
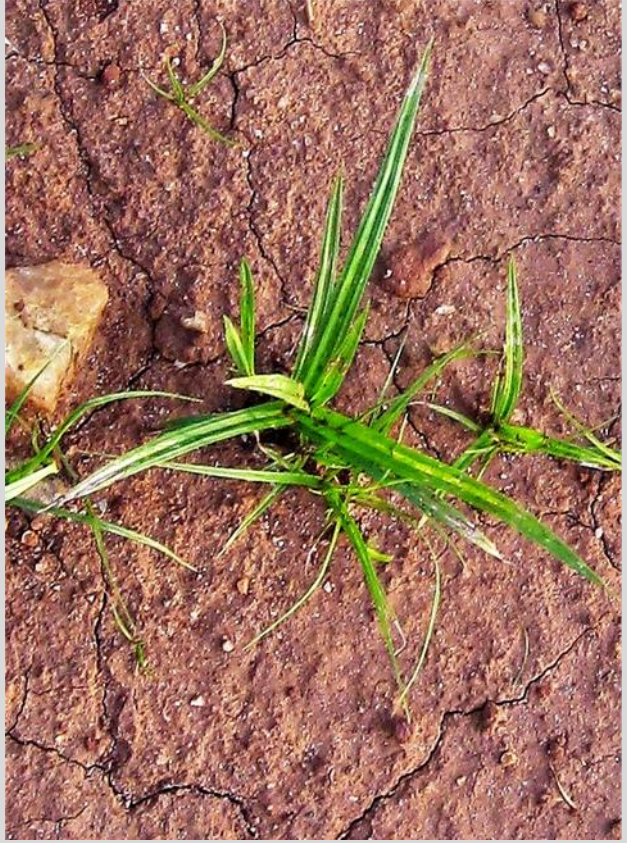

Seedling Identification Guide for Site Assessment – Mesic to Wet Species

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Ernst Conservation Seeds

Disclaimer

The presence of a species in this document does not guarantee its availability from Ernst Conservation Seeds nor any other vendor in the native seed trade.

Educational Objectives

1. Learn to recognize seedlings of mesic to wet grasses, *Carex* (Sedge) and *Scirpus* (Bulrush) species.

2. Learn to recognize seedlings of key mesic to wet wildflowers.

Do not expect to be able to recognize every species.

Focus on learning species that serve as indicators that the mix is growing!

When Will Native Species Germinate?

- Typically, no earlier than two weeks after planting assuming adequate moisture availability and soil temperatures.

- We have observed germination of some wildflowers at 40 F. Others will germinate at warmer temperatures.

“Quality Controls”

Species That Are Indicators Of A Successful Upland Meadow Establishment

Rye
Secale cereale
Large Seed
Grass

Virginia Wildrye
Elymus virginicus
Large Seed
Grass

Sedge (*Carex*) or Bulrush (*Scirpus*) Large or Small Seeds

Monkeyflower
Mimulus ringens
Small Seed

Species That Are Indicators Of Successful Wet Meadow Establishment

If the cover crop and Virginia Wildrye germinate, then your large seeded grasses and grass-like species can germinate.

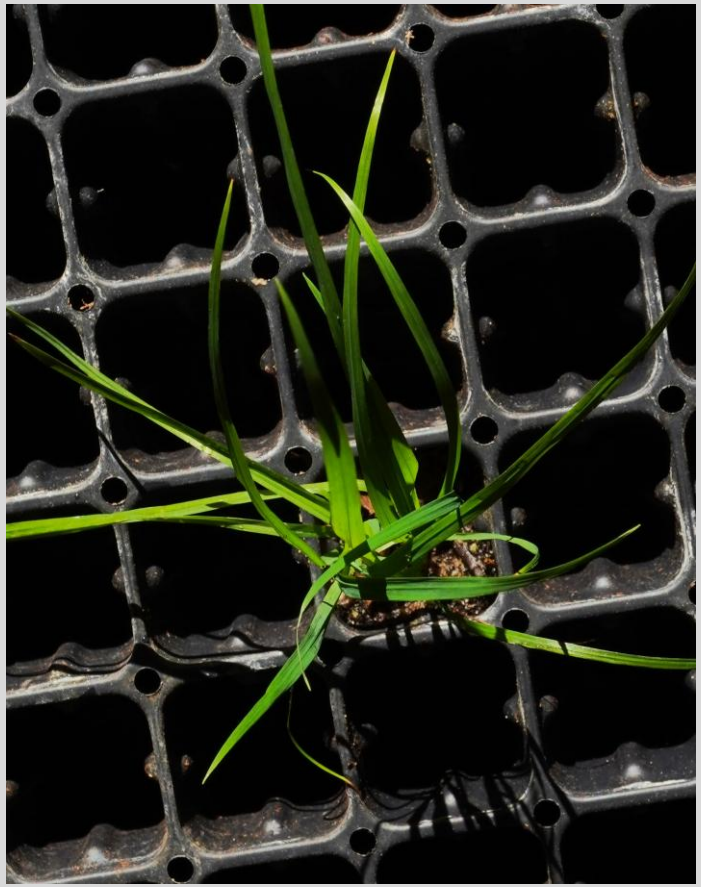
If small seeded *Carex* species (sedges) and *Scirpus* species (Bulrushes) germinate, then these small seeded species are not planted too deep.

If *Eupatorium fistulosum* (Joe Pye Weed) and *Mimulus ringens* (Monkeyflower) germinate, then your small seeded wildflowers are not planted too deep.

The Seedlings

- **Grasses**
- Rushes, Bulrushes, and Sedges
- Wildflowers

Bromus altissima (Wild Bromegrass)



Elymus virginicus (Virginia Wildrye)

Newly emerged seedlings will look like threads. They are hard to detect when standing. Leaves of older seedlings will have a lime green color and stems will be reddish.

Glyceria canadensis (Rattlesnake Grass)

Note leaves are arranged in the same plane when viewed perpendicular to this view.

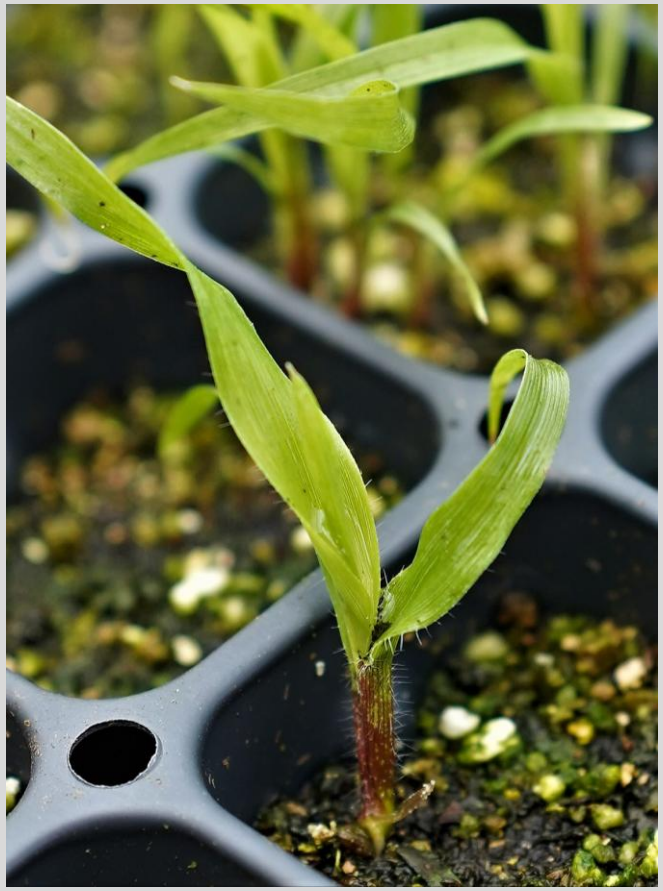
Glyceria grandis (American Mannagrass)

Note how leaves are arranged in the same plane (left image).

Glyceria striata (Fowl Mannagrass)

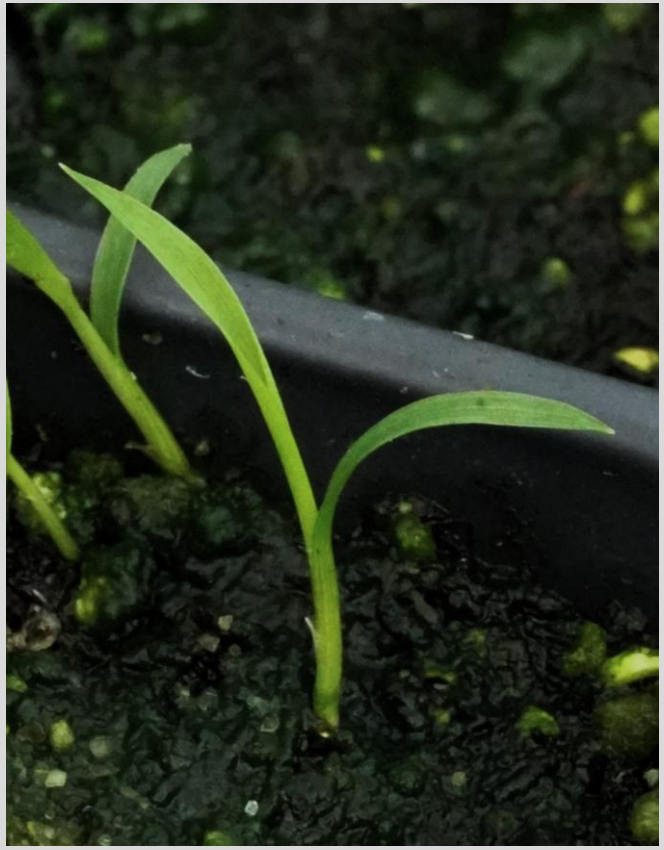
Note how leaves are arranged in the same plane (left image).

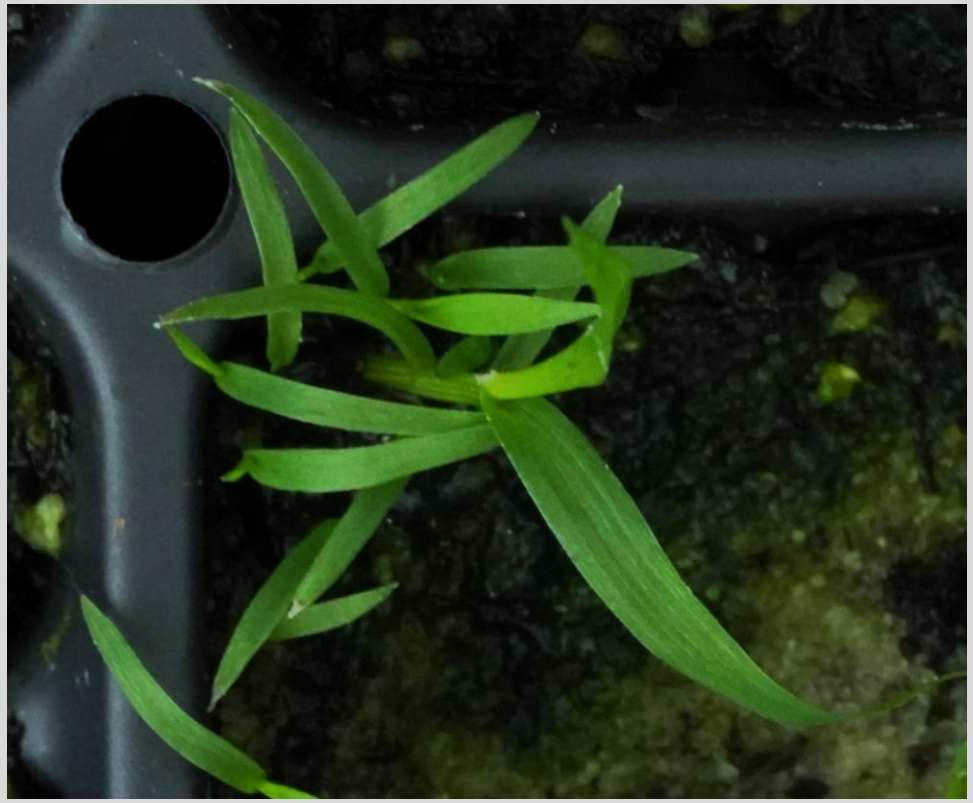
Panicum anceps (Beaked Panicgrass)



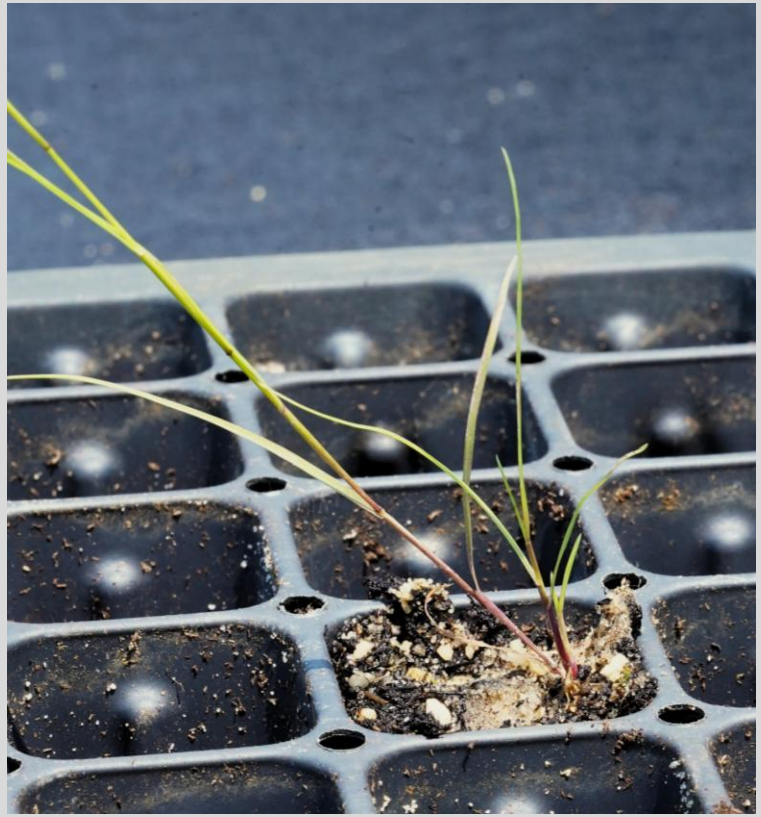
Note how stems are pubescent (hairy) and that the first leaves are fanned out in the same plane.

Panicum rigidulum (Redtop Panicgrass)





Poa palustris (Fowl Bluegrass)



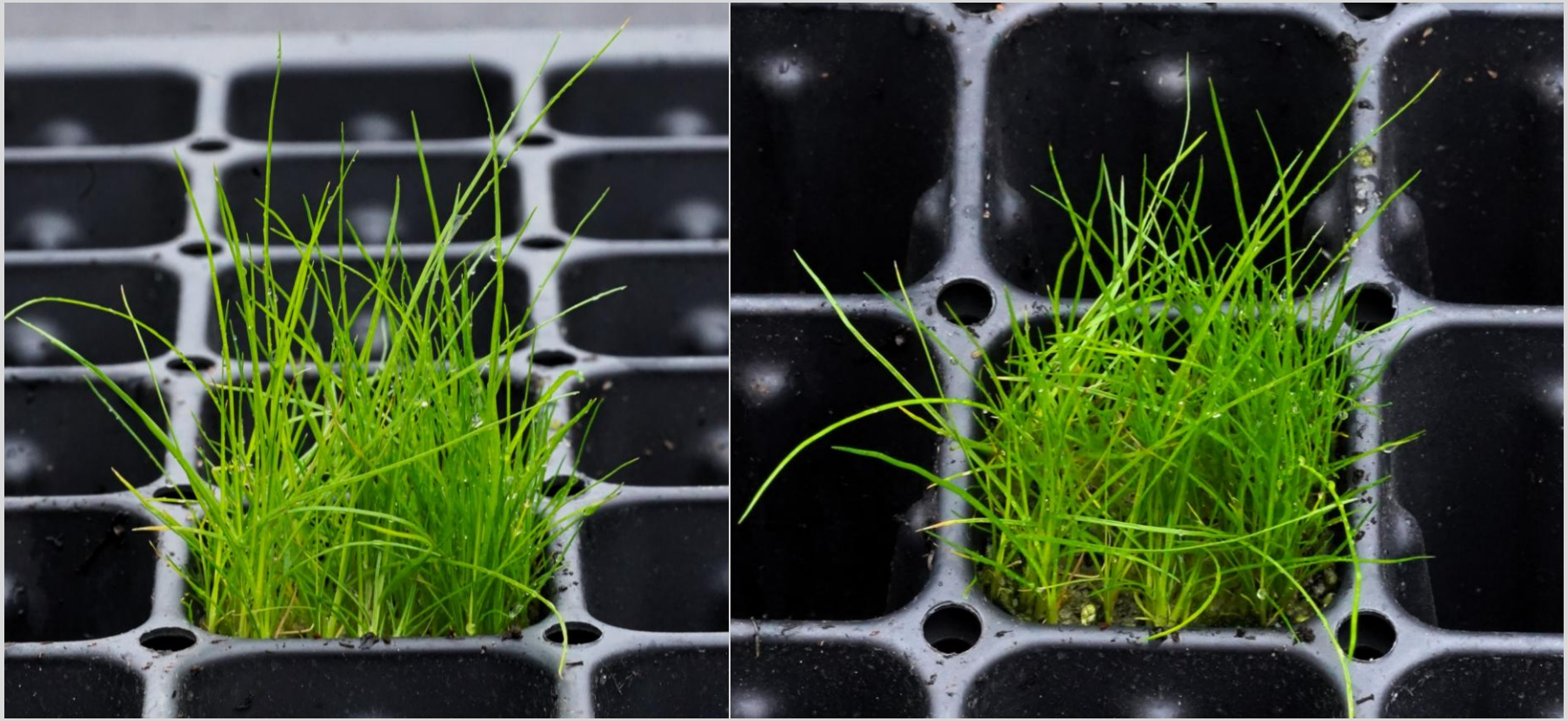
The Seedlings

- Grasses
- **Rushes, Bulrushes, Sedges**
- Wildflowers

Juncus effusus (Soft Rush)

Note round stems that arise from a crown above the soil line.

Juncus tenuis (Path Rush)



Note round stems that arise from a crown above the soil line.

Carex (Sedge) And *Scirpus* (Bulrush) Species

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Carex comosa (Cosmos Sedge)

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Carex frankii (Frank's Sedge)

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

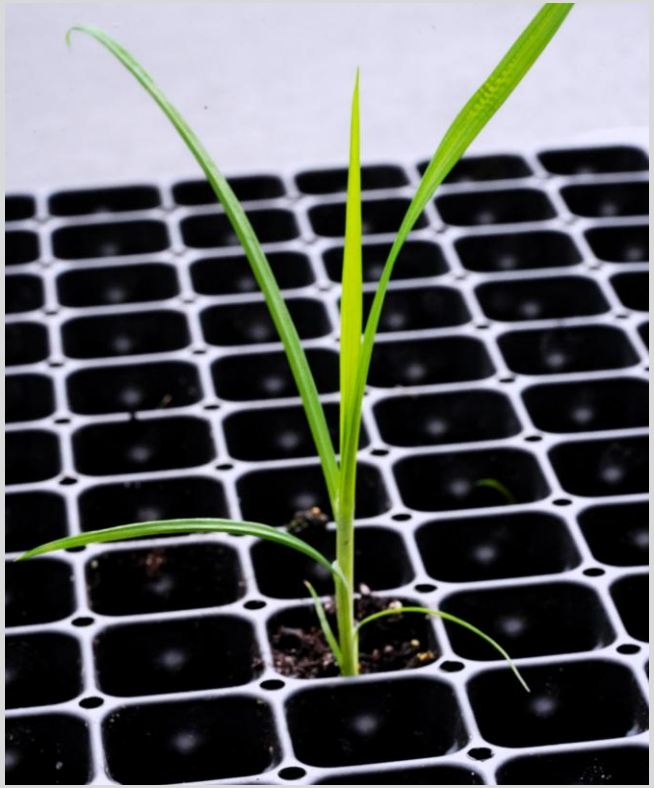
Carex intumescens (Star Sedge)

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Carex lupulina (Hop Sedge)

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Carex shortiana (Short's Sedge)



When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

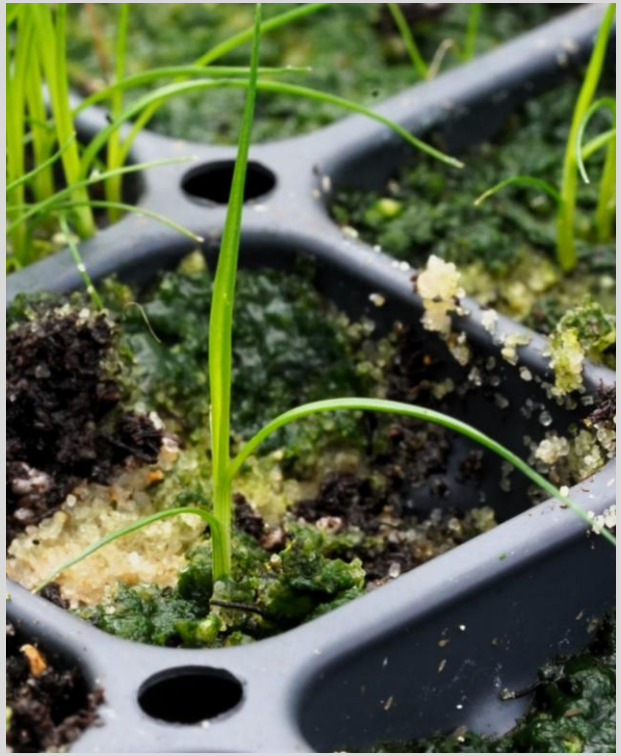
Carex stricta (Tussock Sedge)

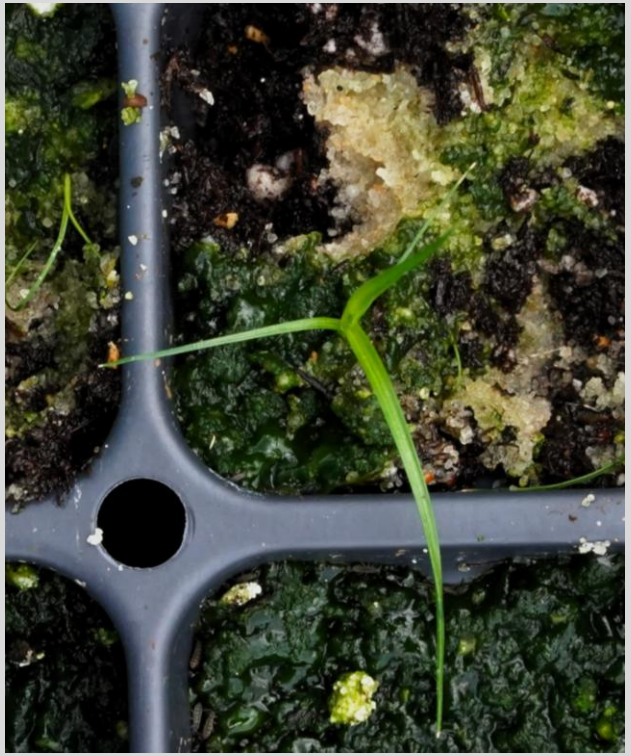
When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Scirpus atrovirens (Green Bulrush)

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Scirpus cyperinus (Woolgrass)





When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

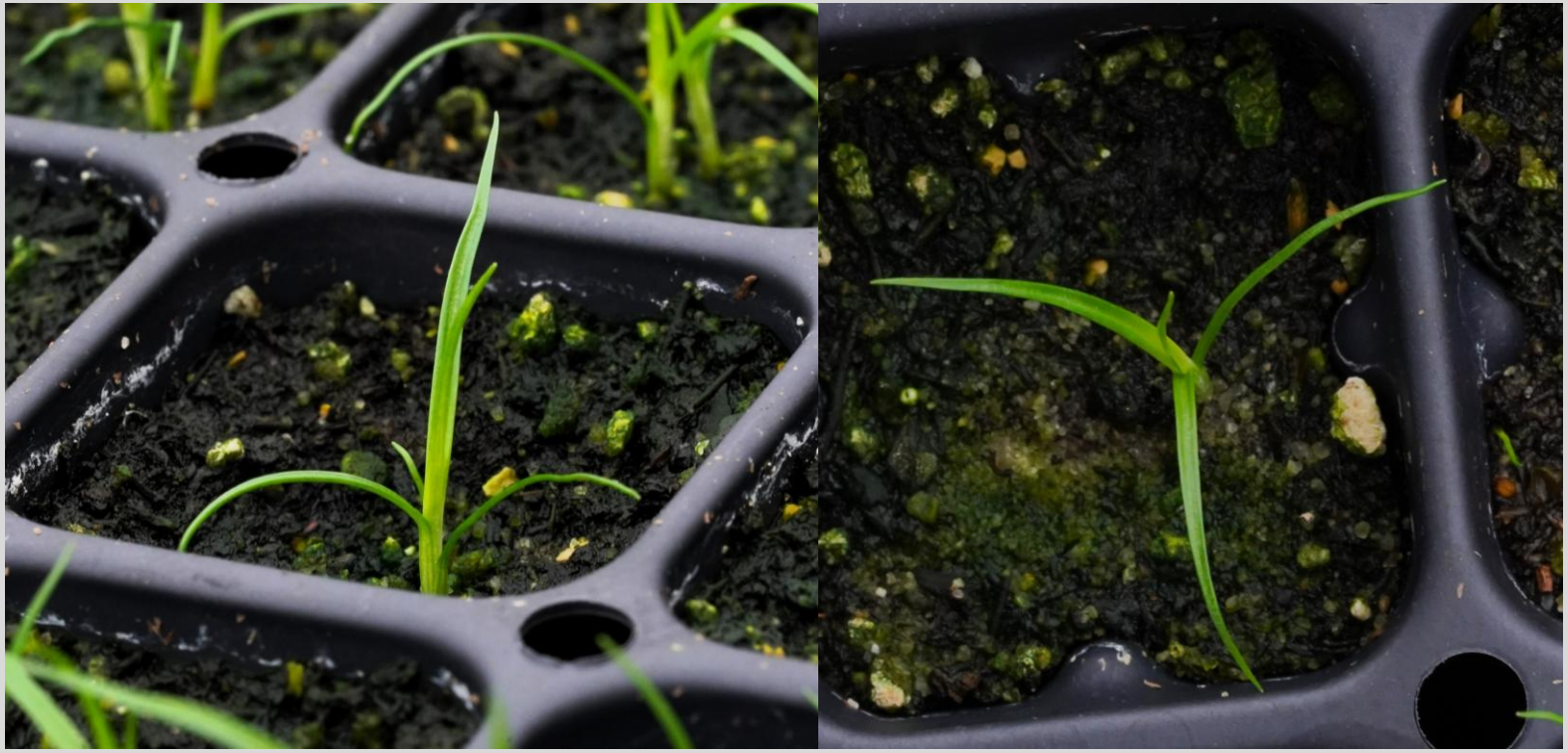
Scirpus expansus (Wood Bulrush)

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Scirpus pendulus (Brown Bulrush)

When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Scirpus polyphyllus (Many Leaved Bulrush)



When viewed from above, any three successive leaves should originate from points that are 120 degrees apart on the stem, much like the spokes of the Mercedes symbol. Stems of *Carex* species are three sided, whereas as *Scirpus* species are round.

Scirpus validus (Soft Stemmed Bulrush)

Note stems are round and arise from a point below the soil surface.

The Seedlings

- Four Warm Season Grass
- Rushes, Bulrushes, Sedges, and Grasses
- **Wildflowers**

Anemone canadensis (Canadian Anemone)

Note dentate (toothed) leaves.

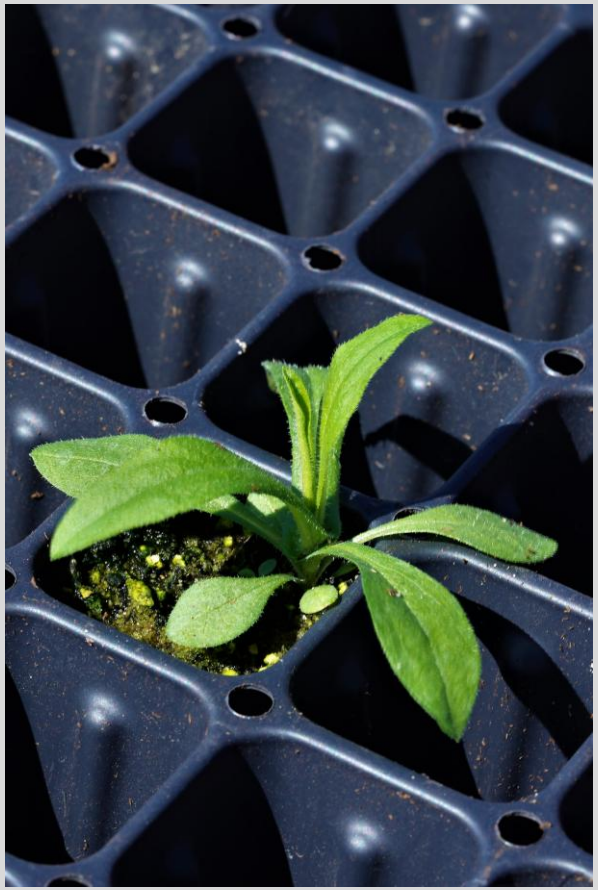
Asclepias incarnata (Swamp Milkweed)

Note leaves are opposite and plant produces a sticky, milky sap.

Aster lanceolatus (Lance Leaved Aster)

Note pubescence (hairs) of leaves and stems.

Aster novae-angliae (New England Aster)



Leaves clasp pubescent (hairy) stems. There is no change of stem direction at each node (leaf attachment point).

Aster prenanthoides (Zig Zag Aster)

Note dentate (toothed) leaves, flared petiole (stem of the leaf), and stem that changes direction at each node (leaf attachment point).

Aster puniceus (Purplestem Aster)

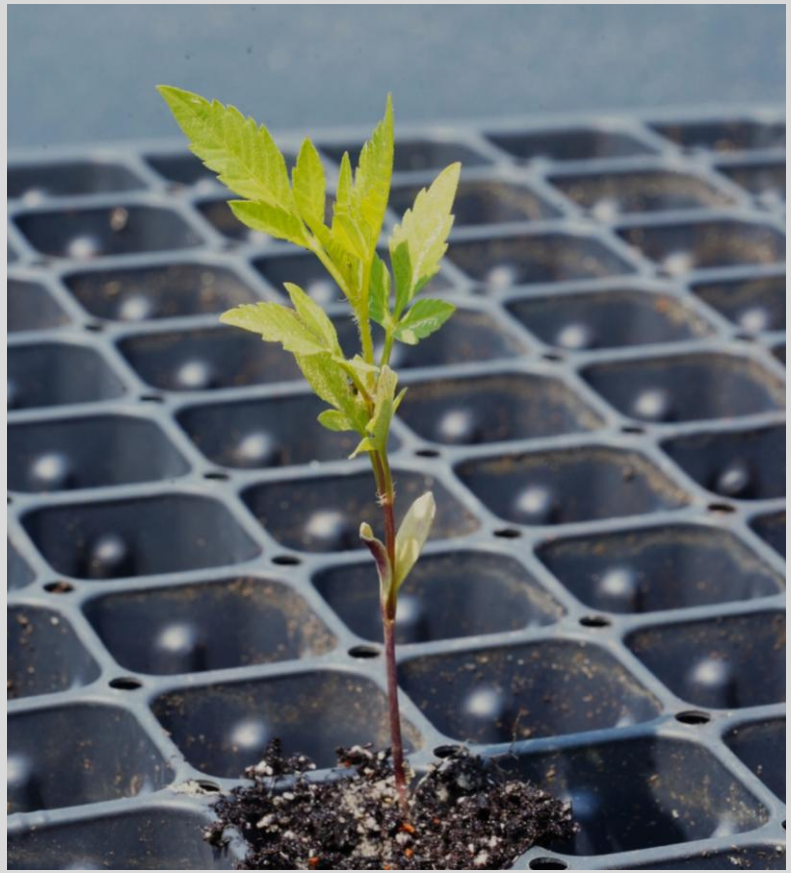
Note pubescence (hairs) of leaves and petioles.

Aster umbellatus (Flat Topped White Aster

Bidens aristosa (Showy Tickseed Sunflower)

Note deep lobing of leaves that are in opposite arrangement on the stem.

Bidens frondosa (Beggartick)



Note deeply lobed leaves that in an opposite arrangement on the stem.

Chelone glabra (Turtlehead)

Note leaves are opposite.

Clematis virginiana (Virgin's Bower)

Note toothed leaves that are in opposite arrangement on the stem.

Eupatorium coelestinum (Mistflower)

Note leaves are opposite.

Eupatorium fistulosum (Joe Pye Weed)

Note leaves are in a whorled arrangement, having multiple leaves attached to the stem at each node or leaf attachment point.

Eupatorium perfoliatum (Boneset)

Note leaves are perfoliate or fused around the stem in an opposite arrangement. The stem is very pubescent or hairy.

Gaura biennis (Biennial Beeblossom)

Geum canadense (White Avens)

Geum laciniatum (Rough Avens)

Helenium autumnale (Sneezeweed)

Sides of stems have “flaps.”

Helenium flexuosum (Purplehead Sneezeweed)

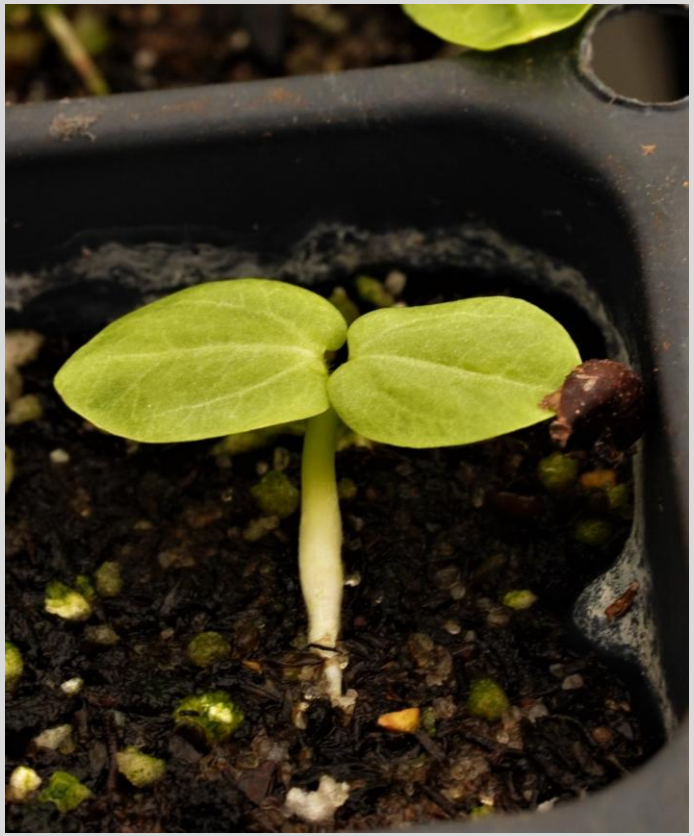
Helianthus angustifolius (Narrowleaf Sunflower)

Helianthus gigantea (Giant Sunflower)

Heliopsis helianthoides (Oxeye Sunflower)

Note leaves are dentate (toothed) and opposite on the stem. In cross section the stem is round.

Hibiscus moscheutos (Crimsoneyed Rosemallow)



Note pendant shaped leaves.

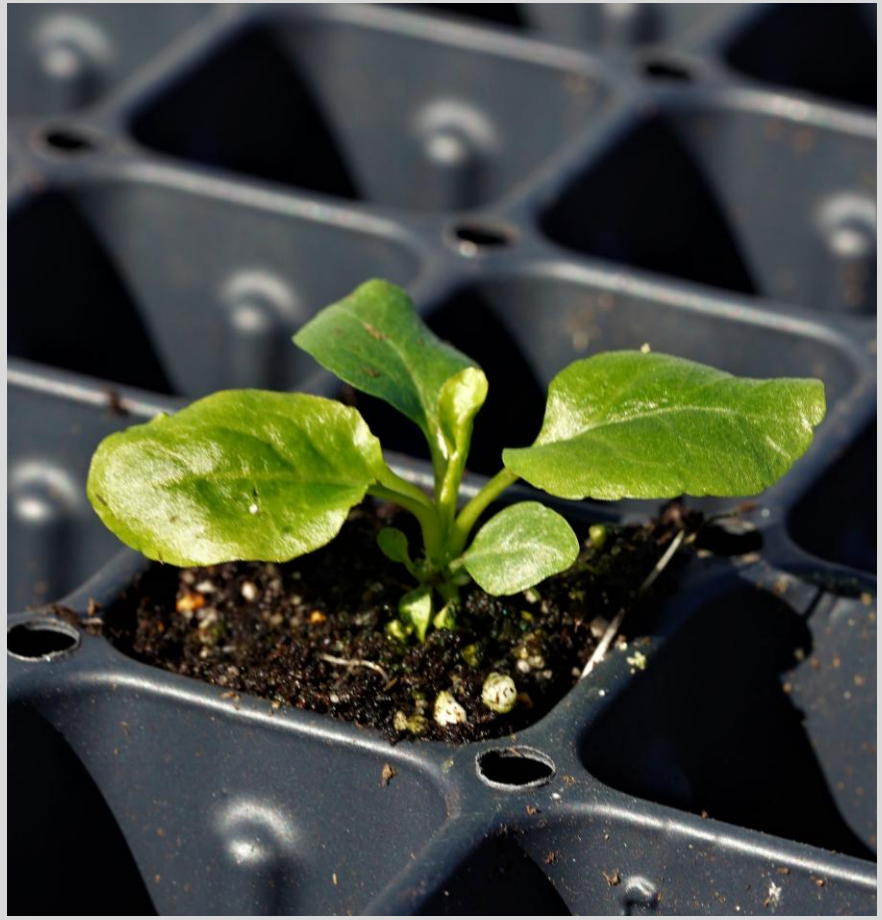
Hypericum punctatum (Spotted St. Johnswort)

Hypericum pyramidatum (Great St. Johnswort)

Iris versicolor (Blue Flag Iris)

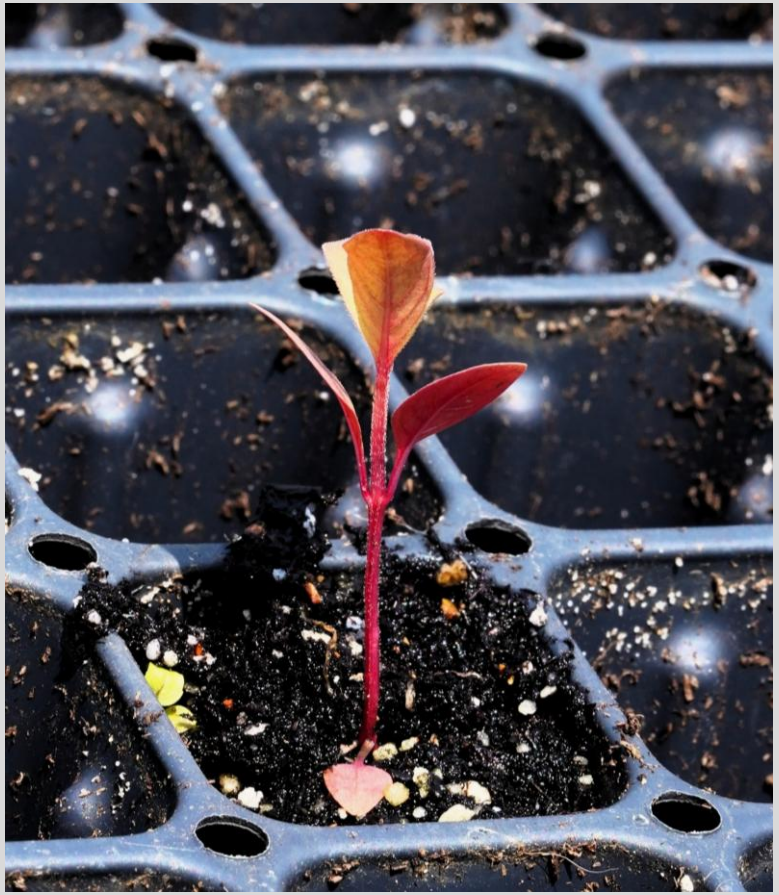
Leaves are flat and fanned out in one direction and in the same plane when viewed from a perpendicular direction.

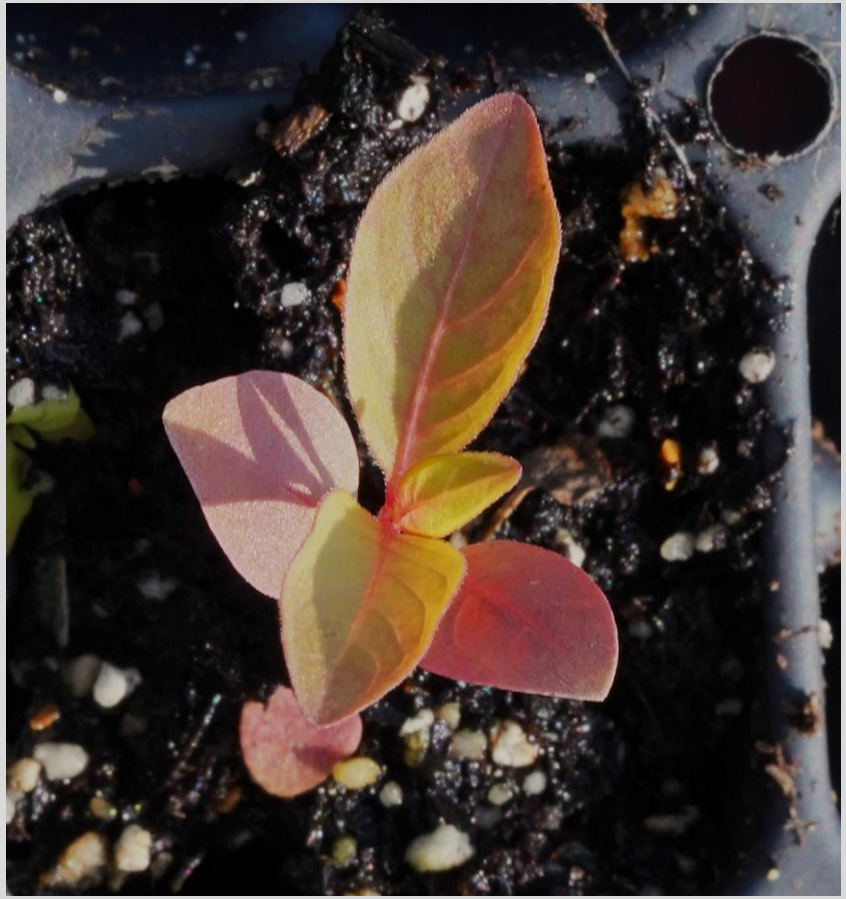
Lobelia cardinalis (Cardinal Flower)



Lobelia siphilitica (Blue Lobelia)

Ludwigia alternifolia (Seedbox)





Lycopus americanus (American Water Horehound)

Leaves are opposite on the stem and dentate (toothed).

Mimulus ringens (Square Stemmed Monkeyflower)

Leaves are dentate (toothed) and clasp the stem in an opposite position.

Penthorum sedoides(Ditch Stonecrop)

Note dentate (toothed) leaves.

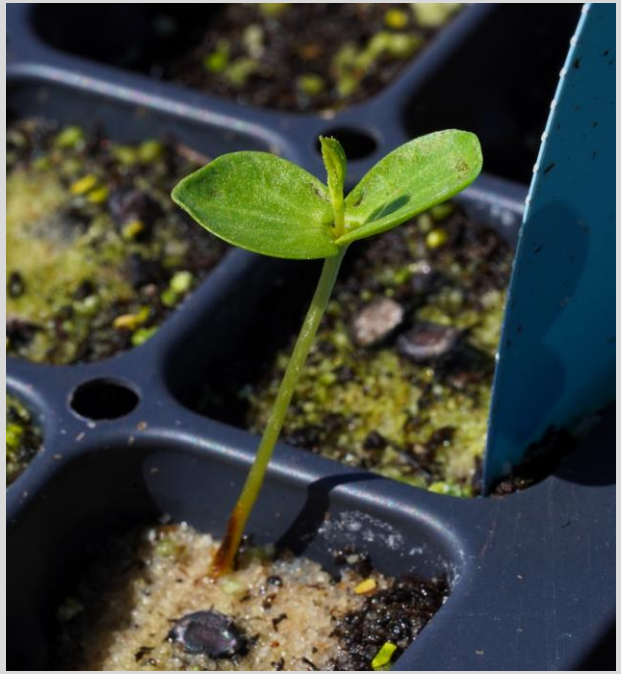
Pycnanthemum muticum (Bigleaf Mountainmint)

Note opposite leaf arrangement and square stems. Leaves are smaller than P. incanum and larger than P. tenuifolium.

Senna hebecarpa (Wild Senna)

This species has pinnately compound leaves.

Senna marilandica (Maryland Senna)



Solidago patula (Roughleaf Goldenrod)

Note dentate (toothed) leaves.

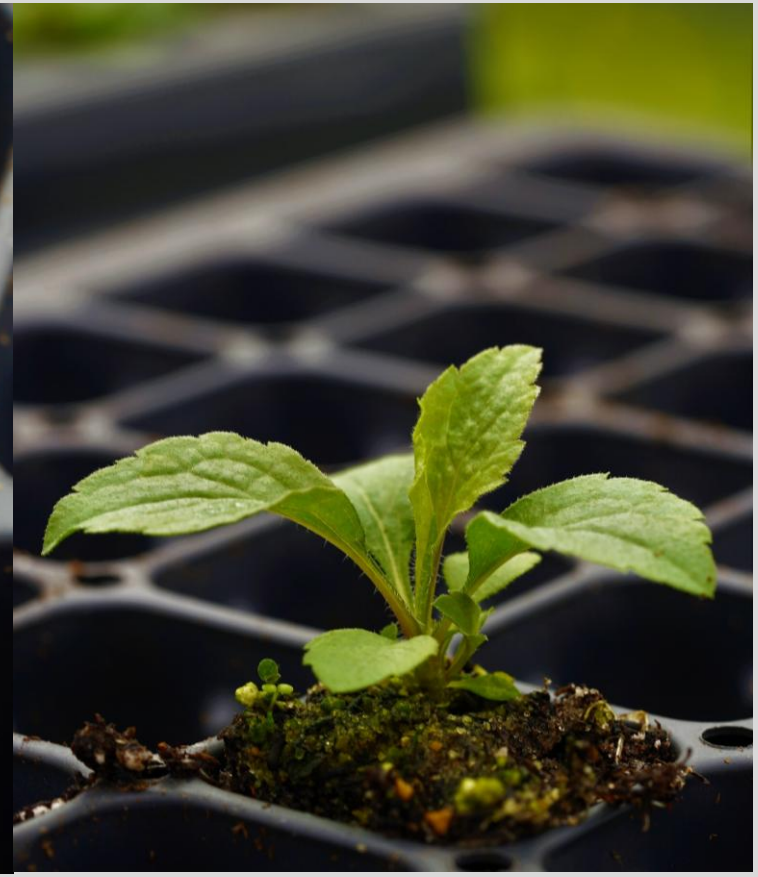
Solidago riddellii (Riddell's Goldenrod)

Leaves are alternate on the stem. Older leaves are very distinct from any other species.

Solidago rigida (Stiff Goldenrod)

Leaves and petioles have short hairs.

Solidago rugosa (Wrinkleleaf Goldenrod)

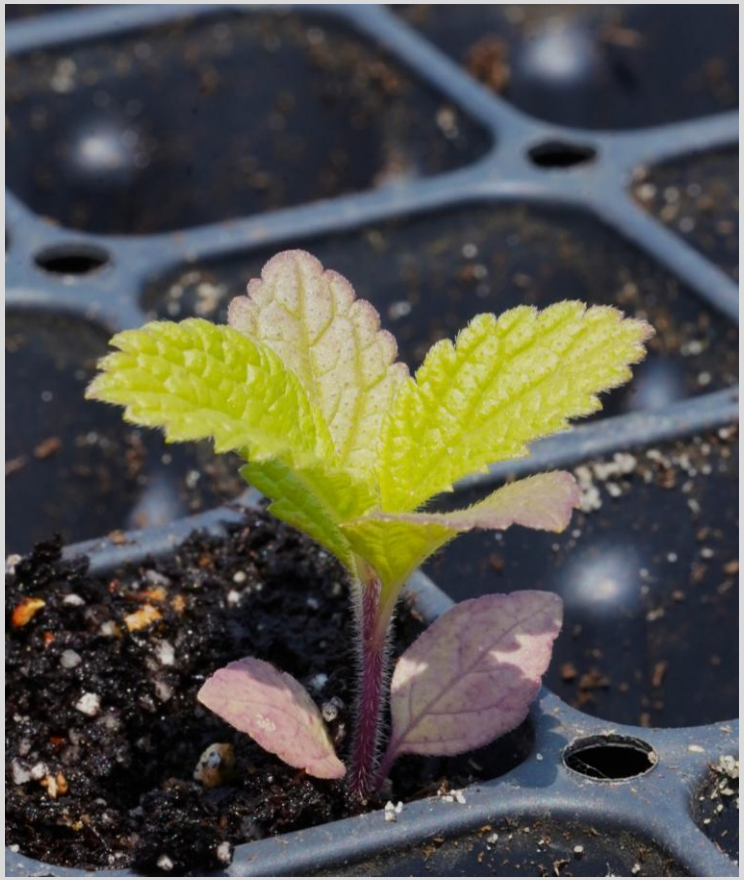


Note prominent leaf veins and hairs on stems and petioles.

Verbena hastata (Blue Vervain)

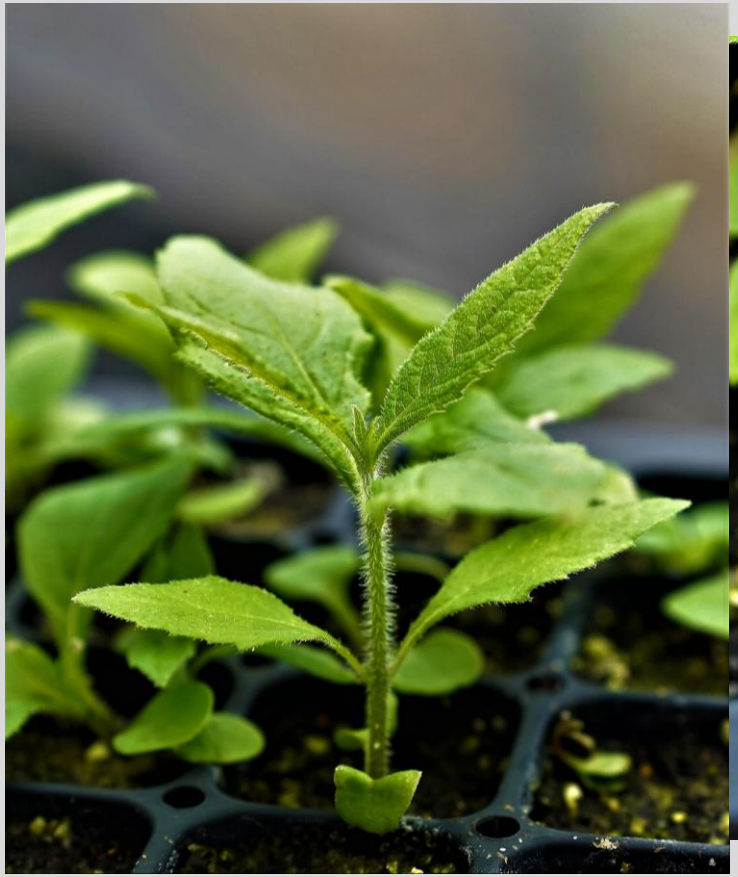
Note leaves are opposite and dentate (toothed). Leaves and stems are pubescent (hairy).

Verbena urtificolia (White Vervain)



Note leaves are dentate (toothed) and opposite on the stem. The stems are pubescent (hairy).

Verbesina alternifolia (Wingstem)



Note opposite arrangement of leaves at this stage, the dentate (toothed) leaves, and the pubescent (hairy) stems and leaves.

Vernonia gigantea (Giant Ironweed)

Leaves are dentate (toothed) and alternate on stem.

Vernonia noveboracensis (New York Ironweed)

Veronicastrum virginicum (Culvers Root)

Note that leaved are dentate or toothed and stems are pubescent or hairy.
Unlike mature plants, leaves are opposite, not whorled.

Zizia aurea (Golden Alexanders)

Note first true leaves do not have the deep lobes found on later leaves.

Thank you!

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