Onagraceae
evening-primrose family

Mostly this is a family of herbs, distributed throughout the Americas, and best developed in the western US. All have simple leaves and perfect flowers; the hypanthium extends beyond the ovary. Our species have the petals and sepals two- or four-merous. Sepals are reflexed at anthesis and equal in number to the stamens and carpels. Alternate stamens may be unequal in size. Carpels are united, forming a compound ovary. Fruit is generally a capsule, although some have berries or nuts.

Keys to genera

A. Flowers 2-merous; leaves all opposite; petals minute. *Circaea*
aa. Flowers generally 4-merous; leaves mostly alternate; petals various. B
    B. Sepals persistent; no free hypanthium; petals absent. *Ludwigia*
    bb. Sepals deciduous; hypanthium prolonged beyond the ovary; petals present. C
        C. Seeds with a tuft of hairs distally; petals not yellow. D
            D. Inflorescence a terminal raceme; leaves alternate. *Chamerion*
            dd. Inflorescence of solitary flowers arising from leaf axils or if a raceme, then leaves opposite. *Epilobium*
        cc. Seeds not tufted with hairs; petals yellow. *Oenothera*

Chamerion Raf.
fireweeds

The fireweeds have recently been separated from *Epilobium*, based in part on floral features. Flowers are generally showy, arranged in terminal racemes. Leaves are lanceolate and alternate along the stem. Basal leaves are absent. Two North American species have been described, which include several subspecies.

***Chamerion angustifolium* (L.) Holub**
(=*Epilobium angustifolium* L.)
Fireweed; Large Willow-herb; épilobe à feuilles étroites

Photo by Andy Dean

Photo by Ross Hall

Tall and coarse, this plant bears alternate lanceolate leaves on short petioles. The showy pink to purple flowers are arranged in a terminal raceme. Petals are pointed rather than notched. Capsule is dehiscent, each seed bears a tuft of silky white hairs (coma). White-flowered forms and those with reddish sepals have also been reported. Two ssp. are reported from NS, although our material requires examination to separate them. Ssp. *circumvagum* (Mosquin) Hoch and ssp. *angustifolium*.

Flowers mid-July to August.

Conspicuous in colonies, on cleared land, after a fire or on edges of thickets and forests.

Common throughout.

Greenland to AK, south to CA, NM and NC; Eurasia.

Circaea L.
enchanter's nightshade

Perennial herbs, they are best developed in arctic and north-temperate regions, seven species in total. The cauline leaves are opposite. Flowers are two-merous, arranged in terminal racemes, subtended by leafy bracts. Fruits are tiny round indehiscent capsules with hooked bristles.

Key to species

Open flowers widely spaced in the inflorescence; fruit with 2 locules. *Circaea lutetiana*

Open flowers clustered at the apex; fruit with a single locule. *C. alpina*

***Circaea alpina* L.**

Small Enchanter's Nightshade

Photo by Sean Blaney

Photo by Sean Blaney

A compact delicate plant, forming large patches where found. The leaves are ovate, toothed and paired along the stem. Basal leaves are absent. The lowermost pair is reduced in size, relative to the upper leaves. The terminal inflorescence is subtended by a series of small leafy bracts. White flowers are borne on slender pedicels, alternately arranged from the axis.

Flowers mid-June to September.

Usually in mossy wet soil beneath mixed conifers, dripping ravines, streamsides and even swamps.

Common throughout the province.

NL to AK, south to CA, AZ and NC.

***Circaea canadensis* (L.) Hill.**
***(=C. lutetiana* L.)**
Large Enchanter's Nightshade; circée du Canada

Photo by Sean Blaney

A more robust species, with larger leaves, shallowly toothed along the margins and glaucous beneath. Flowers are widely spaced and borne on reflexed pedicels. Plants are sometimes branched. Our plants are ssp. *canadensis* L.

Flowers from July to September.

Grows in fertile soils as those found in intervals, or other alluvial wooded sites.

Scattered from Kings and Cumberland counties northward.

Ranges from NS to MB, south to LA and GA. Asia.

A vigorously spreading hybrid between our two species has been collected from the central region and northward. Its few terminal flowers are borne in a cyme and are sterile. It is intermediate between the parent species. Known as *C.* X *intermedia* Ehrh. The hybrid ranges from NS to MB, south to NC and SD.

Epilobium L.
willow-herb

Both temperate and arctic, the willow-herbs span both hemispheres, 200 species in all. Their terminal flowers are four-merous and they may be solitary or arranged in racemes. Generally pink, they may also be purple or white. Ovary is extremely long and slender and the hypanthium may extend beyond it, mimicking a calyx tube. Capsule is linear and dehiscent, each of four valves containing many tiny seeds. Coma (silky tuft of hairs) is present. Leaves are opposite or alternate, always simple.

Key to species

A. Stigmata four-parted.	*Epilobium hirsutum*
aa. Stigmata undivided.	B
B. Leaves entire, inrolled, <1cm wide; pubescence on stems not restricted to lines from leaf bases.	C
C. Plant villous.	*E. strictum*
cc. Plant with appressed pubescence.	D
D. Leaves nearly smooth on the upper surface.	*E. palustre*
dd. Leaves puberulent on the upper surface.	*E. leptophyllum*
bb. Leaves toothed and flat, >1cm wide; pubescence on stems in lines from leaf bases.	E
E. Plants arising from a turion.	*E. ciliatum,* ssp. *glandulosum*
ee. Plants without a turion.	F
F. Stems reclining or erect, <40cm, simple above; with short rhizomes, arising from axillary buds.	*E. hornemannii*
ff. Stem erect to 1m, freely branching; plants without rhizomes.	G
G. Coma nearly white; seeds short beaked.	*E. ciliatum* ssp. *ciliatum*
gg. Coma brown; seeds beakless.	*E. coloratum*

***Epilobium ciliatum* Raf.**
(now includes *E. glandulosum* Lehm.)
Willow-herb

Photo by Martin Thomas

Highly variable, with early plants unbranched and reddish, while late-seasonal plants may be much more robust and entirely green. The lanceolate leaves are opposite and serrate. We have both ssp. *ciliatum* and ssp. *glandulosum* (Lehm.) Hoch & PH Raven. The latter ranges here from Yarmouth and Shelburne north along the Bay of Fundy to Cape Breton.

Flowers in July and August.

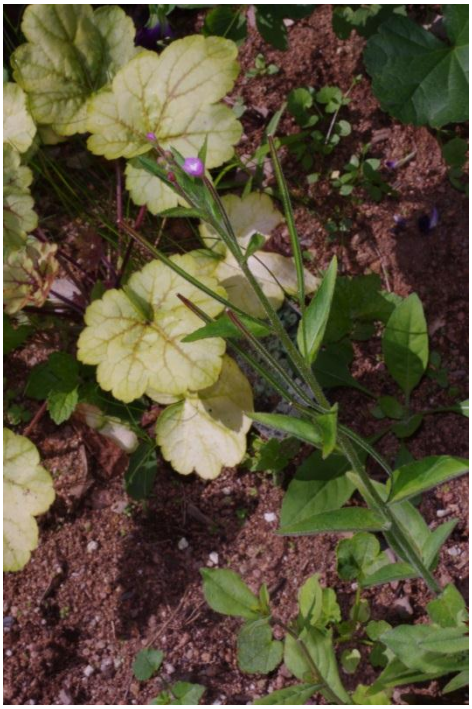


Photo by Martin Thomas

Wet soils, springy areas, seeps, cliffs and even coastal.

Common throughout.

Ranges from NF to AK, south to Gulf of Mexico. Absent only in the extreme southeast.

***Epilobium coloratum* Biehler.**
épilobe coloré

Photo by Martin Thomas

A freely branching species, often difficult to separate from the previous species. The lanceolate leaves are carried on short petioles, with serrate margins. Seeds are black; the coma is cinnamon coloured, although it may be brown or grayish.

Flowers from July through October.

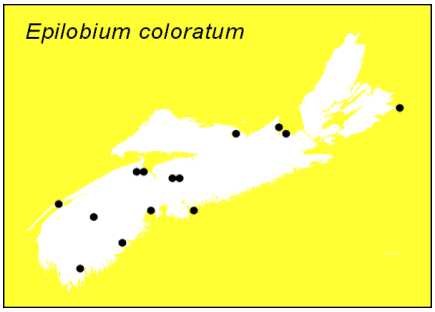
Low grounds and seepy soils.

Photo by Martin Thomas

Scattered from Digby to Guysborough counties.

NF to ON, south to TX and GA.

YELLOW-listed in NS.



***Epilobium hirsutum* L.**
épilobe hirsute


Photo by Martin Thomas

Leaves are sessile, opposite on the stems and lanceolate with serrate margins. Plants produce few flowers, with their petals notched rather than pointed. Pink or purple in colour.

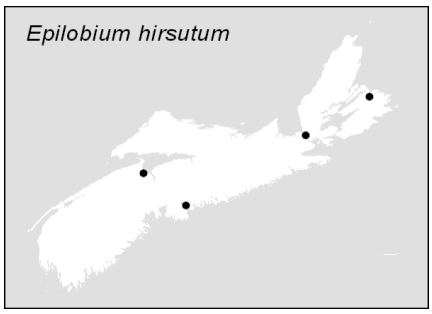
Flowers from July through September.

Fallow fields, roadside thickets, meadows.

An introduction collected historically from Wolfville and area, Halifax and Yarmouth. Recently found at Greenwich, Falmouth and Port Hastings. Also observed on the outskirts of Sydney.

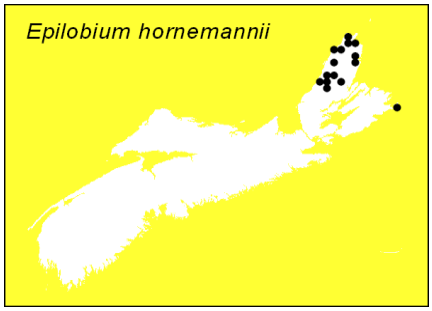
NS to ON, south to KY; west coast. European.


Photo by Martin Thomas



***Epilobium hornemannii* Reichenb.**
épilobe de Hornemann

Photo by David Mazerolle



A slender plant, it has its few branches often decumbent. Terminal flowers are borne on long slender pedicels arising from the upper pair of leaves. One collection of var. *lactiflorum* (Hausskn.) D. Löve is also reported.

Flowers July and August.

Damp areas, along seeps and streams.

Northern Cape Breton.

Arctic North America, south to NY in the east; CA and NM in the west.

YELLOW-listed.

A single specimen of ***Epilobium lactiflorum* Hausskn.** should be examined to see if it belongs here or is a white-flowered form of another species. (ACAD) It is not reported from Maritime Canada.

***Epilobium leptophyllum* Raf.**

Bog Willow-herb; épilobe leptophylle

Photo by David Mazerolle

A leafy freely branching species, the leaves are narrowly lanceolate. Upper part of the stems and top surface of the leaves are densely pubescent. Carpels are glandular.

Flowers from July to September.

Frequents meadows, bogs, swales, swamps and margins of lakes or streams.

Scattered to common throughout.

Ranges from NS to AK, south to CA, NM and NC.

***Epilobium palustre* L.**

épilobe palustre

Photo by Sean Blaney

A slender species with few branches, its leaves are nearly linear and smooth on their margins and strongly ascending. Generally smaller towards the apex, they range from 1–4mm wide and 10–30mm long. One or more flowers are borne at the apex surrounded by leaves. Several varieties are included here.

Flowers from July through August.

Bogs and other peatlands.

Scattered throughout Nova Scotia, but characteristic of the Atlantic side.

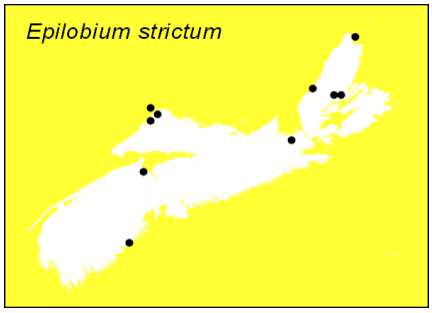
Ranges from NF to AK, south to CA, NM and PA.

***Epilobium strictum* Muhl.**

épilobe dressé

Photo by Sean Blaney

Photo by David Mazerolle



Slender and sparsely branched, this species is downy on the stems. Pink flowers are solitary or few at or near the top of the plant. Leaves are lanceolate and sometimes acute.

Flowers July to September.

Bogs and other peatlands.

Scattered throughout Cape Breton, infrequent elsewhere.

NS to ON, south to VA and IL.

YELLOW-listed.

Ludwigia L.
water-primrose

Best developed in tropical America, a single species reaches Nova Scotia. Flowers are typically 4–5-merous; the hypanthium is not prolonged. Sepals are persistent. Flowers are sessile from the leaf axils. Fruit is a dehiscent capsule splitting longitudinally.

Ludwigia palustris (L.) Ell.
Water-purslane; ludwigie palustre

Photo by David Mazerolle

Photo by David Mazerolle

Ours is a prostrate, creeping plant, wholly or partially submerged or emergent. The leaves are opposite and cauline, ovate and entire. It freely roots from the nodes. It is frequently overlooked.

Flowers from late June until September.

Shores, ditches, shallows.

Common throughout northern NS and infrequent along the Atlantic side.

NS to ON, south to TX and FL; west coast; Eurasia.

Photo by Sean Blaney

Oenothera L.
evening-primrose

About 80 species make up this genus. Recent studies have divided the North American species into three genera. Flowers are terminal, solitary or in spikes or racemes. They are four-merous, but for the eight stamens. Hypanthium is tubular, extending beyond the ovary, deciduous in fruit. Ours have yellow showy petals and narrow alternate leaves.

Key to species

A. Ovary and fruit round in cross-section; fruit with 4 blunt angles; stamens equal in length. B

B. Claws on sepals free at the base; end of sepal a small lobe or ridge. *Oenothera parviflora*

bb. Claws on sepals convergent but not connate, strictly terminal. C

C. Stems and calyces merely pubescent or hirsute. D

D. Flowers to 5cm across. *O. biennis*

dd. Flowers >5cm across. *O. grandiflora*

cc. Calyx and capsule densely hirsute or villous. *O. villosa*

aa. Ovary and fruit 4-angled or with 4 narrow wings; fruit sharply angled; alternate stamens unequal in length. E

E. Petals to 3cm long. *O. fruticosa*

ee. Petals <1.0cm long. *O. perennis*

***Oenothera biennis* L.**

Evening-primrose; onagri bisannuelle

Photo by Sean Blaney

Photo by Martin Thomas

A coarse, erect species, densely pubescent on the stems and unopened flowers. Leaves are elliptical, cuneate at the base. Usually the fragrant flowers open at dusk.

Flowers June through until November.

Grows in dry open soil as found roadside.

Common throughout.

Throughout North America, but introduced in Nova Scotia.

***Oenothera fruticosa* L.**

Narrow-leaved Evening-primrose

Photo by Martin Thomas

Not as robust as the previous species; the inflorescence forming half of its height. Flowers are erect. Leaves are lanceolate and the stem is glabrous. Ours is ssp. *glauca* (Michx.) Straley.

Flowers from June to August.

Old field habitat, edges of thickets and roadsides. Dry, open soil.

Scattered from Yarmouth to Northumberland Strait.

NS to MB, south to OK and FL.

***Oenothera grandiflora* Ait.**
Large-flowered Evening-primrose; onagre à grandes fleurs

It is nearly identical to *O. biennis* but for the large flowers, the petals spanning 10cm across.

Flowers in summer.

Roadsides, dry soils. Garden escape.

One long-established population in NS at Plympton, Digby Co., where it has been thriving for more than 100 years. Also a Cumberland Co. site.

FL and AL, northward to QC and NS. Introduced from further south.

***Oenothera parviflora* L.**
(incl. var. *sabulonensis* Fern.)
Small-flowered Evening-primrose; onagre parviflore


Photo by Sean Blaney

Leaves are narrowly oblanceolate and bearing small terminal flowers, separating it from *O. biennis.*

Flowers July to September.

Grows on talus, dry calcareous gravels and sands.

A common species in coastal habitats in eastern NS and spreading along roadsides. Less frequent westward, to Cumberland Co.

Across Canada and south to SC and MO.

Photo by David Mazerolle

***Oenothera perennis* L.**

Sundrops; onagri vivace

Photo by Sean Blaney

Photo by David Mazerolle

A smaller more compact plant than other species of the genus. The inflorescence is nodding and occupies at least half the height of the stem, in fruit. Leaves are narrowly lanceolate, sometime appearing petiolate.

Flowers July to September.

Light sandy soils.

Common throughout, although less frequent along the Atlantic coast.

NL to MB, south to MS and GA. BC.

***0enothera villosa* Thunb.**
Hairy Evening-primrose; onagri velue

It bears dense pubescence on the calyces, ovaries and capsules, the hairs villous or hirsute. Ours is the typical subspecies.

Probably flowering from June to October.

Similar habitats to *Oenothera biennis*.

Several widely scattered localities are recorded: Yarmouth, Starrs Point, Kings Co. and Cooks Cove, Guysborough Co. Perhaps more frequent and merely overlooked.

NS to NT; BC; south to CA, TX and GA.