Swamp Indicators

A pictorial guide to swamp indicators of the boreal forest of Ontario. The plants are grouped into swamp indicators, intermediate swamp indicators, and rich swamp indicators.

Unless noted line drawings are original illustrations from Shayna LaBelle Beadman as represented in Forest Plants of Central Ontario.

Plant descriptions generally from Forest Plants of Central Ontario.
Swamp Indicators

Speckled alder (*Alnus incana (Alnus incana ssp. rugosa))

- Shrub up to 4 m tall
- Bark
  - Reddish brown or gray with lenticels
- Leaves
  - Alternate, egg-shaped or broadly oval
  - Rounded to slightly heart-shaped at the base
  - Margin double serrated
  - Upper surface green
  - More or less hairy along the veins underneath
- Catkins stalkless or small stalks
Bluejoint grass *(Calamagrostis canadensis)*

Swamp Indicator

- Large robust grass, forming clumps
- Stems not hairy, often purplish around the joints
- Leaves
  - Blades flat, 4-8 mm wide, gradually tapering to a point
  - Rough on both surfaces
- Inflorescence
  - Loose irregular, open panicle, widely lance- to egg shaped, occasionally nodding
  - 10-20 cm long
  - Purplish to greenish or straw-coloured

http://plants.usda.gov/java/largeImage?imageID=caca4_001_avd.tif
Bunchberry (*Cornus canadensis*)

Swamp Indicator

- Perennial low herb
- Leaves
  - Opposite but crowded at the top, appearing whorled
  - 4-6 leaves, egg-shaped to oblong, tapering to a point at the tip and base
  - Veins prominent and run parallel to leaf margin
- Flowers
  - Tiny, greenish or purplish, in a tight cluster surrounded by 4 white petal-like bracts
- Fruit
  - Bright red cluster of rounded berry-like fruit
Water horsetail (*Equisetum fluviatile*)
Aka Swamp horsetail

- **Fern Ally**
- **Stems**
  - Solitary up to 90 cm tall
  - Central cavity large (4/5 diameter of stem)
  - Branches none, or in irregular to regular whorls
  - 15-20 narrow teeth on the stem sheaths
  - Branches *not* further divided

**Swamp Indicator**

- Large central cavity
- 15-20 teeth
Wood horsetail (*Equisetum sylvaticum*), Swamp Indicator

- **Fern Ally**
- **Stems**
  - Solitary up to 50 cm tall
  - Central cavity large (1/2 diameter of stem)
  - Stems with whorls of feathery branches
  - 4-5 teeth on the stem sheaths
  - Branches further divided
Stair-step moss (*Hylocomium splendens*)

Swamp Indicator

- Feather Moss
- Lacy fern-like branches that are 2-3 times divided
- Stems arched, wiry, reddish to brownish, covered with green scales
- Yellowish to brownish-green
- New growth starts near the centre of previous year’s shoot, giving the plant a step-like
Stiff clubmoss (Lycopodium annotinum)
aka Interrupted club-moss

- Fern Ally
- Low, trailing, prostrate, club-moss
- Stems creeping up to 2 m long
- Branches erect, stiff, 6-30 cm tall, generally unbranched with stiff spreading leaves
- The annual growth is indicated by interruptions or indentations in the leaf pattern of its branches
Plume moss (Ptilium crista-castrensis)

Swamp Indicator

- Feather Moss
- Distinctive feather- or plume-like appearance
- Robust, bright green to goldish
- Branches progressively smaller to the tip
Common Green Peat Moss (*Sphagnum girgensohnii*)

### Swamp Indicator

- Peat Moss
- Slender, wiry green to slightly yellow (never red)
- Flat, star-shaped head with 5 radiating points
- Distinct shiny terminal bud
- Stems erect, stiff, woody, snap crisply when broken
- Stems approximately 8 cm tall
Sphagnum russowii

Swamp Indicator

- Peat Moss
- Head is somewhat flat with a generally visible terminal bud
- Red in sunny habitats, to completely green in heavily shade habitats
- Stem leaves
  - Broadly rounded at tip
  - Stem leaves eroded over one quarter of their width

Photo and figure from Bastien and Garneau 1997
Intermediate Swamp Indicators
Balsam fir (*Abies balsamea*)

- Conifer, evergreen, up to 20 m tall
- Symmetrical with a narrowly pyramid-shaped crown
- Leaves
  - Needle-like
  - Spirally arranged but appear to be in 2 rows
  - Fat with rounded or notched tips
  - Upper surface shiny, dark green; underside with 2 white lines
- Cones
  - Female cones erect, purplish or green
- Bark
  - Young – grey, smooth with raised blisters
  - Old – irregular, brownish scales
Sheath sedge (*Carex vaginata*)

- **Intermediate Swamp Indicator**
- **Male spike**
- **Female spike**
- **Sheath**
- **Bract**

- **Perennial sedge**, forming extensive, loose clumps
- **Leaves**
  - Yellow-green, shorter than flowering stems
  - 2-5 mm wide
  - M-shaped in cross section
- **Inflorescence**
  - 1 strongly stalked male terminal spike
  - 2-4 female spikes below
  - Lowest bract with a loose 1-2 cm sheath
Bluebead lily (*Clintonia borealis*)

**Perennial herb**

**Leaves**
- Basal, usually 3
- Simple, oblong, short-pointed at tip
- Wide, dark green, leathery

**Flowers**
- Greenish - yellow
- Bell shaped

**Berries**
- Bead-like berries
- Dark blue, shiny, oval to rounded

Intermediate Swamp Indicator
Goldthread (*Coptis trifolia*)

- Perennial herb
- Underground stems (rhizomes) distinctly bright yellow or gold
- Leaves
  - Triangular, compound with 3 stalkless leaflets
  - Upper surface shiny, dark green
  - Margins with rounded teeth
- Flowers
  - White, star shaped, 5-7 petals
  - Usually solitary at tip of long slender stalk
Twinflower (*Linnaea borealis ssp longiflora*)

Intermediate Swamp
Indicator

- Small, low, evergreen shrub
- Stems trailing or creeping
- Leaves
  - Opposite, simple, rounded, oval or egg-shaped
  - Blunt-toothed at tip, wider above middle
  - Small-bristle-like hairs
- Flowers
  - Pinkish-white, bell shaped with 5 lobes
  - Nodding, hairy inside
  - Usually in pairs
Canada mayflower (*Maianthemum canadense*)

Intermediet Swamp Indicator

- **Perennial herb**
- **Flowering stems erect, 5-25 cm tall**
- **Leaves**
  - Alternate, 1-3 (usually 2) on flowering stems
  - Simple, egg-shaped, sharp to blunt-tipped
  - Heart-shaped at base, dark green
  - Often forms patches of single leaves
- **Flowers**
  - White, 4 ‘petals’
  - Terminal clusters
Naked mitrewort (*Mitella Nuda*)

**Intermediate Swamp Indicator**

- **Perennial herb**
- **Flowering stems erect, 5-25 cm tall**
- **Leaves**
  - Basal, long stalked, simple
  - Round or kidney-shaped; heart-shaped base
  - Upper surface distinct, bristly, stiff, whisker-like hairs
- **Flowers**
  - Yellowish to greenish, saucer-shaped
  - 5 hair-like petals with long fringes
Northern sweet coltsfoot (*Petasites frigidus*)

**Intermediate Swamp Indicator**

- **Perennial herb**
- **Flowering stems 10-30 cm tall**
- **Leaves**
  - Basal, long slender stalks
  - Simple, circular to kidney-shaped, 5-25 cm wide, margins coarsely toothed
  - 5-7 lobes cut over halfway to base
  - Underside white-woolly
- **Flowers**
  - Creamy white, fragrant, terminal cluster
Shaggy moss (*Rhytidiadelphus triquestrus*)
Aka Electrified cat’s tail moss

Intermediate Swamp Indicator

- Coarse robust moss
- Dark- to bright-green or yellowish-green
- Branches irregular, curved downward at tips
- Stem leaves
  - Egg- to heart-shaped
  - Long tapered point, clasping at base
- Fruiting bodies
  - Cylindrical, curved capsules, horizontal to hanging, reddish-brown
Dwarf raspberry (*Rubus pubescens*)

Intermediate Swamp Indicator

- **Perennial herb**
- **Low, trailing or creeping, stems soft-hairy**
- **Leaves**
  - Alternate, compound; usually 3 leaflets
  - Egg shaped to vaguely diamond shaped
  - Margins sharply toothed
- **Flowers/Fruit**
  - White to pale pink, 5 petals, in loose terminal cluster
  - Dark-red to purple raspberries
Wulf’s Peat Moss (*Sphagnum wulfianum*)

**Intermediate Swamp Indicator**

- Peat moss
- Rounded heads appear woolly or shaggy, resembles a clover head
- Stems snap when broken
- Stem leaves
  - Triangular to tongue-shaped, pointed to slightly rounded
Starflower (*Trientalis borealis*)

Intermediate Swamp Indicator

- **Perennial herb**
- **Leaves**
  - Terminal whorl
  - 5-10 leaves, tapering to a point
  - Hairless, shiny, prominently veined
- **Flowers**
  - White, star-shaped, 1-3 from centre of whorl
  - 7 petals
Rich Swamp Indicators

Mountain Maple (*Acer spicatum*)

- Deciduous shrub 3-5 m tall
- Branchlets yellowish-green to purplish-grey, covered with short, grey hairs
- Leaves
  - Opposite, simple, margins coarsely toothed
  - Maple leaf with 3 prominent, pointed lobes, usually 2 smaller lobes near base
  - Upper surface dark green, hairless, underside fine hairs
Wood anemone (*Anemone quinquefolia*)

Rich Swamp
Indicator

- **Perennial herb**
- **Leaves**
  - Alternate, deeply cut into 3-5 sections
  - Stem leaves in whorls of 3
  - Irregular margins, coarsely toothed
- **Flowers**
  - Whitish to purplish or pinkish-tinged
  - 4-9 (usually 5) petal-like sepals
Red osier dogwood (*Cornus stolonifera*)

Rich Swamp Indicator

- Deciduous shrub, 1-3m tall
- Young branchlets bright red to purplish, hairless with white cork-like oval markings
- Leaves
  - Opposite, simple, egg- to lance-shaped, tapering to sharp point at tip, margins toothless
  - Upper surface dark green, hairless; underside paler with fine, soft hairs
- Flowers/Fruit
  - Creamy-white flowers, terminal clusters
  - Round, white or bluish tinged berry-like fruit
Sickle Moss (*Drepanocladius uncinatus*)

Rich Swamp Indicator

- Slender, green, yellowish or brownish moss
- Stem leaves
  - Lance-shaped, long-pointed tip
  - Strongly curved, turned toward one side (sickle shaped)
- Fruiting bodies
  - Oblong to cylindrical capsules, curved, usually horizontal
  - Stalks twisted
Fragrant Bedstraw (Galium triflorum)

Rich Swamp Indicator

- Perennial herb – strong vanilla fragrance
- Stems square, hairless, weak, trailing
- Leaves
  - Usually in whorls of 6, stalkless, simple, narrowly oblong
  - Short bristle-point at tip
  - Margins rough with stiff hairs
- Flowers
  - Greenish-white, small, 4 petals, from leaf axial or terminal leaf
Oak Fern (*Gymnocarpium dryopteris*)

Rich Swamp Indicator

- Delicate fern, up to 35 cm tall
- Divided into 3 triangular sections
- Leaves
  - Single, compound, widely triangular, thin, lacy, yellow-green, 2-3 times divided
  - 3 leaflets, triangular stalked, further divided into round-toothed sub-leaflets
  - Stalks scaly at base, shiny and straw-coloured
- Fruiting Structure
  - Small, circular spore clusters near margins
Bracted Honeysuckle (*Lonicera involucrata*)

Rich Swamp Indicator

- Deciduous shrub, 1-3 m tall
- Branchlets green to purplish
- Older branches greyish-brown with shredding bark, squarish or slightly 4-angled
- Leaves
  - Opposite, simple, short stalked
  - Inversely egg-shaped to oval; sharp pointed tip
  - Upper surface dark green, hairless, underside paler and hairy
  - Margins toothless with a fringe of white hairs
- Flowers
  - Yellow, often reddish-tinged, glandular-hairy

Leaf-like bracts at base of flower pair
Alder-leaved buckthorn (*Rhamus alnifolia*)

Rich Swamp Indicator

- Deciduous shrub up to 1 m tall
- Sparsely branched, branchlets green and minutely hairy, mature branchlets purple-red to grey, ridged
- Leaves
  - Alternate, simple, oval to egg-shaped
  - Margins have rounded to sharply pointed teeth
  - Stalks grooved
- Flowers
  - Yellow-green, tiny, from axils of lower leaves
Currant/Gooseberry spp. (*Ribes spp.*)

Rich Swamp Indicator

- Deciduous shrub ~ 1 m tall
- Some species are prickly, some are not
- Leaves
  - Alternate, simple, 3-5 lobes
  - Margins toothed (coarse or rounded, double or single teeth)
- Flowers/Fruit
  - Yellow-green to greenish-purple
  - Sauce or bell-shaped
  - Bright red to purplish/black fruit
Rich Swamp Indicator

- Deciduous shrub up to 1 m tall
- Branchlets reddish, many straight slender prickles
- Thorns persist on older branches
- Leaves
  - Alternate compound leaves, 5-7 leaflets
  - Leaflets egg-shaped to oval
  - Margins sharply toothed
- Flowers
  - Pink, saucer shaped, 5 petals
Red raspberry (*Rubus idaeus*)

Rich Swamp Indicator

- Deciduous shrub up to 2 m tall
- Stems erect, arching, spreading, woody and prickly
- Leaves
  - Alternate, compound leaves, 3-5 leaflets
  - Leaflets egg-shaped to oblong, sharp pointed tip
  - Margins toothed
- Flowers
  - White to greenish-white, 5 petals
Mountain ash spp (*Sorbus* spp.)

- Deciduous small tree, or shrub
- Branchlets greenish brown to reddish with pale spots
- Older branches reddish brown, winter buds sticky
- Leaves
  - Compound leaves, 11-17 leaflets
  - Alternate and stalked
- Flowers
  - White, saucer-shaped, 5 petals
  - Dense Clusters
Eastern white cedar (*Thuja occidentalis*)

Rich Swamp Indicator

- Conifer, evergreen, up to 15 m tall
- Trunk rapidly tapered, often twisted
- Leaves
  - Scale-like, tightly overlapping, opposite, dull yellowish-green
  - Upper and lower leaves flat
  - Pointed at tips; prominent yellow resin spot
  - Side leaves folded, clasping based of upper and lower leaves
- Cones
  - Female cones oval, woody, 1 cm long
- Bark
  - Older bark forms narrow, flat ridges