

Rubiaceae Key to species in Newfoundland and Labrador

© Susan J. Meades; updated April 28, 2026

Rubiaceae Traits	1
Rubiaceae Key	2
Rubiaceae Comparison Charts	5
References	9

Rubiaceae Family Traits (relative to *Galium*, *s.l.*, and *Mitchella*)

- Herbaceous plants with erect or trailing stems, glabrous (smooth) or scabrous.
- Leaves simple, opposite or in whorls of 4 or more.
- Calyx adnate (fused) to the 2-4-locule inferior ovary.
- Corolla rotate (circular and flat), 3-4-lobed in *Galium* and related genera; in *Mitchella*, 2 tubular corollas, hairy on the inner surface, with 4 short spreading lobes, are attached to a double ovary.
- Stamens usually 4, as many as the lobes of the corolla, adnate to the base of the corolla.
- Flowers bisexual; in *Mitchella* only, flowers have 4 stamens, which may be shorter or longer than the slender style (an adaptation for cross-pollination). In *Galium*, stamens are similar in size.
- Ovary inferior, with 2 locules in *Galium* and related genera; in *Mitchella*, with 2 fused ovaries forming a double ovary with 4 locules; each locule contains 1 seed (in *Galium*) or 1 nutlet (in *Mitchella*).
- Fruit, in *Galium* and related genera, a 2-lobed smooth or bristly schizocarp, separating into 2 globose or subglobose (longer than wide) mericarps, the pair 1.5-6 mm wide, with smooth or bristly surfaces; or, in *Mitchella*, a double red berry-like drupe, 5-8 mm across, with two scars (eyes) from where the 2 flowers were attached.

Note: The large genus *Galium*, in the broad sense (*s.l.*), was recently divided into several genera. For details of all the changes, see: Kadereit, J.W., & G.M. Schneeweiss, in the References (pg. 9). In Newfoundland and Labrador, there are now 3 bedstraw genera: ***Galium*** (*sensu stricta*), ***Hydrogalium***, and ***Trichogalium***. Most of the *Galium* species that have not changed names have circumboreal or Eurasian ranges. All of our introduced *Galium* species fall within this category and prefer forested, barren, or disturbed habitats. The genus ***Hydrogalium*** in NL includes 4 species (1 with 2 sub-species), all are native to North America and prefer moist to wet habitats, such as fens, bogs, marshes, and fresh or brackish shores; their leaves all have obtuse apices. Of the new ***Trichogalium*** species, we have only 1 in NL: *Trichogalium kamtschaticum*, native to North America and eAsia.

Key to Rubiaceae Species in Newfoundland and Labrador

- 1a. Leaves opposite, blades broadly ovate, shallowly cordate, or orbicular; with a pair of flowers attached to a double ovary of 2 connate (fused) ovaries; each tubular white corolla, densely hairy on the inner surface, ends in 4 spreading lobes; the outer surface of the corolla is pale pink; the fruit is a bright red berry-like drupe, with white flesh and 4 small nutlets inside; the surface has two circular scars, surrounded by 4 persistent calyx teeth, marking where the 2 corollas were attached to the ovary.
..... ***Mitchella repens*** (two-eyed berry in NL; partridgeberry in mainland Canada)
- 1b. Leaves whorled, 4-12 leaves per node; blades linear, elliptic, oblanceolate, or obovate; flowers with small, rotate, 4-lobed corollas on simple 3-branched peduncles or flowers in multi-flowered cymes or panicles; fruit a dry 2-celled schizocarp separating into 2 small mericarps, each containing 1 seed: *Galium*, s.l. (*in the broad sense*). **2**
- 2a. Fruit globose, surfaces covered in hooked bristles. **3**
- 2b. Fruit globose or subglobose, surfaces smooth. **5**
- 3a. Stems erect, <1-3 dm tall, with 2-4 nodes, leaves largest at the upper 2 nodes; leaves 4 per whorl, blades 1-3.5 cm long, broadly elliptic to obovate, with 3 veins from the base, margins have slender, antrorse (forward-pointing) bristles.
..... ***Trichogalium kamtschaticum*** (northern wild licorice)
- 3b. Stems trailing, to 1 m long, with several to many nodes; leaves 5-8 per whorl; blades lanceolate, elliptic, or oblanceolate, with 1 vein; margins scabrous, with antrorse (forward-facing) or retrorse (backward-facing) bristles or barbs. **4**
- 4a. Plants perennial; stems smooth; leaves usually 6 per whorl, blades lanceolate, elliptic, or oblanceolate, 2-8.5 cm long; margins with antrorse (forward-pointing) bristles, apices are cuspidate (sharply pointed); flowers in groups of 3, corolla greenish-white, 4-lobed. ***Galium triflorum*** (fragrant bedstraw)
- 4b. Plants annual, scabrous and clingy; leaves 5-8 (usually 8) per whorl; blades narrowly oblanceolate, usually 2-7 cm long; stems and leaf margins retrorsely scabrous; corolla white, 4-lobed; fruits bristly with hooked bristles.
..... ***Galium aparine*** (cleavers)
[*Galium aparine* is also called sticky willy, since the plant clings easily to the clothing of passersby. It has not been reported from NL in recent years, but is included here to facilitate identification of similar species.]

- 5a. Leaves of main stem 4-6 per whorl, blade apices obtuse to rounded. 6
- 5b. Leaves of main stem 5-12 per whorl; blade apices acute or acuminate, with a cuspidate tip. 10
- 6a. Plants 2-5 dm tall; stems slightly rough, leaf margins scabrous; blades linear, elliptic, to narrowly oblanceolate, to 1.7 cm long; flowers numerous, in branched terminal cymes; corolla 2-3.5 mm wide, 4-lobed (occasionally 3-lobed); fruits globose, the pairs about 2 mm wide.
..... ***Hydrogalium palustre*** (marsh bedstraw)
- 6b. Plants 4-6 dm tall; stems smooth or retrorsely scabrous; blades linear, elliptic, or oblanceolate, to 2.5 cm long, leaf margins antrorsely or retrorsely scabrous; flowers in simple to few-branched cymes; corolla 3 or 4-lobed; fruits globose or subglobose, the pairs ± 2-3 mm wide. 7
- 7a. Plants erect, to 4 dm tall; stems smooth; leaves 4 per whorl, with tufts of short hairs below each node; blades linear to narrowly oblanceolate, spreading to reflexed, 0.5-1.5 cm long, leaf margins antrorsely scabrous; flowers with 4 white corolla lobes, cymes terminal, with lateral branches soon overtop the cymes; fruits subglobose, 1-1.5 mm long. ***Hydrogalium labradoricum*** (Labrador bedstraw)
- 7b. Plants erect, ascending, or spreading to 6 dm tall; stems and leaf margins retrorsely scabrous; leaves 4-6 per whorl, without tufts of hairs below the node; blades linear, narrowly elliptic, to narrowly oblanceolate, ascending to spreading, 0.6-2 cm long; flowers with 3-4 white corolla lobes; cymes terminal and axillary; fruits globose, the pair 2-4 mm wide. 8
- 8a. Stems erect, sparsely retrorsely scabrous, 1.5-6 dm tall; leaves usually 5-6 per whorl (occasionally 4), narrowly elliptic to oblanceolate, to 2.5 cm long; flower pedicels smooth; flowers 2-3.5 mm wide, corolla lobes 3-4, acute to broadly acute; fruits globose, the pair 2-3 mm wide.
..... ***Hydrogalium claytonii*** [formerly *Galium tinctorium*] (dyer's bedstraw)
- 8b. Stems weak, ascending, retrorsely scabrous, to 4 dm long, plants less robust than the previous species, often forming dense mats; leaves usually 4 per whorl, linear to narrowly oblanceolate, to 2 cm long; flower pedicels retrorsely scabrous; flowers 0.5 mm wide, corolla lobes 3, obtuse; fruits globose, the pair 2.5-4 mm wide. (*Hydrogalium trifidum*). 9
- 9a. Plants not succulent; mericarps 1.25-1.5 mm wide; plants of freshwater wetlands. ...
..... ***Hydrogalium trifidum*** subsp. ***trifidum*** (three-petal bedstraw)
- 9b. Plants somewhat succulent; mericarps 1.5-2 mm wide; plants of brackish shores. ...
..... ***Hydrogalium trifidum*** subsp. ***halophilum*** (brackish three-petal bedstraw)

[Note: subsp. *halophilum*, when transferred to the genus *Hydrogalium*, has not yet been validly published, it is anticipated that the upcoming *Flora of North America* treatment of Rubiaceae will provide validly published subspecies names for this species.]

- 10a. Stems erect, 3-1.2 dm tall; flowers white or yellow, numerous, in dense panicles; leaves 5-12 per whorl, fruit subglobose, 1-1.5 mm long; plants of disturbed areas, often found along roadsides; introduced. **11**
- 10b. Stems trailing, sprawling, or matted, 2-18 dm long; corolla white, 4-lobed, cymes axillary and terminal; leaves 4-8 per whorl; fruit globose or subglobose, 1.5-2 mm long; plants native or introduced. **12**

- 11a. Stems finely hairy; flowers yellow; leaves usually 8-12 per whorl (sometimes 6); blades linear, 1-2.5 cm long × ±1 mm wide, with revolute margins. ***Galium verum*** (yellow bedstraw)
- 11b. Stems ± smooth, not hairy; flowers white; leaves mostly 8 per whorl on main stems, 5-8 per whorl on branches; blades linear, narrowly elliptic, to oblanceolate, 1-3 cm long × 2-3.5 mm wide, margins slightly antrorsely scabrous; often occurring as a roadside weed in wNfld. ***Galium mollugo*** (smooth bedstraw)

- 12a. Stems retrorsely scabrous, very clingy; leaves 6 per whorl on main stems, 4-5 per whorl on branches, blades elliptic to oblanceolate, to 1.7 cm long, margins retrorsely scabrous; corolla about 3 mm wide; fruits globose, about 2 mm long, the pair about 2.5-3.5 mm wide; plants native; often in moist thickets or fields. ***Galium asprellum*** (rough bedstraw)
- 12b. Stems 1-2 dm (rarely 3 dm) long, matted, smooth, not clingy; leaves 4 or 6-8 per whorl on main stems, 4-5 per whorl on lower stems and branches; blades oblanceolate to obovate, 0.8-1.5 cm long; margins finely antrorsely scabrous; corollas 2-3 mm wide; fruits subglobose, 1.5-2 mm long; plants introduced, restricted to open acidic barrens in the Trepassey area of the southern Avalon Peninsula. ***Galium saxatile*** (heath bedstraw)

Rubiaceae Comparison Chart

Genera:	<i>Mitchella</i>	<i>Galium</i>	<i>Hydrogalium</i>	<i>Trichogalium</i>
	partridgeberry	bedstraw	bedstraw	bedstraw
Stems	trailing, glabrous; nodes several	erect, climbing, or decumbent, 4-angled, edges smooth or scabrous; nodes several to many	erect to decumbent, 4-angled, edges smooth, rough, or scabrous; nodes several to many	weakly erect, 4-angled, edges smooth; nodes 2-4
Leaves	opposite, on short petioles ; blades broadly ovate or obovate to orbicular; with white markings above the pinnate veins	whorled, sessile		
		5-12/whorl; blades linear, oblanceolate, elliptic, to obovate; with 1 vein; apices cuspidate ; margins revolute to scabrous	4-8/whorl; blades linear, elliptic, or oblanceolate; with 1 vein; apices obtuse ; margins slightly to strongly retrorsely scabrous	4/whorl; blades broadly elliptic to obovate, with 3 veins ; apices mucronate ; margins with antrorse bristles
Flowers	2 tubular white corollas attached to a double ovary; corolla tube densely hairy inside	corolla white greenish-white, or yellow, rotate, with 3-4 lobes	corolla white, rotate, with 3-4 lobes	corolla pale yellowish-green, rotate, with 4 acute lobes
Ovary	inferior; a double ovary, with 2 fused ovaries and 4 locules	inferior, with 2 locules		
Fruit	red berry-like drupe with 2 calyx scars, source of the common name two-eyed berry	schizocarp , composed of 2 mericarps, each with 1 seed		
		mericarps globose; surface smooth or covered in hooked bristles	mericarps subglobose; surface smooth	mericarps globose; surface covered in hooked bristles

***Galium* (s.l.) Comparison Charts**

Chart 1: <i>Galium</i> & <i>Trichogalium</i> - Species with bristly fruit			
Species:	<i>Galium aparine</i>	<i>Galium triflorum</i>	<i>Trichogalium. kamtschaticum</i>
	cleavers	fragrant bedstraw	northern wild licorice
Plant Size, Stem Angles	annual , to 1.5 m long, weak, very clingy ; retrorsely scabrous	perennial, to 1 m long, procumbent ; smooth to slightly scabrous	perennial, < 1-3 dm tall; weak, erect ; smooth
Leaves/Whorl	usually 8/whorl ; occasionally 6-8	usually 6/whorl ; fewer on branches	4/whorl ; with only 2-4 nodes
Leaf Blades	oblanceolate	elliptic to oblanceolate	broadly elliptic to obovate
Leaf Size	2-7 cm long, to 1 cm wide at the apex	2-9 cm long × 0.4-1.3 cm wide	1-3.5 cm long × 0.8-2.5 cm wide
Leaf Apex; Venation	cuspidate; 1 vein (midrib) retrorsely scabrous beneath	cuspidate; 1 vein (midrib), retrorsely scabrous beneath	obtuse to rounded, short-mucronate; 3 veins from base
Leaf Margins	retrorsely scabrous	antrorsely scabrous	antrorsely scabrous
Cymes (inflorescence)	terminal and axillary, peduncles 1-3 forked, longer than the leaves	terminal and axillary, peduncles 1-3 forked, ± longer than the leaves	terminal, peduncles 2-3 forked, longer than the leaves
Flowers	corolla white, 4-lobed	corolla greenish-white , 4-lobed	corolla yellowish-white , 4-lobed
Fruit Surface; Size (of pairs)	densely bristly with hooked bristles ; 3-6 mm wide	densely bristly with hooked bristles ; 3-4 mm wide	densely bristly with hooked bristles ; ± 4 mm wide
Habitat	forested and disturbed habitats	forested habitats	boreal forests, brooksides
NL Range	introduced (historical)	native (LN)	native (N)

Chart 2: <i>Hydrogalium</i>				
- Native bedstraw species with smooth fruit and 4-6 blunt leaves				
Species:	<i>H. labradoricum</i>	<i>H. palustre</i>	<i>H. claytonii</i>	<i>H. trifidum</i>
	Labrador bedstraw	marsh bedstraw	dyer's bedstraw	three-petal bedstraw
Plant Size, Stem Angles	0.5-4 dm tall; erect or ascending, smooth	2-5 dm tall; erect or weak; slightly rough	1-6 dm tall; erect-ascending; retrorsely scabrous	0.5-4 dm tall; weak, matted; retrorsely scabrous
Leaves/Whorl	4/whorl; spreading to reflexed	6/whorl; spreading	usually 5-6/whorl; spreading	4/whorl; spreading
Leaf Blades	linear to oblanceolate	linear, elliptic, to oblanceolate	narrowly elliptic to oblanceolate	linear to narrowly oblanceolate
Leaf Size	0.5-1.5 cm long	to 1.7 cm long	0.6-2.5 cm long	0.7-2 cm long
Leaf Apex, Venation	obtuse (blunt) or rounded at apex; 1 vein (midrib)			
Leaf Margins	antrorsely scabrous	scabrous	retrorsely scabrous	
Cymes (inflorescence)	simple, terminal; smooth; soon overtopped by branches	many-branched; peduncles & pedicels smooth	simple; peduncles & pedicels smooth	simple; peduncles & pedicels scabrous
Flowers	corolla white, 2-2.5 mm wide, with 4 lobes	corolla white, 2-3.5 mm wide, with 4 lobes	corolla white, 2-3.5 mm wide; w/ 3-4 acute lobes	corolla white, 0.5-1 mm across; w/ 3 obtuse lobes
Fruit Surface, Size (of pairs)	smooth, 2-3 mm wide	smooth, ± 2 mm wide	smooth, 2-3 mm wide	smooth, 2,5-4 mm wide
Habitat	usually fens	marshes, wet ditches	wooded wetlands	wetlands, shores, & brackish shores
NL Range	native (LN)	native (LN)	native (N)	native (LN)

Chart 3: <i>Galium</i> - Species with smooth fruit and 6-12 cuspidate leaves				
<i>Galium</i> species:	<i>G. asprellum</i>	<i>G. mollugo</i>	<i>G. saxatile</i>	<i>G. verum</i>
	rough bedstraw	smooth bedstraw	heath bedstraw	yellow bedstraw
Plant Size; Stem Angles	0.5-1.8 m tall, weak, clingly; retrorsely scabrous	3-1.2 m tall, erect to matted; ± smooth	1-2+ dm tall, trailing, matted; smooth	3-9 dm tall, erect, stiff; finely hairy
Leaves/Whorl	6/whorl , 4-5 on branches	mostly 8/whorl , 5-8 [mostly 6] on branches	4-8/whorl , 4-5 on lower stem	8-12/whorl
Leaf Blades	elliptic to oblanceolate	linear, elliptic to oblanceolate	oblanceolate or obovate	linear, margins revolute
Leaf Size	0.8-1.7 cm long × 2-4 mm wide	1-3 cm long × 2-3.5 mm wide	0.8-1.5 cm long	1-2.5 cm long × ± 1 mm wide
Leaf Apex, Venation	acute & cuspidate	obtuse & cuspidate	obtuse to acute & cuspidate	acuminate & cuspidate
	1-veined (midrib)			
Leaf Margins	finely retrorsely scabrous	antrorsely scabrous	antrorsely scabrous	entire, revolute
Cymes or Panicles	panicle leafy; the cymes longer than the leafy bracts	panicle elongate, with numerous branched cymes; flowers numerous	cymes leafy, terminal and axillary; with several flowers	panicle dense, elongate; lower branches longer than internodes
Flowers	corolla white, about 3 mm wide; w/ 4 acute lobes	corolla white, 2-5 mm wide; w/ 4 obtuse lobes	corolla white, 2-3 mm wide; w/ 4 acute lobes	corolla yellow , 2-3 mm wide; w/ 4 acute lobes
Fruit Surface, Size (of pairs)	smooth; ± 2.5-3.5 mm wide	smooth; ± 2-4 mm wide	smooth; ± 3-4 mm wide	smooth; < 2 mm wide
Habitat	meadows, thickets, shores	fields & roadsides	peaty barrens (Trepassey area)	disturbed areas
NL Range	native (N)	introduced (LN)	introduced (N)	introduced (N)

References

- Britton, N.L., & A. Brown. 1970. *Galium*, pp. 257-266, in: *An Illustrated Flora of the United States and Canada, Volume 3*. 2nd edition, Dover Publication, New York,
- Fernald, M.L. 1950. *Gray's Manual of Botany*. 8th (Centennial) edition, 1970, corrected printing of the 1950 edition. D. Van Nostrand Co., New York. 1632 pp.
- Kadereit, J.W., & G.M. Schneeweiss. 2026. A revised classification of Rubiaceae subfamily Rubioideae tribe Rubieae. *Taxon* 75(2): 270119. 26 pp.
- Malik, N., and W.H. Vanden Born. 1988. The biology of Canadian weeds. 86. *Galium aparine* L. and *Galium spurium* L. *Can. J. Plant Sci.* 68: 481-499.
- Mersereau, D., and A. DiTommaso. 2002. The biology of Canadian weeds. 121. *Galium mollugo* L. *Can. J. Plant Sci.* 83: 453-466.
- Seawright, J. 2008. *Galium saxatile*, in: *Irish Wildflowers*.
URL: <https://www.irishwildflowers.ie/pages/249a.html>