the coast of the Bay of Fundy although collections are inadequate to give its range.

This plant was originally described from Eu. where it has its main area from northern Scandinavia to northern Spain; and there is the tendency for it to be classified as a subspecies of *P. oxyspermum* Mey. & Bunge, a species with longer exserted achenes. This tendency is also noted in N. Amer. and Fernald (1914) described such plants from the beaches of Great Bras d'Or L. at Kidstone I. and from the original station at Grand Narrows as *P. acadiense*. The seeds may be 6-7 mm long and it lacks the glaucous appearance of *P. Raii*. Löve and Löve (1956) state that seeds from the Bras d'Or L. showed $2n=80$.

Northern Nfld. and around the Maritime Provinces to central Me.; possibly introduced.

3. *P. Fowleri* Robins.

Scattered around the coast, at least from the head of the Bay of Fundy to Yarmouth Co. and to and around C.B.; not known from Sable I. (St. John). At times this is a very distinctive plant with elliptical fleshy leaves, bluish-green in color and with a tinge of red to them. Other plants have a more yellowish-green color, with thinner, more veiny leaves which tend to be more acute at the tips. This has been named *P. allocarpum* Blake. Map 251. Fernald (1921) reports this as typical of sand flats and sea beaches from Queens Co. around the coast to the head of the Bay of Fundy. It is difficult to separate these two and recent authors do not recognize this second entity although Löve and Löve (1956) report different chromosome numbers for the two.

Lab. south to Me. on the sea-coast; James Bay; western N. Amer. from Alaska south to Oreg.; eastern Asia.

4. *P. achoreum* Blake.

Annapolis Co.: border of salt marsh, Annapolis Royal. On the saline marshes of the Annapolis R. it is an element in the regular halophytic native flora (Fernald, 1950-b).

Widely ranging westward in N. Amer., native in saline marshes.

5. *P. aviculare* L.

A common weed in disturbed ground, along roadsides and in areas with lack of competition from other weeds, such as exsiccated areas on the dykelands. This vigorous species is found throughout. This is the plant described as *P. heterophyllum* Lindm. and the distinctive feature, best seen in the earlier vigorously growing plants, is the different size of the leaves on the main stem and its branches. $2n=60$. (*P. aviculare* var. *vegetum* Ledeb.).

Widely scattered in N. Amer., probably cosmopolitan.

6. *P. arenastrum* Jord.

The majority of the rather narrow-leaved plants of this section are placed here, so that this makes one of the most common species of the Province. It grows everywhere in waste ground, on the shoulders of roadsides, in barnyards and on coastal beaches. Various varieties have been proposed and species named. Most of our collections have narrowly lanceolate to almost linear leaves, but considerable variation exists even in adjacent plants.

It is possible that our coastal plants may be different from the introduced weedy ones and these have been named *P. buxiforme* Small. These plants have fleshier leaves and the surface of the achenes tend to have shallow depressions rather than longitudinal striations. Löve and Löve (1956) state "it is perhaps most certainly identified by the white-margined sepals which completely include the broad, short, and sub-lustrous achenes"; they give $2n=20$.

Introduced, perhaps partly native; widespread in N. Amer.

7. *P. Bistorta* L.

Known only from several established clumps in Victoria Park, Truro; and now doubtfully present and probably only a temporary escape from cultivation.

Occasionally adventive from Eu.: N.S. and Mass.

8. *P. amphibium* L. See Stanford (1925) and Fernald (1946) for this and the following two species.

A single introduction is known in N.S.: roadside bank in rubbish, Yarmouth (Stanford, 1925) or, as in Gray's Manual, local about the harbour where it is chiefly or wholly forma *terrestre* (Leers) Blake. Collected by Fernald in 1920.

Local introduction from Eu.



Fig. 67.—*Polygonium*: (a) *P. natans* $\times \frac{1}{2}$, (b) *P. scabrum* $\times \frac{1}{2}$, (c) *P. Hydro Piper* $\times \frac{1}{2}$, (d) *P. Convolvulus* $\times \frac{1}{2}$, (e) *P. pensylvanicum*, glands of the peduncle much enlarged, (f) *P. cillnode* $\times 1$.

9. *P. natans* Eaton. Fig. 67, a. Map 252. WATER SMARTWEED

The American plants are very similar to the European ones and are often included in *P. amphibium* as var. *stipulaceum* (Coleman) Fern. Our common form is found anchored in shallow water, in marshes, muddy borders of ponds and lakes, slow streams and cat-tail swales: Annapolis and Cumberland Co. to northern C.B.: only to Queens Co. in southwestern N. S. and becoming more common northwards where it often occurs in large pure colonies at the edges of ponds and lakes.

Forma *Hartwrightii* (Gray) Stanford is found wherever the floating form, which is the more common one, grows out on to dry land at the side of a pool or onto a river-bank. These plants show a spreading green border at the top of each leaf-sheath. Occasionally plants growing in swales or meadows do not show the spreading green border and strongly resemble the European plant. They differ, on the average, by having the leaves less harshly pubescent, the leaves lanceolate and more shortly petioled, and the flowering spikes are shorter and stouter. Plants found at the bottom of cat-tail marshes near Pugwash are of this type.

Nfld. to Sask. south to Penn.; B.C. to Calif.

10. *P. coccineum* Muhl. Map 253.

The terrestrial form of this species, forma *terrestre* (Willd.) Stanford, is the only one known in the Province, while the aquatic form is more southern and sterile. Rocky swales, mucky sloughs and wet savannahs; scattered in Yarmouth Co.; Beartrap L. and along the Medway R. system in Queens Co.; LaHave in Lunenburg Co.; and Point Pleasant in Halifax.

P.E.I. and N. S. to Wash. south to Va., Ark, and Calif.

11. *P. pensylvanicum* L. Fig. 67, e.

"Exsiccated clay roadway bordering salt marsh, Annapolis Royal; first record from east of Mass., previous records belong to var. *laevigatum*" (Fernald, 1922). Fla. to Tex. north to Mass. and Ont.; N. S.

Var. *laevigatum* Fern. is found in the Annapolis Valley and in Colchester Co. and undoubtedly elsewhere. This is a beautiful species which often occurs in masses in roadside ditches, on dyked marshes or sometimes in grain fields, as between Greenwich and Port Williams in Kings Co. and below Truro. The color of the glands and the flowers is quite variable. Forma *albiseum* Farw. has white flowers instead of pinkish and the glands are yellowish.

N.S. and Que. to Colo. south to N.C.

12. *P. lapathifolium* L.

Scattered on beaches of lakes, along rivers and occasionally in cultivated fields throughout.

Var. *salicifolium* Sibth. is common in damp sands and pond-margins in Yarmouth and Shelburne Co. and scattered elsewhere. These plants

are smaller than those of the typical variety and occasionally the leaves are woolly beneath.

Var. *prostratum* Wimm. is a seaside form, known here only from brackish beaches on Sable I. Local and naturalized from Eu.

All three varieties are widely distributed throughout N.Amer.

13. *P. scabrum* Moench Fig. 67, b.

Damp fields, cultivated land and waste places, often in grain fields, a common weed throughout. (*P. tomentosum* Schrank).

Introduced from Eu.; Nfld. to B.C. south to New Eng. and Mich.

14. *P. Hydropiper* L. Map 254. Fig. 67, c. WATER-PEPPER

Dryish soils and exsiccated ground, often around farm buildings and in waste places; common. The variety *projectum*, with more-exserted flowers, is generally considered now to be undeserving of varietal rank.

Introduced from Eu. and widely distributed.

15. *P. Persicaria* L. LADY'S-THUMB

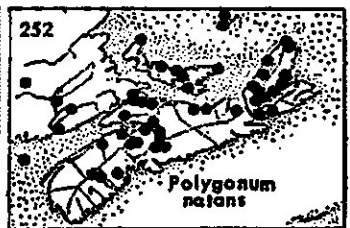
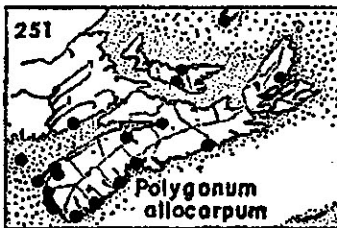
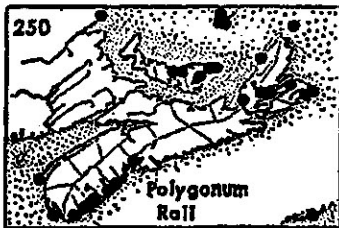
This is a common weed in fields and waste places throughout. A smaller, rather prostrate, freely-forking form with shorter, wider leaves and subglobose spikes up to 1.5 cm long, has also been freely introduced and is known as var. *ruderales* (Salisb.) Meisn.

Introduced from Eu.; throughout N.Amer.

16. *P. puritanorum* Fern.

Annapolis Co.: in sand or gravel among granite boulders, beach of Grand L.; first record outside of southwestern Mass. (Fernald, 1922); growing in masses at the lower end of the lake.

Local; N.S., s. Me., R.I. and eastern and southern Mass.



17. *P. punctatum* Ell. WATER-SMARTWEED

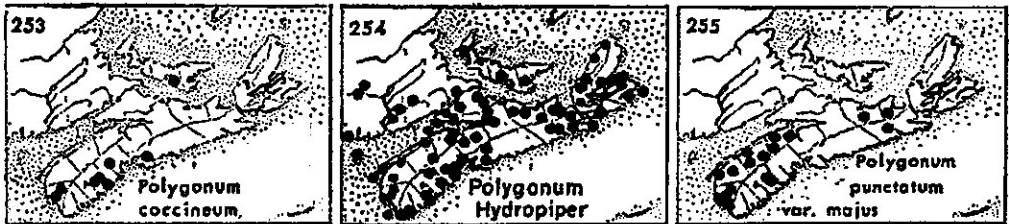
The wide-ranging *P. punctatum* has developed a number of varieties which may seem quite distinct in one part of their range yet intergrade in other areas (Fassett, 1949). Var. *confertiflorum* (Meisn.) Fassett is the northern variety found from N.S. and the Gulf of St. Lawrence to southern B.C., south to Va., Ark. and Oreg. Common throughout N.S.: marshes, edges of lakes, along streams, perennial and rooting from the nodes.

Var. *parvum* Vict. & Rousseau is a post-Pleistocene derivative of the first variety, now persisting only on tidal river-mouths where the water is still fresh. It has 30 or fewer obscure glands on the calyx instead of 50 or more well-developed ones as in var. *confertiflorum*; the achene is nearly always exserted. Tusket Falls, Yarmouth Co.; scattered from the estuary of the St. Lawrence to Me. and Md.

Var. *majus* (Meisn.) Fassett (Map 255) is set off from the first variety by its larger size, white flowers and late flowering, although an occasional intermediate does occur. Scattered in the southwestern counties at the edges of lakes and streams; common in the Annapolis Valley along the rivers; scattered in Antigonish and central Guysborough Co. It is often found growing in large patches with conspicuous white flowers. Fassett considers this as the variety which has migrated up along the Coastal Plain. (*P. robustius* (Small) Fern.).

Fassett also mentions a collection of Macoun's from Louisburg as having the dull achenes of *P. Hydropiper* with the long internodes of *P. punctatum*, presumably representing a hybrid between them.

N.S. to Fla., locally inland to Ind. and Mo.; West Indies to northern S.Amer.



18. *P. hydropiperoides* Michx. Map 256.

Common in the southwestern counties east to Annapolis and Lunenburg Co.: lake margins, beaches, and edges of rivers and streams; rare and scattered north and east to Newville L. and in the water of R. Hebert in Cumberland Co. (Schofield, 1955) and possibly to central Antigonish Co. and near Sherbrooke in Guysborough Co. July-Oct. N.S. to Minn. and Nebr. south to Fla. and Tex.

Var. *digitatum* Fern. (Fernald, 1921) is found on a boggy savannah bordering St. John Lake, Springhaven, Yarmouth Co.; peaty and boggy lake-margins, Yarmouth and Shelburne Co., N.S., beginning to flower nearly a month later than typical *P. hydropiperoides* (Fernald, 1950-b).

Var. *psilostachyum* St. John is known from Sable I. from which it was originally described and mentioned by Fernald from Shelburne Co. *P. hydropiperoides* x *P. robustius* is reported (Fernald, 1922) as occurring in great abundance in peat and granite gravel bordering the outlet of Lamb's L., Annapolis Co.

19. *P. sagittatum* L. Fig. 66, f. Map 257. TEAR-THUMB

Very common throughout, developing late in the season with masses of the rough clinging plants in rich soils or in damp ground and along ditches. July-Oct.

Fla. to Tex. north to Nfld., Que. and Sask.

20. *P. arifolium* L., var. *pubescens* (Keller) Fern. Fig. 66, g.

Scattered to local in rich thickets and marshy borders, usually under alders; Kings, Colchester and in Cumberland Co. from north of Parrsboro to R. Hebert. This plant is very distinctive but it is seldom seen and it seems to grow only in the richest alluvial soil.

N.S. and P.E.I. to Minn. south to N.J., Penn. and Ind.

21. *P. cilinode* Michx. Map 258.

Scattered throughout in clearings or occasionally in thickets, waste ground and low cultivated ground. Forma *erectum* (Peck) Fern. is a dwarf form but it seems to be merely a response to poor growing conditions.

Nfld. to Sask. south to the uplands of N.C., Mich. and Wisc.

22. *P. Convolvulus* L. Fig. 67, d. Map 259. WILD BUCKWHEAT

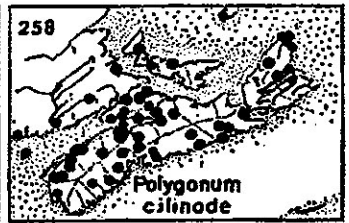
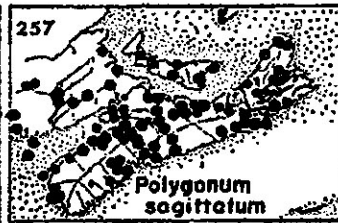
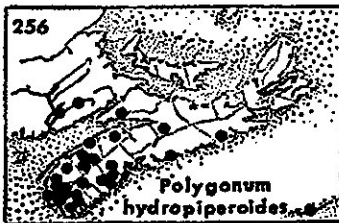
A common weed in fields, clearings and waste places, often a troublesome weed in gardens.

Naturalized from Eu. and widespread.

23. *P. scandens* L.

Local in low thickets along river-intervales, often becoming luxuriant after the woods have been cleared or the ground disturbed. This plant is apparently rare in the north-central part of the Province since it has been collected in only a few places. Late Aug.-Oct.

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

24. *P. cuspidatum* Sieb. & Zucc. Fig. 66, e. JAPANESE KNOTWEED

Roadsides and waste ground around towns throughout and occasionally found about older houses and along fences. This tall, rapidly-growing plant has apparently been frequently planted in the past. Once established, it is almost impossible to eradicate. It does not seem to be spreading in the open, but frequents mostly waste ground and dumps.

Introduced from Asia; widely planted as an ornamental.

25. *P. sachalinense* F. Schmidt GIANT KNOTWEED

This large plant closely resembles the previous one but the leaves are more ovate and cordate at the base. It has been planted as an ornamental and is spreading or still persists; occasionally seen from Yarmouth to C.B.

Introduced from e. Asia; N.S. to Mass., N.Y. and Md.

26. *P. polystachyum* Wall.

This garden perennial, with its very long caudate-tipped and truncate-based leaves, is beginning to spread to waste lands about Yarmouth (Fernald, 1921). It has not been observed outside of this area.

Introduced as an ornamental from e. Asia: N.S. and New Eng.

4. FAGOPYRUM Mill. BUCKWHEAT

Erect plants with alternate, broadly triangular leaves, and 3-angled achenes much longer than the calyx. These plants are native to central Asia, formerly much grown in cultivation but declining in importance.

a. Flowers crowded in clustered, terminal racemes; perianth divisions 2-3 mm long, whitish, conspicuous; achenes shining and smooth on the angles.

1. *F. esculentum*

a. Flowers in scattered, elongated, loose racemes; perianth divisions 1-2 mm long, greenish; achenes dull and roughish or with protuberances on the angles.

2. *F. tataricum*

1. *F. esculentum* Moench BUCKWHEAT

Occasionally planted in the Annapolis Valley and elsewhere, often as a cover crop; persisting for a short time or found as an escape about farm-yards, railroad stations and in waste ground (*F. sagittatum* Gilib.).

Introduced from Asia; widespread.

2. *F. tataricum* (L.) Gaertn.

Scattered and probably introduced along with seed and in grain as with the preceding species; formerly common but now much rarer as most of the varieties grown are *F. esculentum*; not persisting nor becoming really weedy.

Introduced from Eurasia; becoming more rarely adventive.

40. CHENOPODIACEAE GOOSEFOOT FAMILY

Mostly annual weedy plants with insignificant flowers; corolla absent, the calyx usually 5-parted and with 1-5 stamens opposite the calyx lobes; fruit a small, often shiny achene. The beet, swiss chard and spinach are cultivated members of this family.

- a. Plants with wide greenish leaves.
- b. Leaves thickish, fleshy; calyx or fruiting bracts not villous or pilose; common.
- c. Calyx 3-5 parted; leaves not often hastate (Fig. 68, a); common weeds.
 - 1. *Chenopodium*
- c. Calyx of pistillate flowers absent, the fruit enclosed by two large bracts; leaves often hastate (Fig. 68, b); plants mainly of sea-shores.
 - 2. *Atriplex*
- b. Leaves thin, green, not toothed; inflorescence much branched; calyx segments villous; rare.
 - 3. *Axyris*
- a. Plants with the leaves extremely fleshy, bract-like or absent.
- d. Flowers sunken in the fleshy, watery stem; leaves absent; branches opposite; salt marshes (Fig. 69, a).
 - 4. *Salicornia*
- d. Flowers placed in the axils of the leaves.
 - c. Leaves, stem and calyx-lobes very fleshy (Fig. 69, b).
 - 5. *Suaeda*
 - e. Leaves bract-like or linear, much reduced; stem and calyx-lobes not fleshy.
 - f. Calyx-lobes appendaged by broad membranous horizontal wings; plants coarse, stiff, much branched (Fig. 69, c)
 - 6. *Salsola*
 - f. Calyx-lobes not appendaged; plants branched only at the base, low, the stems slender and angled.
 - 7. *Polycnemum*

1. CHENOPODIUM L. PIGWEEDS

About 100 species, many of which are cosmopolitan weeds. Mature fruit is necessary for adequate identification. (See Aellen and Just, 1943; Wahl, 1952).

- a. Seeds all horizontal in the calyx; plants annual.
- b. Plants not glandular; flowers not pubescent.
- c. Leaves wide and green on both sides, the upper surface lustrous, with long irregular teeth; sepals not ridged on the back; style-branches short.
 - 1. *C. urbicum*
- c. Leaves often mealy beneath, the upper surface dull; sepals strongly ridged or thickened on the back along the midrib so that the calyx is almost pentagonal in outline.
- d. Leaves lanceolate to broadly ovate or rhombic, with some secondary veins developed, green to lightly mealy beneath.
- e. Seeds 1-1.5 mm in diameter, smooth and shining with only minute striations.
 - 2. *C. album*
- c. Seeds 2-2.5 mm in diameter, deeply pitted, dull.
 - 3. *C. macrocalyctium*
- d. Leaves narrowly lanceolate to linear, without teeth and with no secondary veins, densely and heavily white-mealy beneath; seeds about 1 mm wide.
 - 4. *C. leptophyllum*
- b. Plants, including the calyx, pubescent with short glandular hairs, more or less aromatic; seeds 0.6-0.8 mm wide; leaves sinuate to deeply pinnate.
 - 5. *C. Botrys*
- a. Seeds vertical in the calyx, or the terminal ones occasionally horizontal.
- f. Flowers at maturity not fleshy or confluent.
 - g. Leaves densely white-mealy beneath, green above, their margins deeply undulate; seeds in small clusters, many prominently in a vertical position.
 - 6. *C. glaucum*
 - g. Leaves bright green, glabrous on both sides, from rhombic to deltoid-hastate in outline; glomerules of flowers almost without bracts; seeds smooth.
 - h. Style not evident in fruit; leaves wide with a few coarse teeth; seeds 0.8-1 mm wide, shiny; plant annual.
 - 7. *C. rubrum*

h. Style enlarged, long and slender in fruit; leaves widely triangular-hastate, without teeth; seeds almost spherical, about 1.5 mm wide; plant perennial.

8. *C. Bonus-Henricus*

f. Flowers at maturity in red fleshy clusters and becoming berry-like; leaves wide and triangular to triangular-hastate, entire to coarsely toothed.

9. *C. capitatum*



Fig. 68.—*Chenopodium*: (a) *C. album* $\times \frac{1}{2}$. — *Atriplex*: (b) *A. patula* $\times \frac{1}{2}$. — *Amaranthus*: (c) *A. retroflexus* $\times \frac{1}{2}$.

1. *C. urbicum* L.

Rare; collected by Burgess on ballast heaps at Pictou in 1883. This and other *Chenopodia* are often casual adventives and may be introduced around railroad-yards and ports. Very few have been noticed here as yet although adequate collections have not been made.

Adventive from Eu.; N.S. to Ont. south to Md. and Ill.; B.C.

2. *C. album* L. Fig. 68, a. LAMB'S-QUARTERS, PIGWEED

Very common throughout and quite variable; waste places, gardens, cultivated fields and roadsides, one of our most common weeds. Our species is probably both native and introduced. Numerous species and varieties have been named, based on the shape of the leaves, size of keels of the calyx and the size and surface of the seed. Plants with narrow leaves which are nearly glabrous on both sides have been named *C. lanceolatum* Muhl. This type is common. Plants with large, deeply pitted seeds have been separated as the next species.

Naturalized from Eu.; throughout N. and S. Amer.

3. *C. macrocalyrium* Aellen

Reported by Aellen and Just (1943) from Sable I. where it is a weed at the Main Station; one of the forms of *C. album* mentioned by St. John. Collections from Pembroke Shore, Yarmouth Co., and from various beaches along Lunenburg Co. to Halifax are placed here. The plants are rather densely branched with rather thin, green leaves. Similar to or closely related to *C. Bushianum* Aellen.

N.S. and Que. to N.D. south to N.C. and Ark.

4. *C. leptophyllum* Nutt.

The only collection seen of this tall, narrow-leaved species is from around Steele's Pond, Point Pleasant Park in Halifax, where it was collected by J. S. Erskine. This species is known only from N.S. in the Maritime Provinces.

Sea-beaches, Mass. to N.J.; Que. to B.C. southward.

5. *C. Botrys* L. JERUSALEM-OAK

A collection, made at Pictou by J. Macoun, July 25, 1883 was misidentified. As with the first species, this may be a casual adventive at any time but, as it is distinctive and seldom seen, it must be rare. In 1967 plants were sent to the Agricultural College which were grown from seed bought for those of water-cress. Railroad weed near Fancy L. in Lunenburg Co., in flower Aug. 22, 1954.

Widely introduced from Eurasia.

6. *C. glaucum* L. OAK-LEAVED GOOSEFOOT

Occasionally introduced; in one garden near Mira, C.B., it was an aggressive and troublesome weed; found also at Shearwater in Halifax Co. The clusters of erect achenes are very conspicuous as is also the undulate outline of the leaves.

Introduced from Eu.; N.S. to Ont. south to Va.

7. *C. rubrum* L. COAST-BLITE

Common on the brackish beach of Wallace Lake, Sable Island; presumably scattered around the mainland, often luxuriant on newly-reclaimed dykelands. Very few collections are made of these sea-shore Chenopodia, possibly since they mature and seed so late in the season.

Salt marshes and saline soils, Nfld. to B.C. south to N.J. and N.Mex.

8. *C. Bonus-Henricus* L. GOOD KING HENRY

Occasional about towns; locally abundant at Annapolis and Sydney.

Introduced from Eu.; local from N.S. to Ont. and Iowa south to Penn.

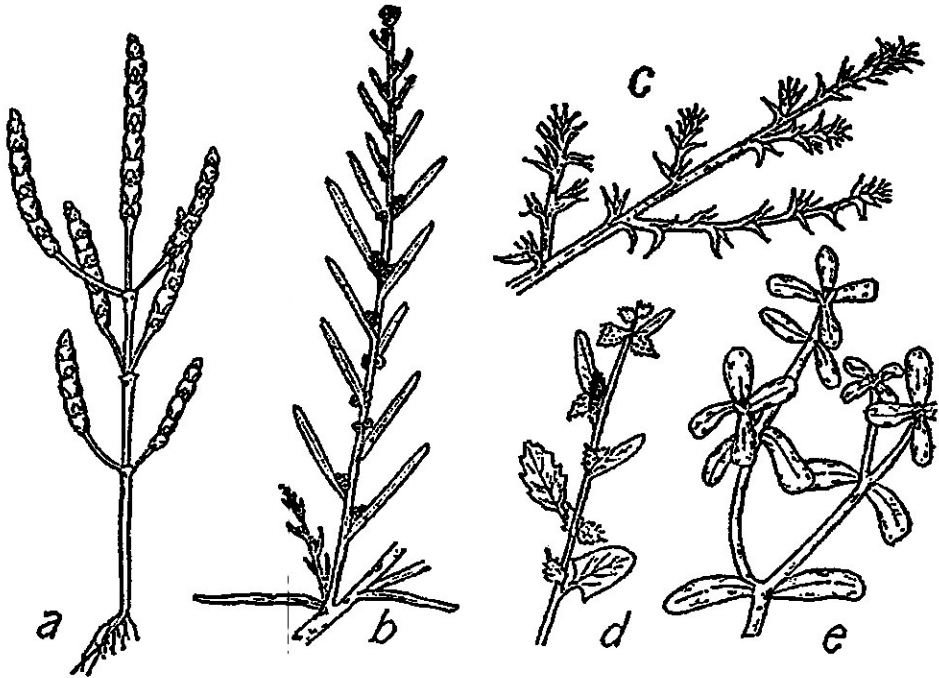


Fig. 69.—Salicornia: (a) *S. europaea* $\times \frac{1}{2}$. — Suaeda: (b) *S. maritima* $\times \frac{1}{2}$. — Sal-sola: (c) *S. Kali* $\times \frac{1}{2}$. — Atriplex: (d) *A. glabriuscula*, tip of branch $\times \frac{1}{2}$. — Portulaca: (e) *P. oleracea* $\times \frac{1}{2}$.

9. *C. capitatum* (L.) Aschers. STRAWBERRY-BLITE

The seeds of this plant must occasionally be introduced in gardens since the plants are occasionally sent in to the Agricultural College for identification; garden at Yarmouth (Smith and Erskine, 1954).

Woodland clearings and waste places, Que. to Alaska south to Penn.; widely distributed westward; Eurasia.

2. ATRIPLEX L. ORACH

Common seashore plants rather similar to *Chenopodium* in habit and appearance but with separate staminate and pistillate flowers, the pistillate ones without a calyx and enclosed within two broad bracteoles.

a. Foliage green or greenish on both sides, sparsely mealy, sometimes grayish when young, the lower leaves sub-opposite; bracteoles herbaceous to succulent.

1. *A. patula*

b. Inflorescence without leafy bracts except at the base; seeds 1-2 mm wide.

c. Leaves lanceolate or oblong to linear, not hastate; bracts mostly narrowly rounded or broadly cuneate at the base.

d. Bracteoles surrounding the flower 1-6 mm long.

e. Blades of the leaves lanceolate to oblong; bracteoles usually smooth on the inner face.

Var. *patula*

e. Blades of the leaves lanceolate to linear; bracteoles tubercled on the inner face.

Var. *littoralis*

- d. Bracteoles surrounding the flowers up to 10-15 mm long. *Var. bracteata*
 c. Leaves in part triangular-hastate or squarish, with basal angles or lobes; bracteoles truncate or broadly rounded at the base. *Var. hastata*
 b. Inflorescence leafy, each glomerule in the axil of a well-developed leaf; leaves small, usually oblanceolate and without teeth; seeds 2-4 mm wide; fruiting bracteoles 5-12 mm long. *Var. oblanceolata*
 a. Foliage very gray or whitish, with a fine scurf on at least the lower surfaces; plants depressed or prostrate; fruiting bracteoles 6-9 mm long, the central part over the seed hard and bony; seeds large, 3-4 mm wide. 2. *A. sabulosa*

1. *A. patula* L. Fig. 68, b. Map 260. ORACH

This variable and poorly-understood species is common around the coast, with the different varieties tending to intergrade in appearance. The typical variety *patula* is more common westward but is reported from our area. $2n = 36$.

Var. hastata (L.) Gray is common around the whole coast and on Sable I., on the shoreward reaches of salt marshes, headlands beyond the reach of the waves, flooded areas on the dykelands and on the upper edges of sea-beaches, occasionally in gardens and waste places near the coast. $2n = 18$. *Var. littoralis* (L.) Gray is more confined to the beaches and is tall and erect, with ascending branches and nearly linear leaves. *Var. bracteata* Westlund is an extreme variation described from northern Europe; collected by Fernald (1921), a single specimen in brackish or saline marsh near the mouth of the George R., C.B. Co. Plants from Margaree Harbour show the long herbaceous bracts and this tendency will probably show up in many C.B. collections.

Var. oblanceolata (Vict. & Rousseau) Boivin is scattered around the coast, at least from Digby Co. around Yarmouth to Guysborough; in the Bras d'Or L.; on sandy or gravelly sea-shores and on sand or barrier beaches. This plant has been associated with *A. glabriuscula* Edmonston of northern Eu. but in many cases it is difficult to separate from *A. patula* and is apparently a variety of it.

Nfld. to B.C. south to S.C. and Calif.

2. *A. sabulosa* Rouy

This European plant is found along Northumberland Strait, at Wood I. in P.E.I. and very locally on the N.S. side of the Strait on gravelly or sandy sea-shores. Its full distribution is not yet known. (*A. laciniata* L. possibly).

Gulf of St. Lawrence from N.S. to northern N.B. and eastern Que.

3. AXYRIS L.

1. *A. amaranthoides* L. UPRIGHT AXYRIS

A single plant, roadside at Windsor, July 21, 1921, collected by Fernald, Bartram and Long.

Man. to N.D. and Mo.; introduced and rapidly spreading eastward.

4. SALICORNIA L.

1. *S. europaea* L. Fig. 69, a. GLASSWORT, SAMPHIRE

Common around the coast on salt marshes and tidal flats, usually occupying ground bare of other vegetation. It is one of the first pioneers on mud flats and inundated dykelands, on salt areas and about salt springs. Var. *prostrata* (Pall.) Fern. is a decumbent, spreading or matted form with numerous branches and rather short flowering spikes up to 3 cm long. This is likewise widely distributed and often conspicuous when growing with the typical upright form, although numerous transitional plants can often be found. Var. *simplex* (Pursh) Fern. is an intermediate form with the weak or decumbent habit but with the spikes long and tapering, up to 10 cm long and 5 mm thick.

Nfld. and the lower St. Lawrence R. south to Ga.; Pacific Coast and saline soils inland; Eu. and Africa.

5. SUAEDA Forsk. SEA-BLITE

Common, fleshy halophytic plants with nearly terete leaves and groups of 1-3 fleshy flowers in the axils of the reduced upper leaves.

a. Plants usually erect, sometimes decumbent, green and more or less glaucous; sepal-lobes rounded or obscurely keeled on the back; seed 2 mm wide.

1. *S. maritima*

a. Plant prostrate to procumbent; seeds 1-1.5 mm wide.

b. Lower leaves 1.5 cm or less in length, dark green, not glaucous; sepals all rounded on the back.

2. *S. Richii*

b. Lower leaves 2 cm long, becoming a rich purplish-red in color; sepals very irregular, one or two of them more or less keeled on the back.

3. *S. americana*

1. *S. maritima* (L.) Dumort. Fig. 69, b. SEA-BLITE

Common near the coast on salt marshes, muddy saline shores, and around salt ponds or springs, usually associated with *Salicornia*. These two plants are the characteristic ones on saline soils wherever competition is reduced. *S. Fernaldii* Stanley, described from near Truro, is considered to be merely a variation.

Anticosti to Conn. and locally to Va.; Eurasia.

2. *S. Richii* Fern.

This small, dark species of *Suaeda* is rare and, as far as is known, is confined to the Atlantic Coast. Plants from Bridgewater and other scattered places along the Atlantic shore are placed here.

Scattered from se. Nfld. along the Atlantic Coast of N.S. to s. Me. and Mass.

3. *S. americana* (Pers.) Fern. Map 261.

This species is the most common one on the eastern coast of N.B.; rare on P.E.I.; sometimes luxuriant along the Northumberland Strait of N.S., as near Pictou; elsewhere scattered except on the Fundy coast where it is rare or absent.

Salt marshes and sandy beaches from the lower St. Lawrence to southern Me.



6. SALSOLA L.

Rather woody annuals with reduced leaves and small axillary flowers.

- a. Plants stout and woody, nearly prostrate; leaves awl-shaped, stiff and prickly, those of the inflorescence much reduced; sea-shores. 1. *S. Kali*
- a. Plants slender, much branched and erect or ascending; leaves linear, 3-7 cm long, those of the inflorescence similar; waste places. *S. Kali* var. *tenuifolia*

1. *S. Kali* L. Fig. 69, c. Map 262. COMMON SALTWORT

Scattered on the west and south coasts and on sandy and gravelly seashores along the Northumberland Strait to C.B., Nfld. to Ga. and saline places inland; Eurasia.

Var. *tenuifolia* Tausch Map 263. RUSSIAN THISTLE

This inland form of the plant is occasionally found in towns, waste places and along railroads; found at Kentville and Port William by H. Groh, 1926 and 1930; Halifax; usually on light soils.

Naturalized from Eu. and introduced from western Canada.

7. POLYCNEMON L.

1. *P. verrucosum* Lang

Collected by A. H. McKay near Halifax and sent to J. Macoun for identification. This specimen is in the National Herbarium at Ottawa and is dated Oct., 1896. Introduced from Eu.; no other record for N. Amer.

41. AMARANTHACEAE AMARANTH FAMILY

Weedy plants with inconspicuous greenish flowers surrounded by green or scarious bracts; flowers in a brushlike terminal inflorescence or in clusters in the leaf-axils. Each flowers produces one shiny lenticular achene.

1. AMARANTHUS L.

- a. Plants large, erect, 4-10 dm high; flowers in large terminal inflorescences; seeds 1 mm or more wide.
 - b. Leaves green beneath; inflorescence with few lobes, the terminal long and cylindrical; flowers with long aristate bracts, the sepals acute. 1. *A. hybridus*
 - b. Leaves whitish beneath; inflorescence crowded and much lobed; flowers with bracts up to twice the length of the flowers, with sepals truncate at the apex.
 - 2. *A. retroflexus*
- a. Plants slender and diffusely branched; flowers chiefly in small clusters in the axils of the leaves; seeds small, about 0.8 mm wide.
 - 3. *A. albus*

1. *A. hybridus* L. GREEN AMARANTH

This weedy plant has been found at only a few locations: abundant and well established in a garden at Morristown. Here the plant has much the aspect of the next species and seems to be equally well adapted to its habitat. Several other locations are known in Kings Co. and this plant seems destined to be a common weed.

Native of tropical Amer., now widely spread in N.Amer. and elsewhere; rare in eastern Canada.

2. *A. retroflexus* L. Fig. 68, c. RED-ROOT PIGWEED

Recently introduced and still rapidly spreading in gardens, waste ground and cultivated fields. This coarse weed is troublesome when once established. The red tap root is an identifying characteristic.

Introduced from tropical Amer.; becoming widespread.

3. *A. albus* L. TUMBLEWEED

Rare, appearing only as a garden or railroad weed: Kentville, Windsor, Truro and Wentworth (*A. graecizans* of earlier reports).

Western Canada to Mex.; now throughout much of N.Amer. and semi-cosmopolitan.

42. AIZOACEAE CARPET-WEED FAMILY

1. MOLLUGO L. CARPET-WEED

Our single representative is a chickweed-like plant, but with the leaves in whorls, no petals, and 3-4 stamens; often prostrate and much branched.

1. *M. verticillata* L.

Collected in a sandy orchard at Waterville, Kings Co. by C. E. Atwood in 1929; occasional and sometimes abundant about the railroad yards in Kings Co.; also at Mount Uniacke and Truro.

Fla. to Tex. and Mex.; migrating northward to N.S., N.B. to Ont.; B.C.

43. PORTULACACEAE PURSLANE FAMILY

Small herbaceous plants with succulent leaves and flowers with but two sepals; flowers perfect with 3-11 stamens; capsule circumscissile. This small family of about 500 species is best developed in western N. Amer.

- a. Introduced garden weed; leaves wedge-shaped; flowers yellow with 7-11 stamens; seeds small and numerous (Fig. 69, e). 1. *Portulaca*
- a. Native plants of undisturbed habitats; leaves not wedge-shaped; flowers whitish, with 3-5 stamens; seeds 2-6. 2. *Claytonia*

1. PORTULACA L. PURSLANE

1. *P. oleracea* L. Fig. 69, e. COMMON PURSLANE

Becoming common in gardens in towns; widespread weed on the lighter soils in the Annapolis Valley, rapidly spreading to other fields and parts of the Province; very difficult to eradicate. The flowers are insignificant and seeds often mature after plants are pulled from the ground.

Introduced from Eu.; widespread in N.Amer.

2. CLAYTONIA L.

Recent studies have indicated that part of the genus *Montia* should also be included in this genus.

- a. Flowers minute and white; seeds 2-3; plants chickweed-like, with numerous opposite leaves, from fibrous roots. 1. *C. fontana*
- a. Flowers 1-2 cm wide, pink-veined; seeds 3-6; plants with 2 opposite stem-leaves only, from a small deep tuber; spring-flowering woodland plant. 2. *C. caroliniana*

1. *C. fontana* (L.) R. J. Davis Map 274. (See Walters, 1953)

Collected on a grassy bank above the sea, Northwest Arm, Halifax, 1883, by Macoun and Burgess; Digby Co.: rather rare, in wet crevices of sea-cliff between North Point and Seal Cove, Brier I.; one plant floating in a hillside trickle, Port Hawkesbury, Inverness Co. (Smith and Erskine, 1954); abundant on cold trickle margin, upper salt marsh, east side of Burke Brook, Advocate, Cumberland Co. (Schofield, 1955). (*Montia*

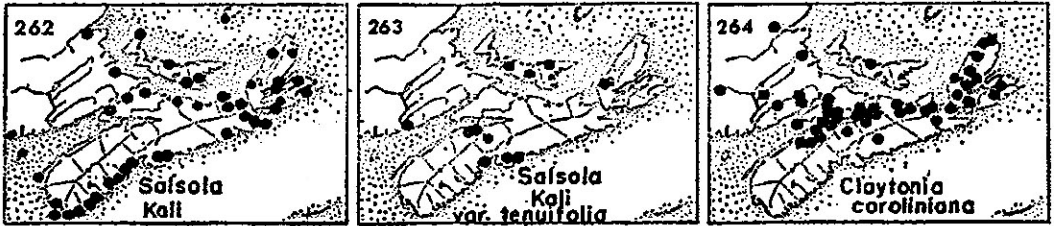
lamprosperma Cham.). Our plants are considered to belong to one of the four subspecies of the European and North American *C. fontana*.

Arctic regions south to Que. and along the coast to Me.; Ont.; B.C.; Eu.

2. *C. caroliniana* Michx. Fix. 73, a. Map 264. SPRING-BEAUTY

Rich woods from Annapolis and Cumberland Co. east to northern C.B.; local in the western part of its range in the richest hardwoods, general in the Cobequids and on the hardwood hills in central and eastern N.S. May 20-June 15.

Nfld. to Ont. south to the mts. of Tenn. and N.C.



44. CARYOPHYLLACEAE CHICKWEED OR PINK FAMILY

Small annual to perennial herbs with opposite or whorled leaves; flowers variable, but usually with 5 petals which are often 2-lobed, 10 stamens, and fruit a dehiscent capsule. One main subfamily includes the chickweeds; and the other, the pinks and their relatives. About 2000 species are known around the world.

- a. Fruit one-seeded, indehiscent; petals none; low spreading, much-branched tufted annual. 1. *Scleranthus*
- a. Fruit few- to many-seeded capsules; petals usually present.
- b. Sepals separate, more or less spreading; plants small, often prostrate; flowers less than 1 cm wide; chickweed subfamily.
- c. Stipules present; petals not lobed.
- d. Leaves opposite; styles 3 (Fig. 70, a). 2. *Spergularia*
- d. Leaves whorled, filiform; styles 5 (Fig. 70, b). 3. *Spergula*
- c. Stipules lacking.
- e. Capsule splitting into valves; plant nearly smooth or with a line of hairs present on the stem.
- f. Leaves linear-filiform; plants low and tufted; petals entire; styles 4 or 5 (Fig. 70, e, f). 4. *Sagina*
- f. Leaves linear or broader; plants larger, styles mostly 3.
- g. Petals not divided; stems wiry, round, usually erect (Fig. 70, c). 5. *Arenaria*
- g. Petals 2-lobed or absent; stems softer, sometimes 4-angled, diffusely spreading (Fig. 71, a, b). 6. *Stellaria*
- e. Capsule cylindrical and slightly curved, opening by a row of small teeth at the summit; petals deeply 2-lobed; plants hairy (Fig. 70, d). 7. *Cerastium*
- b. Sepals united and the calyx tubular; plants large and erect with flowers mostly over 1 cm wide; pink subfamily.
- h. Calyx without an involucre of bracts at the base.
- i. Styles 3 or 5; calyx 10-nerved; flowers 2 cm wide or less.

- j. Flowers solitary, rose-purple; sepals with long herbaceous tips; styles 5, opposite the petals. 8. *Agrostemma*
- j. Flowers in a branching cluster; sepals with tips short, less than 2 cm long; styles alternate with the petals.
- k. Styles 5; capsule with 5 two-lobed teeth; staminate and pistillate flowers present in *L. alba* (Fig. 71, c, d). 9. *Lychnis*
- k. Styles 3; capsule 6-toothed; flowers all perfect (Fig. 71, e). 10. *Silene*
- i. Styles 2; calyx obscurely nerved; flowers showy, 3 cm wide, usually double, growing singly or in dense heads; capsule 4-toothed (Fig. 71 f). 11. *Saponaria*
- h. Calyx with an involucre of bracts surrounding the base; styles 2; pinks. 12. *Dianthus*

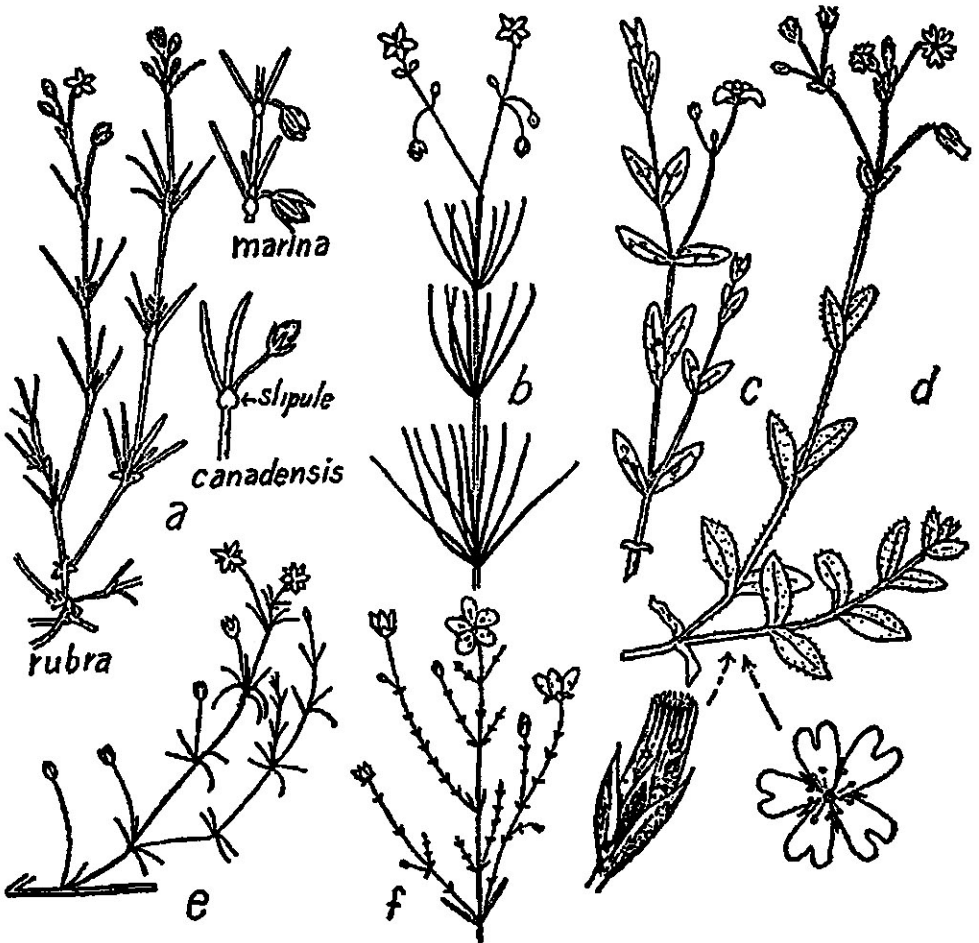


Fig. 70.—*Spargularia*: (a) *S. rubra* x ½, *S. marina* and *S. canadensis* x 1. — *Spargula*: (b) *S. arvensis* x ½. — *Arenaria*: (c) *A. laterifolia* x ½. — *Cerastium*: (d) *C. vulgatum* x ½, flower and capsule x 2. — *Sagina*: (e) *S. procumbens* x 1, (f) *S. nodosa*, part of plant x ½.

1. SCLERANTHUS L. KNAWEL

1. *S. annuus* L.

Waste places and along railroads in Canada, gradually spreading eastwards; reported by H. Groh in 1945 from Waterville, Kings Co.; collected along the railroad at Windsor, Hants Co. (Erskine, D. S. 1951); Berwick; Grand Etang, Inverness Co.; scattered in P.E.I.

Naturalized from Eu.; N.S. to Minn. south to Fla.

2. SPERGULARIA J. & C. Presl

See Rossbach, R. P., *Spergularia* in North and South America (1940).

- a. Stamens 6-10, usually 10; leaves scarcely fleshy, with long mucronate tips; stipules membranous and conspicuous. 3.5-5 mm long. 1. *S. rubra*
- a. Stamens 2-5; leaves fleshy, blunt, or with a short tip; stipules 1-3.5 mm long; plants restricted to near the coast.
- b. Capsule equaling or a little exceeding the calyx; sepals at maturity 2.4-5 mm long; seeds 0.6-0.8 mm long. 2. *S. marina*
- b. Capsule subglobose to ovoid, about twice the length of the calyx; sepals at maturity 2.2-3.2 mm long; seeds 0.8-1.4 mm long. 3. *S. canadensis*

1. *S. rubra* (L.) J. & C. Presl Map 265. Fig. 70, a. SAND-SPURREY

Scattered throughout in sandy or gravelly soil in farmyards, and in waste places and towns; flowers pink, June-Sept.

Nfld. to Minn. south to Va.; Vancouver I. to Calif.; introduced from Eu.

2. *S. marina* (L.) Griseb. Fig. 70, a. Map 266.

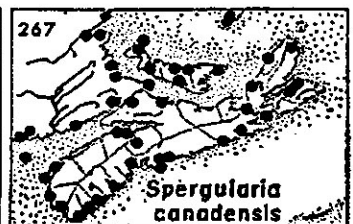
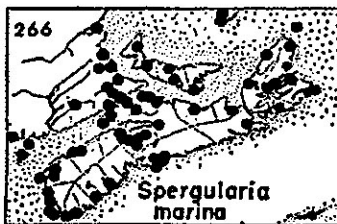
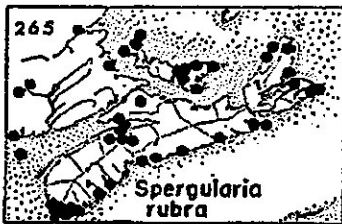
Characteristic of sea-shores, open areas on the salt marshes and upper muddy borders of beaches near the coast, about as common as the next species and often growing with it. The flowers vary from white to rose color. This includes *S. salina* J. & C. Presl with papillose seeds, and *S. leiosperma* Kindb. with smooth seeds, as these appear to be minor forms with intermediates between them.

Que. to Fla.; lower Calif. to B.C.; alkaline inland areas.

3. *S. canadensis* (Pers.) Don Map 267. SEASIDE SAND-SPURREY

Common around the coast near the upper tide level on muddy shores, brackish marshes and on pans on the salt-flats. July-Sept.

Nfld. and Que. to L. I.; southern Alaska to B.C.



3. SPERGULA L.

1. *S. arvensis* L. Fig. 70, b. SPURREY, PINEWEEED, THOUSAND-JOINT

One of our most common weeds throughout; flowers white, from early June to October. This weed is characteristic of grain fields, but it may also occur in damp cultivated soil and in waste places.

Introduced from Eu.; throughout N.Amer.

4. SAGINA L.

a. Flower parts mostly in 4's, the petals shorter than the sepals; upper leaves without reduced leaves in their axils. 1. *S. procumbens*

a. Flower parts generally in 5's, the petals much longer than the sepals, showy; upper leaves with fascicles of reduced leaves in their axils. 2. *S. nodosa*

1. *S. procumbens* L. Fig. 70, e. PEARLWORT

Abundant throughout; rock crevices near the coast, damp fields, lawns, golf greens and roadsides, dripping cliffs; frequent in wet dune hollows on Sable I. May-Oct.

Greenland to Penn. mostly near the coast; scattered inland near the Great Lakes; B.C.

2. *S. nodosa* (L.) Fenzl Map 268. Fig. 70, f.

Local on the sea-cliffs of the Bay of Fundy from Annapolis Co. to Digby Neck and Brier I.; sand flats of Shelburne and Queens Co. in hollows and slopes of dunes as at Villagedale and Port Mouton; scattered to Guysborough Co., always on or near the coast. July-Sept.

Var. *pubescens* Mert. & Koch has the pedicels and especially the lower internodes of the stems glandular-pubescent. This occurs from eastern Nfld. and N.B. to Mass. In our area the plants along the Atlantic Coast are usually very pubescent, while those along the Bay of Fundy are often nearly glabrous although even here scattered glandular hairs often occur on the lower internodes.

Nfld. to Alta. south to the coast of Me. and Lake Superior; Eurasia.

5. ARENARIA L. SANDWORT

a. Plants of sea-beaches where it often forms wide, dense colonies; leaves elliptical, extremely fleshy. 3. *A. peploides*

a. Plants not essentially maritime; leaves not fleshy.

b. Leaves lanceolate to roundish in shape; capsule dehiscent by 6 teeth.

c. Leaves with blades 1-3.5 cm long, blunt; petals exceeding the blunt sepals; seeds smooth with appendages at the scar or hilum; erect perennial with wiry, little-branched stems from slender rhizomes. 1. *A. lateriflora*

c. Leaves with blades less than 1 cm long, acute; petals shorter than the acute sepals; seeds papillose, not appendaged; lax to prostrate spreading annual, in clumps from a taproot. 2. *A. serpyllifolia*

- b. Leaves linear and obtuse; petals about twice the length of the nerveless sepals; capsule dehiscent by 3 teeth. 4. *A. groenlandica*

1. *A. lateriflora* L. Map 269. Fig. 70, c. SANDWORT

Very common throughout; damp thickets, meadows, exposed headlands, etc. June-Sept.

Arctic Amer. southward.

2. *A. serpyllifolia* L. THYME-LEAVED SANDWORT

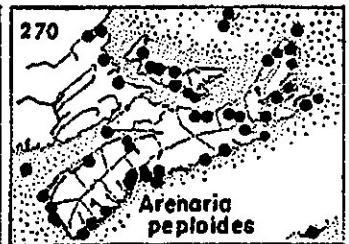
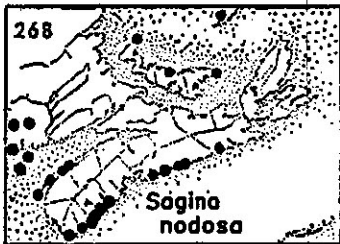
Reported earlier from both N.S. and P.E.I., possibly erroneously. Along the railroad track, Summerville, Queens Co.; under alders at Five Mile R., Hants Co.; rare on an old chicken range, Cambridge, Kings Co. A collection from gravelly soil, Kentville, by Fernald in 1902, and labelled var. *tenuior* Mert. & Koch, is in the Gray Herbarium. This variety is a more delicate plant with smaller leaves and flowers.

Introduced from Eurasia into most parts of N.Amer.

3. *A. peploides* L., var. *robusta* Fern. Map 270. SEABEACH-SANDWORT

Sandy beaches, scattered along the entire coast, growing in patches and very conspicuous because of its very thick leaves and stems. This distinctive plant may be placed in a separate genus as *Honkenya peploides* (L.) Ehrh.

Strait of Belle Isle along the coast to Md.; a variety of a very wide-ranging plant.



4. *A. groenlandica* (Retz.) Spreng. MOUNTAIN-SANDWORT

A record of this arctic plant is from "rocks, North West Arm, Halifax". Fernald (1919) states that this material is not exactly typical. Collected by Bidwell and Mason on exposed granite, Flagmast Hill west of Geizer Hill and by P. A. Bentley in 1956 from among lichens, top of Gibraltar Rock, both in Halifax Co.

Lab. to northern New Eng. and N.S. with a glabrous variety south to the mts. of Ga.

6. STELLARIA L. CHICKWEED

Low matted, annual to perennial herbs with small white flowers; the petals divided, often almost to the base, occasionally lacking; very common.

- a. Leaves ovate, the lower and middle distinctly petioled; stems weak with a line of hairs on one side; calyx often pilose; seeds 1-1.2 mm long, coarsely tuberculate.
 - 1. *S. media*
- a. Leaves linear to lanceolate, or smaller and elliptic-oblong, essentially sessile; stems and calyx usually glabrous.
- b. Flowers in well-developed cymes with small, usually scarious bracts.
- c. Cymes ample, usually with many flowers on spreading branches; petals conspicuous, as long or longer than the sepals.
- d. Leaves lanceolate, widest below the middle; stem smooth; seeds coarsely tuberculate; inflorescence large and more commonly appearing terminal; petals showy.
 - 2. *S. graminea*
- d. Leaves narrowly lanceolate, widest above the middle; stem often rough-angled; seeds essentially smooth; inflorescence soon becoming lateral; petals small, barely exceeding the sepals.
 - 3. *S. longifolia*
- c. Cymes usually few-flowered; petals very small and shorter than the sepals, or absent.
 - e. Cymes appearing lateral with few flowers and small scarious bracts; seeds papillate; plants of wet habitats with stems decumbent and often rooting at the nodes.
 - 4. *S. Alsine*
 - e. Cymes terminal, some flowers appearing in the axils of the upper leaves or of only scarious-margined bracts; seeds smooth; plants weak and often decumbent but not usually rooting at the nodes.
 - 7. *S. calycantha*
- b. Flowers solitary or in 2's, in the axils of the leaves.
 - f. Leaves fleshy, linear to oblong, 1 cm long or less; plants matted, of wet habitats; capsule equalling or slightly longer than the calyx; petals slightly longer than the sepals.
 - g. Leaves very fleshy, oval to elliptic, to 1 cm long; seeds smooth.
 - 5. *S. humifusa*
 - g. Leaves slightly fleshy, linear to elliptic-lanceolate, to 1.5 cm long; seeds wrinkled or rugose.
 - 6. *S. crassifolia*
 - f. Leaves thin, not fleshy, linear to widely lanceolate, up to 5 cm long; capsule much exceeding the sepals; seeds reddish-brown, smooth; petals shorter than the sepals, often absent.
 - 7. *S. calycantha*

1. *S. media* (L.) Cyrillo Fig. 71, a. COMMON CHICKWEED

Common throughout in moist or shady areas, near buildings and in shade, in rich gardens and near the coast; very variable and often a bad weed. April-Nov.

Introduced from Eu. and widely distributed in N. Amer.

2. *S. graminea* L. Fig. 71, b. STITCHWORT

One of our most common weeds in fields, lawns and gardens, often abundant in hay-lands where the grass is a poor catch. The appearance of this plant varies considerably during different times of year, from the open vigorous growth of midsummer to the matted growth with smaller, more oval leaves of early spring and autumn.

Introduced from Eurasia; Nfld. to Minn. south to Md. and Mo.



Fig. 71.—*Stellaria*: (a) *S. media* $\times \frac{1}{2}$, (b) *S. graminea* $\times \frac{1}{2}$. — *Lychnis*: (c) *L. Loveae* $\times \frac{1}{2}$, (d) *L. Flos-cuculi* $\times \frac{1}{2}$. — *Silene*: (e) *S. Cucubalus* $\times \frac{1}{2}$. — *Saponaria*: (f) *S. officinalis* $\times \frac{1}{2}$.

3. *S. longifolia* Muhl. Map 272. LONG-LEAVED CHICKWEED

Damp or wet grassy places in sandy to mucky soil; common in large areas on the meadows along the Salmon R., Truro, and in neighboring gardens; also found in the Musquodoboit and Stewiacke Valleys and at Kemptown. Both Lindsay and Macoun report this species as common, but their records are apparently based on the introduced *S. graminea*.

Nfld. to B.C. south to Va. and N. Mex.; Eurasia.

4. *S. Alsine* Grimm Map 271. MARSH-CHICKWEED

Wet sand, springy areas, margins of ponds, ditches and wet banks; common at least from Digby and Lunenburg Co. to northern C.B., rarer on the acidic soils or near the Atlantic coast. Forma *ovalifolia* (Peters.) Fernald (1950-d) has the leaves oval or broadly elliptic instead of the

usual lanceolate-elliptic leaves: seepy clay bank near Great Bras d'Or, Iona, Victoria Co. (*S. uliginosa* Murr.).

Nfld. to Del. and western N.Y.; B.C.

5. *S. humifusa* Rottb. Map 272.

Around salt marshes; Nichols records this as characteristic of the shoreward reaches of the salt marshes in northern C.B., although this is not indicated by recent collections. Guysborough Co.: salt meadow, Marie Joseph (Erskine, D.S. 1951); brackish marsh near Cape d'Or, Cumberland Co., forming mats near the upper part of the salt marsh, Advocate; salt marsh, Five Islands, Colchester Co. (Schofield, 1955). This plant has been but seldom collected and is probably much more common than the map shows.

Greenland to Alaska south on brackish shores to Me.; also on the Pacific Coast.

6. *S. crassifolia* Ehrh.

Spring rills and edges of ponds; found in P.E.I. and eastern N.B. and probably scattered in northern N.S. This weak matted plant with short, narrow leaves has not been studied in N.S. but plants from Tannery Pond near Wolfville apparently belong here and the species has been ascribed to N.S.

Nfld. to Alaska south to the Maritime Provinces and Mich.

7. *S. calycantha* (Ledeb.) Bong. Map 273. NORTHERN STAR-WORT

Scattered in damp thickets, wet woods and ravines in C. B.; about the Minas Basin, and to Digby and Yarmouth Co. Various varieties have been described which grade into each other. The typical variety *calycantha* has the flowers singly or few in the axils of the branches and the leaves are shorter and ovate to elliptic-lanceolate. Its general distribution is more northern. Many of our plants have the leaves lanceolate to linear-lanceolate. These have been named var. *isophylla* Fern. but since many plants are transitional to the typical variety it is doubtful if this should be a distinct variety. In richer locations the flowers are more numerous and tend to form a terminal inflorescence. This is var. *floribunda* Fern.; it is sometimes common in rich habitats. (*S. borealis* Bigel.).

N.S. to B.C. and Alaska south to Penn., Utah and Calif.



7. CERASTIUM L.

Plants perennial with the petals plainly 2-lobed. In addition to the species listed below, two commonly cultivated plants may occasionally be found along roadsides where they may spread from rockeries or borders. The common Snow-in-Summer is *Cerastium tomentosum* L. *C. Biebersteinii* DC. has slightly larger flowers, and larger leaves averaging 2.5-4 cm long and 0.5 cm wide. This was reported from Yarmouth Co. by Klawe (1955). Both species are whitish with clearly twisted hairs and have large showy white flowers.

- a. Petals about the length of, or shorter than, the sepals; capsules up to 10 mm long.
 1. *C. vulgatum*
 a. Petals 10 mm long, much longer than the sepals, showy. 2. *C. arvense*

1. *C. vulgatum* L., var. *hirsutum* Fries Fig. 70, d. MOUSE-EAR CHICKWEED

A very common weed throughout, often as a lawn weed. The plants are usually rather densely hirsute. A glabrescent or smooth form with dark-green blunt leaves is adventive from Eu. and is reported in Gray's Manual from e. Va. and ne. N.S. This is var. *holosteoides* Fries. However, all our C.B. collections examined are hirsute.

Throughout temperate N. Amer.

2. *C. arvense* L. FIELD-CHICKWEED

Scattered and often abundant locally in fields or meadows, where it may be introduced. It is common at Truro and is scattered in the Annapolis Valley, around Port Williams and Canard. Rarer elsewhere as at Lismore, Pictou Co., Parrsboro and Windsor.

Lawson (1890-1) states that the true indigenous form of the plant was collected on the trap cliffs at Blomidon. It was collected by Schofield: abundant in cliff crevices, Cape Blomidon, 1954; and by Webster and Erskine, 1956, as common on cliffs and scree beyond Indian Springs. Plants collected there are densely glandular but other collections also show this glandular condition to some extent. Early June.

A collection of compact very glandular plants made by Perry and Roscoe from edge of Granite Cliffs, St. Paul I., has been placed by Fernald in the western var. *viscidulum* Gremli, for the only station known from east of N. Dak. (Fernald, 1948).

This variable species and its variations are found in the northern hemisphere around the world.

8. AGROSTEMMA L.

1. *A. Githago* L. CORN-COCKLE

Occasionally introduced into fields in grain seed; not a permanent weed, and becoming increasingly rare as cleaner seed is used.

Introduced from Eu.; widely spread.

9. LYCHNIS L. CAMPION

Tall biennial or perennial plants, much like those of the next genus but with 5 styles and the capsule opening with 5 or 10 teeth.

- a. Each petal with two shallow lobes.
- b. Stems glandular-pubescent, loosely branched; fruiting calyx much enlarged, ovoid or globose.
- c. Flowers red, opening in the morning; calyx-teeth triangular and acute.
 - 1. *L. dioica*
- c. Flowers white or rarely pinkish, opening in the evening; calyx-teeth longer and attenuate.
 - 2. *L. alba*
- b. Stem villous, stout and little branched; fruiting calyx scarcely inflated; inflorescence dense and hemispherical with the flowers scarlet.
 - 3. *L. chalconica*
- a. Each petal divided into 4 linear lobes, reddish; fruiting calyx tubular, not inflated; plant nearly glabrous.
 - 4. *L. Flos-Cuculi*

1. *L. dioica* L. RED CAMPION

Lawson (1890-1) reports this plant from Annapolis and Kentville and states that it is probably a remnant of the French occupation. No recent collections have been made and the plant may now be extinct in the Province.

Introduced from Eu. and widely distributed.

2. *L. alba* Mill. Fig. 71, c. WHITE CAMPION, WHITE COCKLE

Scattered around towns, waste places and along railroads; occasionally becoming a bad weed in fields locally, as near Pictou and Port Williams. It is perennial and difficult to eradicate once it has become established. Our plant is now considered to be a possible hybrid between true *L. alba* and *L. rubra* and has been given the name *L. Loveae* Boivin (Boivin 1966-c, 1967-a).

Introduced from Eurasia; N.S. to B.C. south to N.C.

3. *L. chalconica* L. MALTESE-CROSS

Grown in gardens and occasionally escaping to roadsides or waste places; escaped along roadside, Noel L., Hants Co., collected by D. and J. S. Erskine.

N.S. to Minn. south to N. Eng.

4. *L. Flos-Cuculi* L. Fig. 71, d. RAGGED-ROBIN

Local; abundant in meadows in parts of Kings Co., especially about Berwick, where some fields and meadows may be red when it is in flower in late May; swale near Yarmouth; low field near Brookfield and at Londonderry in Colchester Co. When once it is introduced into a meadow it is persistent but it spreads rather slowly.

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

10. *SILENE* L. CATCHFLY

- a. Dwarf, tufted plant of n. C.B.; flowers solitary. 1. *S. acaulis*
 a. Large, erect plant; flowers several to many in each inflorescence; weedy species.
 b. Calyx more or less inflated, papery and obscurely-ribbed with a network of delicate veins; plants glabrous, perennial. 2. *S. Cucubalus*
 b. Calyx not inflated except by the enlarging capsule; plant hairy and glandular; annuals.
 c. Flowers small, in a one-sided raceme, with very short pedicels; petals very shallowly bilobed; capsule 6-8 mm long. 3. *S. gallica*
 c. Flowers larger, in a terminal much-branched cluster; capsule 15-18 mm long; petals deeply bilobed. 4. *S. noctiflora*

1. *S. acaulis* L., var. *excapa* (All.) DC. MOSS-CAMPION

St. Paul I.; abundant at the southwest end of the island, and also south of N. E. Channel practically at sea-level (Perry, 1931). Lawson (1890-1) says that *S. acaulis* is reported from St. Paul I. and C.B. and this record is in Macoun's Catalogue.

Nfld. south to N.S. and the mts. of N.H.; w. N. Amer.

2. *S. Cucubalus* Wibel Fig. 71, e. BLADDER-CAMPION

Not uncommon in fields and waste places and scattered around towns and roadsides; introduced mostly in grain seed or scratch grains and becoming widely distributed in the Province, probably destined to be a common weed.

N.S. to B.C. south to Va. and Mo.

3. *S. gallica* L.

Local; well established around Digby and Deep Brook, where it was known as early as 1902; Karsdale, Annapolis Co.

Adventive from Eu.; local in N. Amer.

4. *S. noctiflora* L. NIGHT-FLOWERING CATCHFLY

Common, at least around towns, in waste places, gardens and along roadsides; rare in the country. This plant is very similar in appearance to *Lychnis alba* but is an annual and more common; very sticky to the touch and often dirty.

Naturalized from Eu.; and widely distributed.

11. *SAPONARIA* L.

- a. Perennial, in large clumps; leaves tapering to the base; flowers in dense clusters, usually double, the calyx not winged. 1. *S. officinalis*
 a. Annual, mostly growing singly; leaves clasping at the base; flowers in a loose corymbose cyme, single, the calyx strongly 5-winged. 2. *S. Vaccaria*

1. *S. officinalis* L. Fig. 71, f. BOUNCING-BET

Large clumps of this garden escape may be seen along roadsides, near old houses or in waste places in most parts of the Province, and

especially from Digby to Pictou. It is very persistent, but not aggressively spreading. Late July-early Aug.

Throughout N. Amer.; introduced from Eu.

2. *S. Vaccaria* L. SOAPWORT

Occasional; collected by Groh at Halifax, Aug. 1926; Italy Cross, Lunenburg Co., in 1910; Berwick, Windsor, and Halifax. (*Vaccaria segetalis* (Neck.) Garcke).

Native of Eu.; widely distributed in N. Amer.

12. DIANTHUS L. PINKS

More than 300 species are known. *D. plumarius* L. is the common Garden Pink; and *D. barbatus* L. is the garden Sweet William.

- a. Plants perennial, smooth or roughened; flowers solitary on long pedicels, with two ovate bractlets less than half as long as the calyx. 2. *D. deltoides*
 a. Plants annual, more or less hairy; flowers in dense terminal clusters, subtended by numerous hairy bracts equal to the calyx in length. 1. *D. Armeria*

1. *D. Armeria* L. DEPTFORD PINK

Scattered as a garden escape; Kentville, Wolfville, Sandy Cove, Auburn, Canard, Centreville, and probably occurring sparingly elsewhere.

Introduced from Eu.; N.S. to Ont.; B.C.; south to Ga.

2. *D. deltoides* L. MAIDEN-PINK

Rare and inconspicuous; Meteghan, Digby Co. to the Annapolis Valley, occasionally on the sand plains and scattered along the North Mt. slope; Mill Village, Queens Co. and Truro.

Introduced from Eu.; N.S. to Mich. south to N.J.

45. CERATOPHYLLACEAE HORNWORT FAMILY

This is our only aquatic plant with whorled, palmately dissected leaves. The flowers are minute and sessile in the leaf-axils.

1. CERATOPHYLLUM L.

1. *C. demersum* L. Map 274. HORNWORT

In Kings Co. rather common in the rivers flowing into Minas Basin; scattered from Cumberland to Antigonish and Guysborough Co.; rarer on the Atlantic side: Queens Co., in wrack of lake, Hibernia; Lunenburg Co., fragments in wrack, Oakland Lake; Cape Breton Co., abundant at *Chamaedaphne*-edge of small lake near Albert Bridge, Mira. Edges of small lakes and ponds, mucky bottom, marsh or backwaters of rivers (Smith, 1959).

Slow streams and ponds across the continent.

46. NYMPHAEACEAE WATER-LILY FAMILY

Aquatic plants with large floating leaves; flowers regular, with many stamens.

- a. Petiole attached at the summit of a deep notch in the blade; stem horizontal under the mud, 5 cm thick; pistil one.
 - b. Flowers yellow; leaves much longer than wide, with the veins coming from the mid-rib (Fig. 72, b, c). 1. *Nuphar*
 - b. Flowers white or pinkish; leaves rotund, with the veins mostly radiating from the summit of the petiole (Fig. 72, a). 2. *Nymphaea*
- a. Petiole attached to the middle of the small un-notched blade, covered with gelatinous slime when young; stem slender and trailing in water; flowers small with many pistils (Fig. 73, b). 3. *Brasenia*

1. NUPHAR Sm. YELLOW POND-LILY

Beal (1956) considers all the yellow pond-lilies to be subspecies of the European *N. luteum*.

- a. Anthers shorter than the filaments; leaf-blades to 20 cm long and 15 cm wide.
 - b. Flowers 2 cm or less wide; leaf-blades 3-10 cm long, with the notch $\frac{2}{3}$ or more the length of the midrib; young fruit without a ring of decaying stamens. 1. *N. microphyllum*
 - b. Flowers 3 cm or more in width; leaf-blades 7-20 cm long, with a notch about $\frac{1}{2}$ the length of the midrib; young fruit with a ring of decaying stamens. 2. *N. rubrodiscum*
- a. Anthers equalling or longer than the filaments; leaf-blades 17-26 cm long, 11-22 cm wide, with a narrow notch less than half as long as the midrib; flowers 4.5 cm wide. 3. *N. variegatum*

1. *N. microphyllum* (Pers.) Fern. Fig. 72, b. Map 275. SMALL POND-LILY

Ponds, slow-flowing streams and rivers, edges of lakes, sink-holes in gypsum country, often in ox-bow ponds. This small yellow lily is probably scattered throughout although it is most common from Kings and Cumberland Co. to Antigonish; only a few collections exist from near the Atlantic coast; and only two collections are known in C.B. August.

N.S. to Man. south to Penn.

2. X *N. rubrodiscum* Morong Map 276. YELLOW POND-LILY

Lakes and quiet streams, Yarmouth to Pictou and Inverness and probably throughout wherever the other two species occur together. Now accepted as a hybrid between the last and the next species, its characteristics are intermediate between those of its presumed parents. As with the preceding species, it is rare on the Atlantic half of the Province.

N.S. to Minn. south to Penn.

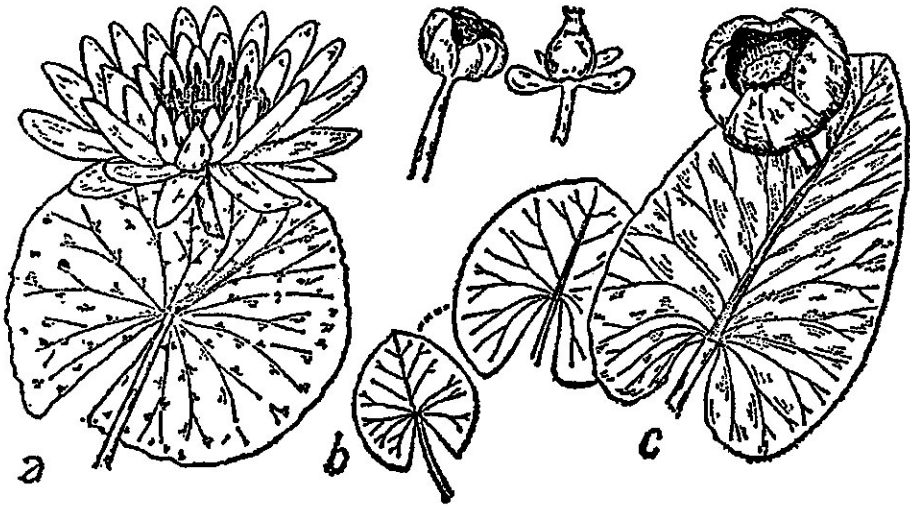
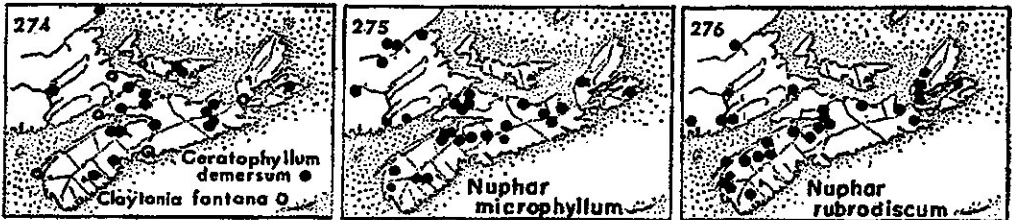


Fig. 72.—*Nymphaea*: (a) *N. odorata* $\times \frac{1}{2}$. — *Nuphar*: (b) *N. microphyllum* $\times \frac{1}{2}$, (c) *N. variegatum* $\times \frac{1}{2}$.

3. *N. variegatum* Engelm. Fig. 72, c. Map 277. COW-LILY

Common throughout, also on Sable I.; lakes, ponds, quiet streams and still-waters. It is characteristic of bog-pools and when shallow pools disappear during a dry summer the leaves may emerge and grow erect. July-Aug.

Lab. to Yukon south to Del., Ohio and Nebr.



2. NYMPHAEA L. WATER-LILY

1. *N. odorata* Ait. Fig. 72, a. Map 278 WATER-LILY

Bog pools, lake margins, shallow muddy ponds and slow-flowing rivers; very common in the southern regions from Yarmouth to C.B.; rarer northwards and in the sandy areas; often transplanted into small ponds. (*Castalia* Salisb.).

Var. *rosea* Pursh is reported common in bog-pools and lake margins of Digby and Yarmouth Co. (Fernald, 1921); in Halifax Co. (Rousseau, 1938-a); and on St. Paul I. This variety, with smaller, often pinkish petals, is more of an ecological form and occurs when the plants are growing under dryish conditions.

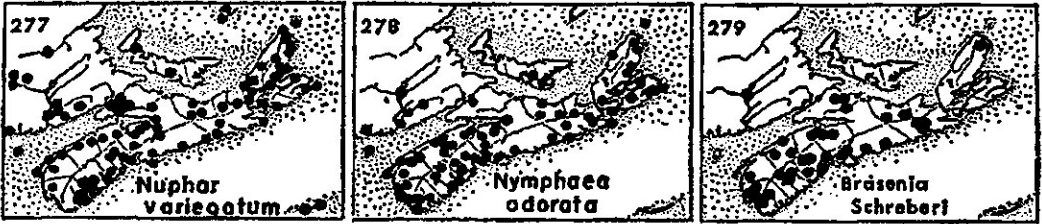
Nfld. to Man. south to Fla. and La.

3. BRASENIA Schreb

1. *B. Schreberi* Gmel. Fig. 73, b. Map 279. WATER-SHIELD

Local; various lakes of Yarmouth and Shelburne Co. (Fernald, 1921, 1922); scattered in lakes in Halifax Co. (Lawson, 1890-1); reported from various places east to Guysborough Co. (Rousseau, 1938-a) and Millstream, Pictou Co. (Robinson, 1907). Now known to be local but widely distributed in the western and southern counties, rare northeastward. The only known station in C.B. is in the Aspy Bay region. July-Sept.

Fla. to Tex. north to N.S., across Canada and world-wide.



47. RANUNCULACEAE BUTTERCUP FAMILY

A large family with about 1500 species of wide distribution. Flowers regular, except in *Aconitum*, with the sepals present, often petal-like, the petals present or absent; stamens usually numerous and pistils 1-many forming many achenes, a follicle or a berry. Stipules absent.

- a. Plant a vine, climbing by the bending of the petioles; leaflets 3; flowers numerous in panicles (Fig. 75, a). 5. *Clematis*
- a. Plants herbaceous, not climbing.
 - b. Leaves reniform or orbicular, toothed or very shallowly lobed.
 - c. Leaves mostly basal, 0.5-5 cm wide, the stem-leaves reduced; fruit of many achenes; buttercups. 1. *Ranunculus*
 - c. Leaves scattered along the stem, reniform, 5-20 cm wide; fruits of many-seeded follicles; flowers yellow (Fig. 75, d). 6. *Caltha*
- b. Leaves deeply lobed or compound.
 - d. Leaves all basal; plant less than 10 cm high.
 - e. Leaves with 3 lobes cut half or two-thirds to the base; flowers blue, subtended by tiny leafy bracts (Fig. 74, d). 3. *Hepatica*
 - e. Leaves with 3 toothed leaflets; flowers white, without leafy bracts; rootstocks bright yellow (Fig. 75, c). 7. *Coptis*
 - d. Leaves both basal and scattered along the stem, or all scattered on the stem.
 - f. Stem leaves 2 or 3, opposite or whorled; flowers one to several on long pedicels; petals absent. 4. *Anemone*
 - f. Stem-leaves alternate.
 - g. Leaves deeply cut, or palmately-compound, but once divided. 1. *Ranunculus*
 - g. Leaves large, ternate, with 3 large leaflets again once or twice divided.
 - h. Flowers very irregular, blue to whitish; fruit 3-5 follicles; plant tall with leaves palmately divided into narrow lobes. 9. *Aconitum*

- h. Flowers regular.
 - i. Leaves numerous, sessile or nearly so, the final divisions with 3-5 teeth at the apex; flowers often staminate or pistillate only; fruit of many achenes (Fig. 74, c). 2. *Thalictrum*
 - i. Leaves long-petiolate.
 - j. Leaves mostly basal, those on the stem reduced, the ultimate divisions with rounded teeth or lobes; fruit of 5 follicles; flowers large, few, the petals long-spurred (Fig. 75, b). 8. *Aquilegia*
 - j. Leaves 1-2, on the stem only, much-divided with the lobes sharply and acuminate pointed; fruit a berry; flowers small and crowded in short racemes; not spurred (Fig. 75, f). 10. *Actaea*

1. RANUNCULUS L. BUTTERCUPS

The buttercups present an interesting group with a different type of plant for each habitat (Benson, 1940, 1941; Drew, 1936).

- a. Leaves finely cut into thread-like or capillary division; plants aquatic or sometimes stranded; flowers white; achenes wrinkled (Fig. 73, c).
 - b. Receptacle densely hairy, the hairs more or less tufted; achenes 1-1.5 mm long, sometimes hairy. 1. *R. trichophyllus*
 - b. Receptacle smooth or sparsely hairy, the hairs not tufted; achenes 1.5-1.8 mm long, usually smooth. Var. *calvescens*
- a. Leaves entire, or divided with flattened lobes; flowers yellowish; achenes not wrinkled.
 - c. Plants of brackish soil, small, the leaves from the base of the stem, spreading by runners; achenes striate; leaves fleshy, merely toothed, rectangular to reniform; fruiting axis very elongate; flowers small (Fig. 73, d). 2. *R. Cymbalaria*
 - c. Plants not usually in brackish locations; achenes smooth.
 - d. Leaves linear to broadly lanceolate, entire or nearly so; plants rooting at the nodes, sub-aquatic or on wet sand.
 - e. Stem stout, ascending; leaves 5-10 mm wide; petals 4-8 mm long; stamens 25-50; achenes 20-25. 4. *R. Flammula*
 - e. Stem very fine, creeping; leaves filiform, 0.5-1.5 mm wide; petals 2-4, rarely to 7 mm long; stamens 5-25; achenes 5-15 (Fig. 73, f). 5. *R. reptans*
 - d. Leaves orbicular to elliptical, crenate or cut into numerous lobes.
 - f. Plants weak and slender, aquatic or on wet mud; leaf-blades round and radially cut into numerous segments; flowers about 1 cm wide, the petals slightly exceeding the sepals (Fig. 73, e). 3. *R. Gmelini*
 - f. Plants vigorous, erect or creeping; the leaves not floating, irregularly divided and lobed, or round and merely crenate.
 - g. Achene turgid, without a sharp or wing-like margin; petals 1.5-4 mm long, shorter than the sepals; plants glabrous or nearly so.
 - h. Basal and stem leaves deeply and palmately lobed or divided; marshes and swamps. 6. *R. sceleratus*
 - h. Basal leaves round to reniform, crenate; the lower stem leaves occasionally 3-lobed; rich deciduous woods. 7. *R. abortivus*
 - g. Achenes strongly flattened, with a border; leaves irregularly and much divided.
 - i. Flowers inconspicuous, the petals about 4 mm long or less; plants bristly or hirsute with stout spreading hairs; plants erect.
 - j. Styles hooked in fruit; heads sub-globose; leaf-divisions sessile; petals nearly equalling the sepals (Fig. 74, b). 8. *R. recurvatus*

- j. Styles straight or nearly so; heads about 3 times as long as wide; petals half as long as the sepals; terminal divisions of the leaf stalked.
9. *R. pensylvanicus*
- i. Flowers showy, with petals to 10 mm long; plants smooth or with light, soft pubescence.
- k. Base of the plant not bulbous; sepals appressed.
- l. Plant usually rooting at the lower nodes, often creeping; divisions of the leaf stalked, the stalks of different texture from the blade; flowers rather orange in color; style less than 1 mm long.
10. *R. repens*
- l. Plants erect; divisions of the leaf all sessile; style more than 1 mm long (Fig. 74).
11. *R. acris*
- k. Base of the plant thickened and bulbous; leaves with the lateral divisions sessile, the terminal ones stalked; sepals reflexed.
12. *R. bulbosus*



Fig. 73.—Claytonia: (a) *C. caroliniana* $\times \frac{1}{2}$. — Brasenia: (b) *B. Schreberi* $\times \frac{1}{2}$. — Ranunculus: (c) *R. trichophyllus*, (d) *R. Cymbalaria*, (e) *R. Gmelini*, (f) *R. reptans*, all $\times \frac{1}{2}$.

1. *R. trichophyllus* Chaix. Map 280. Fig. 73, c. WHITE WATER-CROWFOOT

Slow-moving streams, lagoons, shallow pools and occasionally in ditches in meadows, associated with mucky soils; scattered from Annapolis Co. to northern C.B.; unknown in southwestern N.S. and along the Atlantic Coast. July-Aug.

Lab. to Alaska south to N.Y. and Calif.; Eurasia.

Var. *calvescens* W. B. Drew is much rarer than the preceding variety. The best example is from a brook west of Whycocomagh, possibly also from Great Village in Colchester Co. N.S. to Ont. and Mich. south to New Eng. and Penn.

Var. *eradicatus* (Laestad.) W. B. Drew is a slender form with the stems less than 1 mm in diameter and with round leaf-blades up to 2.5 cm across. This slender northern form is best represented from the wrack at the edge of Gillie Lake, C.B. Co., Greenland to Alaska south to N.S. and Que.

The two recent students of this section differ in their interpretations of the status of this plant. Benson prefers to keep the American and the European plants together as *R. aquatilis* L. Drew believes the American plants are sufficiently distinct to warrant giving them the specific name *R. trichophyllus*.

Certain collections from near Truro seem to be near to *R. subrigidus* Drew, because they have short petioles and the leaf-divisions are stout and rigid. Benson considers this species to be merely plants intermediate between *R. aquatilis* and plants found further west. A collection from Earltown Lake north of Truro has a very orbicular leaf-outline and rigid divisions quite different from other collections.

2. *R. Cymbalaria* Pursh Fig. 73, d. Map 281. SEASHORE-BUTTERCUP

Characteristic of open salt marshes and flooded dykelands throughout; found only near or on saline soil and often abundant in local areas. Smaller plants with leaves 4-10 mm long and 3-toothed at the apex have been named var. *alpina* Hook. This arctic variety is not well marked in N.S. although intermediates occur on Sable I.

Lab. south to N.J.; across the continent in saline soils.

3. *R. Gmelini* DC., var. *Hookeri* (D. Don) Benson Fig. 73, e. Map 282. YELLOW WATER-CROWFOOT

Common in marshes at Kentville, Windsor and Truro and from there to Amherst and C.B.; abundant where found, in slow-flowing streams and ditches, shallow pools, and ponds in the more alkaline areas (Smith, 1959); often growing in shallow water among the bases of swamp plants, or sometimes out on sandy shores or dried-up ditches. The American plants differ slightly from the Asiatic ones and have been given various varietal names. (*R. Purshii* Richards).

Nfld. to Alaska south to Me. and N.Mex.

4. *R. Flammula* L.

Known from but two areas in the Province; from a cold spring brook, Tusket, Yarmouth Co. (Fernald, 1921); collected by C. E. Atwood in a grassy bog at Mt. Uniacke, Hants Co. in 1927; gravelly shore of Mount Uniacke Lake by Schofield and Webster in 1954.

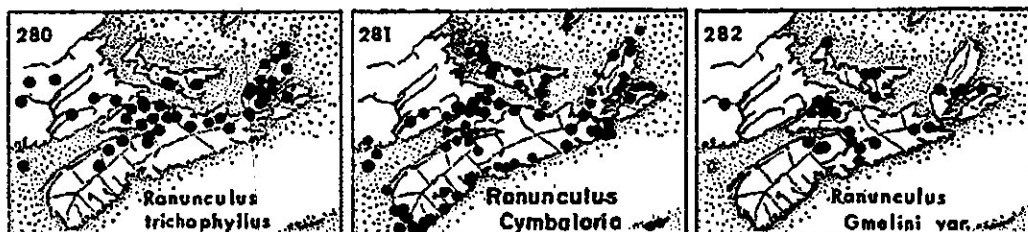
Nfld., St. Pierre and Miq., N.S., B.C. to Oreg.; Eurasia.

5. *R. reptans* L. Fig. 73, f. SMALL SPEARWORT

Along the sandy beaches and rocky shores of rivers, wet margins of rivers and lakes; scattered throughout but most common from Annapolis and Cumberland Co. to northern C.B.

Most of our plants have the leaves filiform but in southwestern N.S., in Queens and Yarmouth Co. a wider-leaved extreme occurs with a flattened blade. These plants are placed in var. *ovalis* (Bigel.) T. & G. (*R. Flammula*, var. *filiformis* (Michx.) Hook.).

Greenland to Alaska south to Penn. and Minn.; Eurasia.

6. *R. sceleratus* L. CURSED CROWFOOT

Local and rare; Halifax Co.: damp roadside, Barrie Beach, collected by H. P. Bell in 1935; MacNab I. at edge of a salt marsh; sand beside brackish pond, Eastern Passage (Erskine D. S., 1951); C.B. Co.: abundant in water of swampy pond, Main-à-Dieu; Queens Co.: beach at West Berlin.

Nfld. to Alaska south to Fla. and Calif.

7. *R. abortivus* L., var. *acrolasius* Fern. Fig. 74, a. Map 283. WOOD BUTTERCUP

Common on rich wooded hillsides and along intervalles from Digby and Cumberland Co. to northern C.B. The common form in N.S. has the leaf-blades of the basal leaves merely cordate at the base and with an open sinus; the stems and pedicels are minutely pilose. Diminutive plants may bloom in early May.

Var. *eucyclus* Fern., with the leaves orbicular and with a closed or overlapping sinus, is occasionally seen along the intervalles about Truro. This seems to be a form of richer habitats.

Lab. to B.C. south to Conn., Minn. and Colo.

8. *R. recurvatus* Poir. Fig. 74, b. Map 284.

Rich woods, along intervalles and on seepy hillsides usually in shady habitats, and preferring rather rich moist soil; not abundant but widely distributed; Annapolis and Cumberland Co. to northern C.B.; very rare on the Atlantic side.

Nfld. to Ont. south to Fla. and Tex.

9. *R. pensylvanicus* L. f. BRISTLY CROWFOOT

Lindsay lists this species from Pictou, collected by A. H. McKay. A specimen was seen from Cumberland Co. This plant, although collected by Erskine in western P.E.I., has not been seen in N.S. recently.

Meadows and moist ground, Lab. to Alaska south to Penn., Ind., and Oreg.

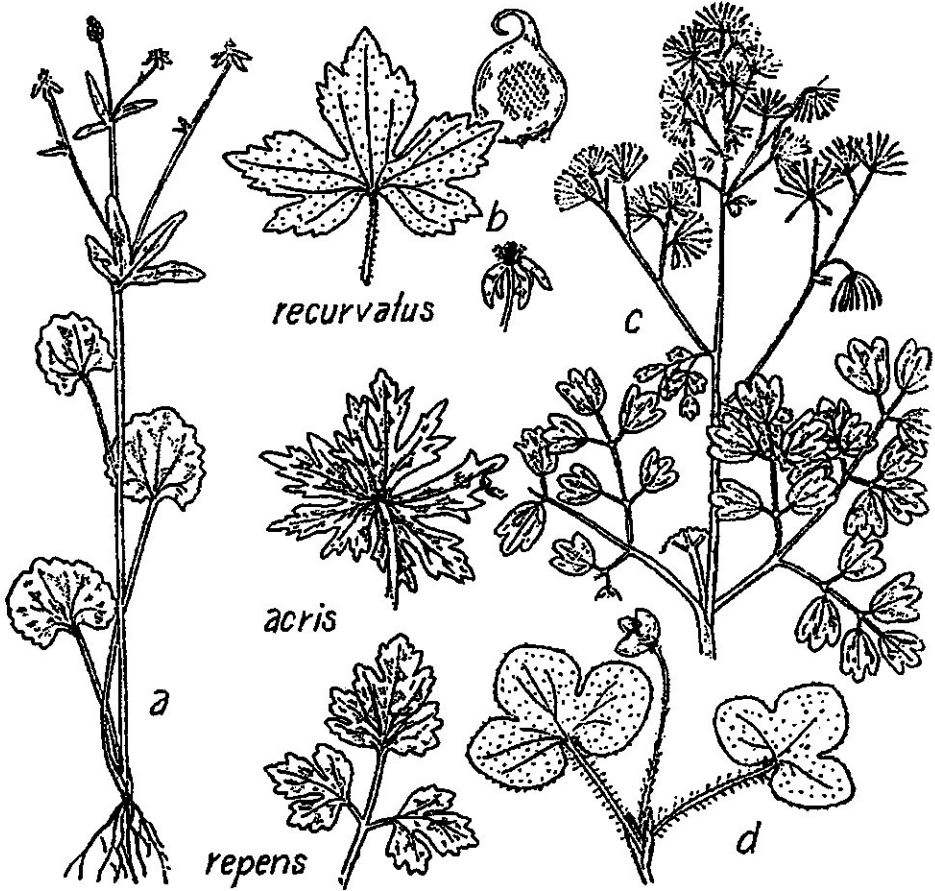


Fig. 74.—*Ranunculus*: (a) *R. abortivus* $\times \frac{1}{2}$, (b) *R. recurvatus*, leaf $\times \frac{1}{2}$, flower $\times 2$, achene $\times 5$. — *Thalictrum*: (c) *T. polygamum* $\times \frac{1}{2}$. — *Hepatica*: (d) *H. americana* $\times \frac{1}{3}$.

10. *R. repens* L. Fig. 74. CREEPING BUTTERCUP

Common throughout in ditches, low ground, meadows, wet woods and about towns; very variable in appearance and especially in pubescence. The typical plants of the species are trailing with appressed pubescence. $2n = 32$. Extreme forms with dense and wide-spreading pubescence on the stems may be designated var. *villosus* Lamotte. Var. *erectus* DC., with the plants erect, without trailing branches, and with sparse appressed pubescence, is introduced and local from Nfld. to New

Eng.; shallow pools in hardwoods at Pleasant Bay and Big Intervale, Margaree, in Inverness Co.; Digby Co.; old wet field, road to North Point, Brier I. June 20-Aug.

Introduced from Eu.; Nfld. to Minn. south to N.C., also on the West Coast.

11. *R. acris* L. Fig. 74. TALL BUTTERCUP

Common throughout; fields, meadows and roadsides, chiefly in heavy or moist soils, often a bad weed in low ground and wet pastures.

Var. *latisectus* (G. Beck) has, according to Boivin (1951), a distinct range in France and southeast Eu. and a much later flowering date, mainly in Aug. and early Sept. The basal leaves are velvety with the wide lobes obovate to rhomboid, cleft only half-way to the base and the rhizome tends to be horizontal.

The double form is forma *multipectatus* Boivin, occasionally escaped from culture to roadsides. The type is from the Experimental Station at Kentville.

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

12. *R. bulbosus* L. BULBOUS CROWFOOT or BUTTERCUP

Common from Barrington to Shelburne; scattered along the South Shore in light soils from Yarmouth to east of Bridgewater; Lawson (1890-1) reports it as perfectly naturalized in Point Pleasant Park, Halifax; Windsor. Probably less common than formerly.

Introduced from Eu.; dry fields and roadsides, Nfld. to B.C. southwards.

2. THALICTRUM L. MEADOW-RUE

The American *Thalictra* and their old world allies are described by Boivin (1944).

a. Terminal leaflets with 4 or more teeth or lobes; stigmas 2.5-4 mm long; anthers 3-4.5 mm long; stem-leaves below the inflorescence petioled.

1. *T. confine*

a. Terminal leaflets usually with 3 teeth; stigmas 1-2.5 mm long; anthers 0.7-2 mm long; stem-leaves below the inflorescence sessile.

2. *T. polygamum*

1. *T. confine* Fern.

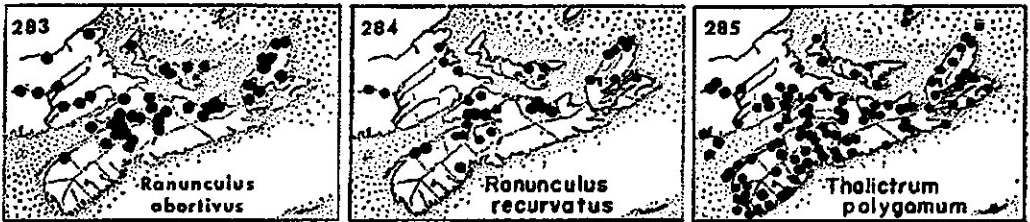
This plant was reported from Grand Lake, Halifax Co., based on a collection made by M.O. Malte in 1934 (Smith and Erskine, 1954). These plants have been reidentified by Boivin as the next species so it is doubtful if any collections of this species exist for our Province. Scattered across N.B. to P.E.I.

Gaspé to Ont. south to N.S., N.B., and N.Y.

2. *T. polygamum* Muhl. Fig. 74, c. Map 285. MEADOW-RUE
Common throughout in marshes, meadows, ditches and thickets, or even in the climax forest along the flood plains in C.B., one of the most conspicuous of our late summer plants. (*T. pubescens* Pursh).

Var. *hebecarpum* Fern. seems to be a form found in the cooler areas of the Province. The inflorescence is more compact and strongly corymbose, instead of open and paniculate; anthers slightly longer with the filaments 5-6.5 mm long as opposed to 3.5-5 mm in the species; and the stigmas 2-3.5 mm instead of 1.2-2.5. St. Paul I., Tusket, Brier I. It is said to be the only form on Sable I. (*T. Zibellium*). Its range is from Lab. south to N.S. and northern New Eng. July-early Aug.

The species ranges from Nfld. to Ont. south to Ga. and Tenn.



3. HEPATICA Mill.

Steyermark and Steyermark (1960) consider our two eastern N. Amer. plants to be varieties of the European species.

1. *H. americana* (DC) Ker. Fig. 74, d. HEPATICA

Local and very rare: records exist for Bridgewater, Windsor, Pictou, Stewiacke and Antigonish. It formerly grew in a dry pasture at St. Croix, Hants Co., and at Wolfville. Two locations exist east of Stewiacke near the St. Andrew's R. (*H. nobilis* Schreber, var. *obtusa* (Pursh) Steyermark. Mid-May.

N.S. to southern Man. south to Fla.

4. ANEMONE L. ANEMONE

The Anemones are among our rarer plants; erect with palmately divided basal leaves and with a whorl of two or more involucrel leaves on the stem, with 1 - several long-pedicelled flowers above them.

a. Plants coarse, 3-12 dm high; basal leaves several; flowers usually several, in mid-summer.

b. Involucrel leaves usually several, distinctly petioled.

c. Segments of the leaves narrow, wedge-shaped with straight sides; styles at maturity upwardly curved. 1. *A. riparia*

c. Segments of leaves more ovate, the outer edges outwardly curved; styles at maturity widely divergent. 2. *A. virginiana*

- b. Involucral leaves two, sessile. 3. *A. canadensis*
 a. Plants 1-2 dm high, delicate and slender, with a solitary basal leaf from a horizontal rootstock; flower solitary, around the first of June. 4. *A. quinquefolia*

1. *A. riparia* Fern. Map 286.

Scattered on talus and cliff ledges, Lockhart Brook, Salmon River, Victoria Co.; Hillsborough in Inverness Co. and other scattered stations in northern C.B. and near Windsor and Truro.

Calcareous and slaty ledges, shores and thickets, N.S. to Que. and Ont. south to N.Y. and Minn.

2. *A. virginiana* L. THIMBLEWEED

Rare, restricted to intervalles or banks of rivers; along the Meander R., Hants Co.; occasional in Colchester and Pictou Co.; scattered in western C.B. Early July.

N.S. to B.C. south to Ga.

3. *A. canadensis* L. Map 287.

Cape Jack and near Havre Boucher near the sea in Antigonish Co.; Inverness Co.: meadow, Cheticamp; in meadow at the end of a pond at Presqu'île; Cape North and Bay St. Lawrence. This is another of our rarer plants found growing in P.E.I. where Erskine reports it from damp clay soil of railway ditch and bank at edge of swampy woods halfway between O'Leary and Coleman.

Gaspé to B.C. south to N.S., N.J. and Mo.

4. *A. quinquefolia* L. Map 288. WOOD-ANEMONE

Rare and local; north of Bridgetown, Annapolis Co.; Newport, Hants Co.; Middle Stewiacke and rather common along the St. Andrew's R., Stewiacke and east of Shubenacadie in Colchester Co.; wooded bank of river two miles north of Sherbrooke, Guysborough Co. This, like each of our Anemones, is one of our rarer species and is found on wooded banks of rivers or on shaded intervalles. Late May to early June.

N.S. to Ont. south to N.C. and Ohio.

