

LILIACEAE s.l. – Lilies and Allies

The Lily family as traditionally circumscribed includes many groups now considered to be evolutionarily distinct. APG III (2009) places several segregate families in the Lily (Liliales Lindl.) and Asparagus Orders (Asparagales Link). This key treats all members of these orders, consisting primarily of the former broadly circumscribed Lily family and allies, including familiar groups such as the Orchids (Orchidaceae) and Irises (Iridaceae). Authorities are provided in the checklist.

- 1a. Flowers zygomorphic (bilaterally symmetrical); lower petal highly modified into a labellum

ORCHIDACEAE

- 1b. Flowers actinomorphic (radially symmetrical)

- 2a. Leaves linear or small and scale-like

- 3a. Leaves reduced to scales < 4 mm long (not sheathing or equitant)

ASPARAGACEAE

(*Asparagus officinalis*)

- 3b. Leaves sheathing or equitant (the bases folded and partially enclosing the next leaf)

- 4a. Inflorescence without a spathe; plants 0.5-1.5 m tall; ovaries superior

XANTHORRHOEACEAE

(*Hemerocallis*)

- 4b. Inflorescences subtended by a spathe; ovaries inferior

- 5a. Leaves flat, equitant; flowers with 3 stamens

IRIDACEAE

- 5b. Leaves flat or terete, sheathing at base; flowers with 6 stamens

AMARYLLIDACEAE

- 2b. Leaf blades expanded, elliptic to ovate to oblanceolate

- 6a. Leaves basal or sheathing to base; plants of upland forests and disturbed habitats

- 7a. Flowers white, tepals connate

ASPARAGACEAE

(*Convallaria majalis*)

- 7b. Flowers yellowish-green, tepals free

LILIACEAE

(*Clintonia borealis*)

6b. Leaves on stem, sometimes obscurely so; plants of wetlands, forests, and various habitats

8a. Leaves whorled

9a. Leaves in one whorl of three

MELANTHIACEAE

9b. Leaves in one or more whorls of 3 or more

LILIACEAE (in part)

8b. Leaves alternate

10a. Stems unbranched, simple

ASPARAGACEAE
(*Maianthemum*)

10b. Stems usually branched

LILIACEAE
(*Streptopus*)

AMARYLLIDACEAE

Other Daffodil species (*Narcissus*) are common in cultivation and may escape as well. Poet's Narcissus (*N. poeticus*) may be distinguished by the red ring around its yellow corona (the tubular floral appendage). Wild Chives (*Allium schoenoprasum*) is represented in the Maritimes by both native and non-native plants. Native plants, often called var. *sibiricum* (L.) Hartman, grow on rocky river shores, while cultivated garden plants, var. *schoenoprasum*, persist in abandoned gardens or escape to meadows and fields. Island Nature Trust staff discovered two occurrences of the species near Cavendish. Based on their location and habitat, these are most likely introduced plants persisting after cultivation.

1a. Leaves terete; inflorescence with 30-50 flowers in subspherical umbels

Allium schoenoprasum

1b. Leaves flat; inflorescence with 1 flower

Narcissus poeticus

ASPARAGACEAE

- 1a. Leaves alternate and scale-like, < 4 mm long
Asparagus officinalis
- 1b. Leaf blades expanded, elliptic to ovate, > 4 mm long
- 2a. Leaves entirely basal; tepals connate
Convallaria majalis
- 2b. Leaves on stem; tepals separate
Maianthemum

Maianthemum F.H. Wigg

Wild Lily-of-the-valley (*M. canadense*) is unique among Maritimes *Maianthemum* species for its four-tepaled flowers. The remainder of the genus, which has flowers with six tepals, was formerly segregated in the genus *Smilacina* Desf. (as in Erskine 1960).

- 1a. Inflorescence a panicle; flowers with inconspicuous tepals
M. racemosum
- 1b. Inflorescence a raceme; flowers with conspicuous tepals
- 2a. Stem leaves more than 6, pubescent abaxially; most-often growing in dry sandy habitats
M. stellatum
- 2b. Stem leaves 1-4, glabrous; growing in bogs or forests
- 3a. Tepals 4; leaf bases more or less cordate
M. canadense
- 3b. Tepals 6; leaf bases tapered
M. trifolium

IRIDACEAE

- 1a. Leaves 10-20 mm wide; flowers greater than 6 cm wide; petals and tepals dissimilar

Iris

- 1b. Leaves less than 5 mm wide; flowers less than 1 cm wide; petals and tepals similar

Sisyrinchium

Iris L.

Erskine (1960) did not include *Iris foetidissima* L. but cited a Charlottetown Guardian article that reported its “tendency to become naturalized at Brackley Point”. It would be quickly distinguished in fruit by its red seeds (brown in other species) and in flower by its conservatively-coloured petals and sepals with lilac to brown to gray hues (Walter et al. 1986).

- 1a. Small plants growing in exposed coastal habitat such as headlands, dune hollows and salt marshes

I. hookeri

- 1b. Larger plants of slightly brackish to freshwater marshes, meadows and other wetlands

- 2a. Flowers yellow; fruit stalks arched to pendent

I. pseudacorus

- 2b. Flowers blue; fruit stalks erect

I. versicolor

***Sisyrinchium* L.**

Scoggan (1978) notes many authors treated *S. montanum* as part of *S. angustifolium* P. Mill. and listed its presence on PEI as questionable. *Sisyrinchium angustifolium* has yet to be confirmed for PEI.

- 1a. Inflorescences usually solitary and sessile

S. montanum

- 1b. Inflorescences usually multiple (2-5) and peduncled

[*S. angustifolium*]

***Sisyrinchium montanum* Greene**

- 1a. Plants mostly of moist coastal habitats; outermost spathe fused for at least 4 mm; plants drying dark brown-green

S. m. var. cerebrum

- 1b. Plants mostly of moist inland, sometimes anthropogenic habitats; outermost spathe fused less than 4 mm; plants drying paler (green to olive)

S. m. var. montanum

LILIACEAE s.s.

This key includes only those genera included in the Lily family in the strict sense (APG III 2009). Paige Harris and Island Nature Trust staff have collected an introduced species of *Lilium* L. It would not key well here but is easily distinguishable by its large orange flowers with brown speckles and its large size (up to 2 m in height).

1a. Leaves basal

Clintonia borealis

1b. Leaves on stem

2a. Leaves alternate; stems usually branched

Streptopus

2b. Leaves whorled; stems unbranched

Medeola virginiana

Streptopus Michx.

Rose Twisted-stalk (*S. lanceolatus*) has been divided into four varieties across its range. Plants of northeast North America are var. *lanceolatus*. Hybrids between our two species, named *S. ×oreopolus* Fernald, are known from New Brunswick and Nova Scotia. Sean Blaney collected a putative hybrid from the Haldimand River in 2016, though its identity has not yet been confirmed. Sterile hybrids display mixed and intermediate morphological characters.

1a. Leaves strongly clasping the stem, glaucous abaxially; flowers greenish-white

S. amplexifolius

1b. Leaves sessile to partially clasping, becoming clasping at branching points; flowers pink to purple

S. lanceolatus

MELANTHIACEAE

There have been a number of reports of Red Trillium (*Trillium erectum* L.) on Prince Edward Island, but these have not been verified by experts and no specimens are known. Its petals are dark maroon and up to twice as long as those of *Trillium cernuum* (2.5-6.0 cm vs. < 3 cm). Weakley et al. (2018) placed *Trillium undulatum* Willd. in the formerly-monotypic sister genus *Trillidium* Kunth with the northwest Himalayan endemic *Trillidium govanianum* (Wall. ex Royle) Kunth based on molecular and morphological data.

- 1a. Flowers nodding, lowered beneath sessile leaves; petals white

Trillium cernuum

- 1b. Flowers more or less erect, held above petiolate leaves; petals white with pink line across the centre

Trillidium undulatum

ORCHIDACEAE

- 1a. Plants without leaves (excluding bracts)
- 2a. Plants lacking chlorophyll, myco-heterotrophic
Corallorhiza
- 2b. Plants with chlorophyll, autotrophic; lacking leaves at flowering time
- 3a. Flowers solitary, pink; lip speckled with magenta and with yellow centre
Arethusa bulbosa
- 3b. Flowers arranged in a spike, white to yellowish; lip pure white or with green or yellow patch
Spiranthes
- 1b. Plants with leaves
- 4a. Flowers usually solitary, sometimes paired
- 5a. Lip petal inflated, pouch-like; flowers primarily pink, white, or yellow; leaves 2 or more
Cypripedium
- 5b. Lip petal not inflated, simple or fringed; flowers pink; leaf solitary
- 6a. Grass-like leaves absent at flowering time, developing afterwards; floral bracts small, inconspicuous
Arethusa bulbosa
- 6b. Elliptic leaves well-developed at flowering time; floral bracts large, conspicuous
Pogonia ophioglossoides
- 4b. Flowers many, arranged in a spike or raceme
- 7a. Leaves mostly basal, at most with 1 or 2 at proximal end of stem
- 8a. Plants with a solitary basal leaf; flowers pink, non-resupinate
Calopogon tuberosus
- 8b. Plants with more than one basal leaf; flowers white, green to brown, or yellow, resupinate
- 9a. Leaves several; flowers white, arranged in a spike
- 10a. Lower petals simple; leaves narrowly lanceolate, entirely green
Spiranthes

- 10b. Lower petals pouch-like; leaves ovate to elliptic, usually marked with white to pale green
Goodyera
- 9b. Leaves usually two; flowers green to brown, yellow, sometimes white, arranged in a raceme
- 11a. Lip petals without a nectar spur; leaves 2, ascending
Liparis loeselii
- 11b. Lip petals with a nectar spur; leaves 2 and prostrate, or 1 and ascending
Platanthera (in part)
- 7b. Leaves definitely on stem
- 12a. Leaves 2, opposite to sub-opposite
Neottia
- 12b. Leaves 1-several, alternate
- 13a. Lower stem leaves reduced to bladeless sheaths
Epipactis helleborine
- 13b. Lower stem leaves with well-developed blades
- 14a. Flowers minute, 3-4 mm wide, greenish; lower petal without a spur
Malaxis
- 14b. Flowers larger, white, yellow, green, or pink; lower petal with a spur
Platanthera (in part)

Corallorhiza Gagnebin

- 1a. Perianth 3.5-7.0 mm long; sepals and petals 1-veined; capsule greenish; scape to 3.5 dm tall with sheaths toward base.

C. trifida

- 1b. Perianth 4.7-15.0 mm long; sepals and petals 3-veined; capsule yellowish-brown, brownish, or red; scape to 6.5 dm tall with sheaths extending beyond middle

C. maculata

Corallorhiza maculata (Raf.) Raf.

Two varieties are recognized in the Maritimes, though their respective conservation statuses are unclear. Morphologically-intermediate plants in western North America may represent hybrids, but without supporting evidence the varieties are treated within a single variable species (Freudenstein & Doyle 1994).

- 1a. Middle lobe of the lip: expanded only slightly or not at all distally, widest part less than 1.5 times as wide as the base; floral bracts 0.5-1.0 mm long, usually entire

C. m. var. maculata

- 1b. Middle lobe of the lip: distinctly expanded distally, widest part over 1.5 times as wide as the base; floral bracts 1.0 to 4.5 mm long, usually two- to three-lobed

C. m. var. occidentalis

Cypripedium L.

Two varieties of Yellow Lady's-slipper are known from the Maritimes: *C. parviflorum* var. *pubescens* and *C. p.* var. *makasin*. Names have changed substantially over time, leaving the varietal identity of some old reports unclear. Only the large variety (var. *pubescens*) is confirmed for PEI.

- 1a. Leaves 2, basal; scapose stem with single pale pink to crimson-pink, occasionally pure white flower; lip open along full length

C. acaule

- 1b. Leaves more than 2, cauline; lip open only at base

- 2a. Lip yellow; sepals sharply acute; stems finely pubescent, to 8 dm tall

C. parviflorum

- 2b. Lip white, usually with pink or purple markings; sepals obtuse or rounded; stems conspicuously hirsute, to 10 dm tall

C. reginae

Goodyera R. Br.

- 1a. Leaf blades 4-6 cm long, only midvein outlined in white or entirely pale green above; perianth 6-9 mm long; plants 20-50 cm tall

G. oblongifolia

- 1b. Leaf blades to 4 cm long, usually with pale green or white lines throughout; perianth 1.5-5.5 cm long; plants 5-35 cm tall

- 2a. Base of mature lip petal with deep pouch, nearly as deep as long, tip portion strongly recurved; perianth about 4 mm long; racemes +/- one-sided; leaves 1-3 cm long, widest near base, tapering to acute tip.

G. repens

- 2b. Base of mature lip petal with shallow pouch, longer than deep, tip portion only slightly recurved; perianth about 5 mm long; racemes loosely spiral; leaf blades 2-5 (-6) cm long, tapering from near middle to each end.

G. tessellata

Neottia Guett.

Our species used to be placed in the genus *Listera*. Molecular phylogenetic work (such as Zhou and Jin 2018) has demonstrated *Neottia* to be nested within *Listera*, with the former name having priority.

- 1a. Stem distance from leaves to first flower about ½ as long as leaves

N. convallarioides

- 1b. Stem distance from leaves to first flower about 2-3 times length of leaves

- 2a. Rachis and pedicels glabrous; lip purplish-green, 4-5 mm long with 2 forward-projecting hornlike teeth at base, 1.5 mm long, not auricled; leaves spreading

N. cordata

- 2b. Rachis and pedicels glandular; lip dull maroon-red, 5-10 mm long, without conspicuous horns, auricled at base; leaves ascending

N. bifolia

Malaxis Sol. ex Sw.

Malaxis monophyllos (L.) Sw. var. *brachypoda* (A. Gray) F. Morris & E.A. Ames is sometimes treated at the specific level. It differs from the nominate variety in having resupinate flowers (Catling & Magrath 2002).

- 1a. Lip entire, apex pointed; pedicels 2.0-4.5 mm long; raceme slender, elongate, flowers +/- equally distributed along rachis; leaf sheathing base of stem

M. monophyllos var. *brachypoda*

- 1b. Lip 2-lobed at apex, with indistinct central tooth; pedicels (3.8-) 5.0-10.0 (-13.0) mm long; raceme thick, rounded, flowers clumping near apex of rachis; leaf +/- sheathing bottom ½ of stem.

M. unifolia

Platanthera Rich.

- 1a. Leaves 1 or 2, basal (except in *P. clavellata*, usually 1 leaf sheathing to base)
- 2a. Leaf 1, rarely 2, elliptic, linear-oblong to oblanceolate
- 3a. Leaf sheathing lower $\frac{1}{4}$ - $\frac{1}{3}$ of stem; lip broadest towards 3-toothed apex; spur much exceeding lip
P. clavellata
- 3b. Leaf sheathing base of stem; lip broadest at base, tapering to apex; spur equalling lip or only slightly longer
P. obtusata
- 2b. Leaves 2, basal, +/- orbicular
- 4a. Scape naked (rarely with 1 bract); flowers sessile, yellowish-green; lip upcurved; spur 0.9-2.5 cm long, tapering to rounded tip
P. hookeri
- 4b. Scape with 1-6 bracts below inflorescence; flowers whitish-green with short pedicels; lip not upcurved; spur 0.8-2.8 cm long (to 4.5 cm in *P. macrophylla*) with parallel sides and slightly enlarged tip
- 5a. Average length of spurs less than 28 mm, average length of hemipollinaria less than 4.6 mm
P. orbiculata
- 5b. Average length of spurs 28 mm or more, average length of hemipollinaria 4.6 mm or more
[*P. macrophylla*]
- 1b. Leaves more than 2, mostly on stem
- 6a. Lip entire or toothed, not 3-parted
- 7a. Flowers pure white; lip usually markedly expanded near base to 1-3 mm wider than below; space between anthers greater at apex than base
P. dilatata
- 7b. Flowers green to greenish yellow; lip lanceolate, usually not dilated or only slightly dilated at base to 0.4-1.0 mm wider than below; space between anthers greater at base than apex
- 8a. Lip of fresh flowers dull yellowish-green, rhombic-lanceolate, 2.5-6.0 mm long; anthers not separated by more than 0.3 mm at their apices, viscidia orbicular; spur stout and club-shaped; flowers usually scentless and self-pollinating
P. aquilonis

8b. Lip of fresh flowers green to whitish-green, lanceolate, 5.0-12.0 mm long; anthers separated by 0.6—1.5 mm at their apices, viscidia oblong; spur slenderly cylindrical to somewhat clavate; flowers moderately to strongly sweetly pungent and cross-pollinating

[P. huronensis]

6b. Lip fringed

9a. Lip fringed, but not 3-parted; flowers white; spur (15-) 18-20 (-27) mm long

P. blephariglottis

9b. Lip deeply 3-parted; spur 1-4 cm long

10a. Lateral lobes of lip incised more than half way to base; flowers yellowish-green to greenish-white

P. lacera

10b. Lateral lobes of lip incised less than half way to base; flowers pink-purple

11a. Inflorescence 2.5-4.5 cm in diameter; perianth 4-7 mm long; lip 6-16 mm broad; opening to spur a horizontally-oriented rectangular shape

P. psycodes

11b. Inflorescence 5-9 cm in diameter; perianth 9-12 mm long; lip 1.8-3.0 cm broad; opening to spur oval to round

P. grandiflora

Spiranthes Rich.

Nodding Ladies'-tresses (*S. cernua*) in the broad sense exhibits a substantial amount of morphological variation and was recently shown to include further cryptic species (Pace, Cameron 2017). Two of these, *S. arcisepala* and *S. incurva*, are present in New Brunswick and Nova Scotia and may be discovered on Prince Edward Island. Appalachian Ladies'-tresses (*S. arcisepala* M.C. Pace) is distinguished by its downward-arching lateral sepals, while Spinx Ladies'-tresses (*S. incurva* (Jennings) M.C. Pace) by its more upwardly-oriented flowers with narrower linear-lanceolate lateral sepals and an apically-tapered lip petal (rather than rounded).

- 1a. Leaves broadly elliptic to round-ovate, usually flat on the ground, present or absent at anthesis; lower petal with central green patch

S. lacera

- 1b. Leaves lanceolate, ascending, present at anthesis; lower petal either entirely white or with yellow colouration

- 2a. Lip constricted below expanded tip and +/- sharply deflexed; lateral sepals partly united with dorsal sepals and lateral petals to form a hood

S. romanzoffiana

- 2b. Lip oblong, ruffled but not constricted below tip; lateral sepals free

- 3a. Lower petal with yellow colouration, with rounded glands beneath; lateral sepal tips linear-lanceolate

S. ochroleuca

- 3b. Lower petal essentially white, with conical and reduced glands beneath; lateral sepals lanceolate

S. cernua

XANTHORRHOACEAE

This family contains one genus on Prince Edward Island: *Hemerocallis* L. The genus is sometimes placed in Hemerocallidaceae (as in Haines 2011). However, APG IV (2016) joined the family with Asphodelaceae, the latter of which will be the conserved family name.

Hemerocallis

***Hemerocallis* L.**

1a. Flowers orange, not fragrant; plants to 1.5 m tall; capsules rarely producing seeds

H. fulva

1b. Flowers yellow, fragrant; plants to 1.0 m tall; capsules maturing and producing seeds

H. lilioasphodelus