

Growing Native Plants From Seeds

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&

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Is My Wildflower Native?

Terminology for Native Plant Lovers

Native – present in a specific region before European colonization For example, species “native to the Finger Lakes” are generally based on references from the early botanical explorers. Native species migrating in response to climate change are still considered native if they get there on their own.

Non-native/Alien – Known or presumed to be brought from another region or continent via as a contaminant within agriculture, horticulture, or accidentally (e.g., on the feet and tires of travelers)

Naturalized non-native, but able to form self-sustaining populations in the wild.

Adventive – newly arrived non-native species that MAY become naturalized, typically escapes from horticulture.

Invasive – vigorously aggressive or successful enough to interrupt or overwhelm the growth of native species, tending toward a monoculture. Usually, invasive species are non-native. There are federal and state lists specifying invasive species, sometimes for legal purposes.

A “wildflower” can be any of the above. For ecological reasons, it is best to plant native, or non-invasive naturalized species. Pollinators, birds, and other wildlife are best served by locally native species.

Why plant native plants?

- Help maintain native biodiversity
- WELL adapted to local habitats and conditions
 - Sustainable if planted in appropriate setting
- Attractive
 - Diverse forms and colors
 - Wildflowers, shrubs, vines, trees, ferns, mosses

- What is a local genotype?
- What are straight species?
- Can we use cultivars (“nativars”)?

- What is an ecoregion and how does it define local genotype?

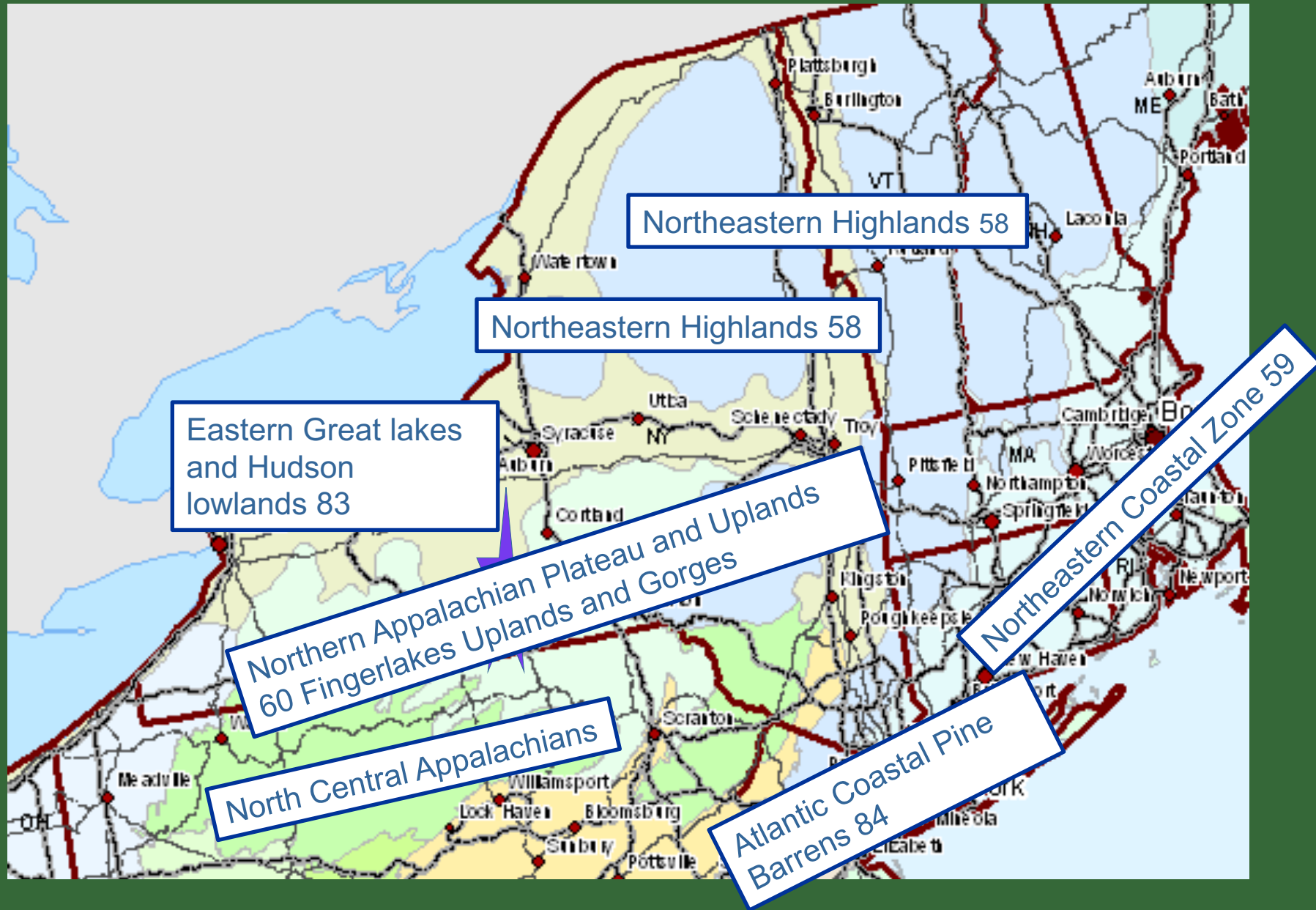
Ecoregions are areas of land and water defined by similar geology, landforms, climate, vegetation and ecological processes.

USFS

Description of the Ecoregions of the United States

Compiled by Robert G. Bailey, March 1995

Ecoregions of the Northeast



Examples of ecoregion-ecotype

Red Maple: genotype variability over a large distribution North to South - East Coast US
And within very local habitats within Central New York that are wet to dry.

Prickly Pear: Naturally occurs in coastal habitats Long Island, New York but also grows in similar garden habitats across ecoregions.

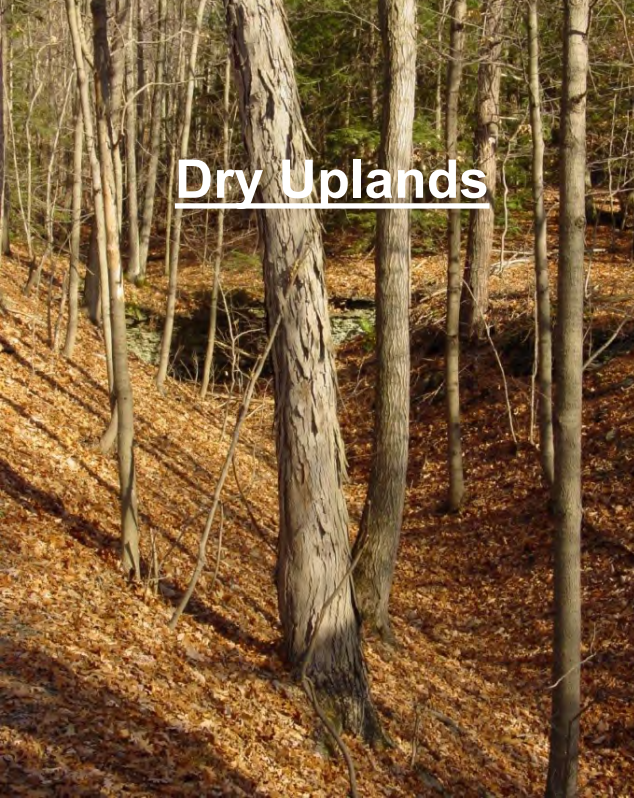
Horticultural success is possible in different ecoregions with close attention to cultural requirements. For example: Cornell Botanic Gardens Stream Bank Restoration site provides such for Opuntia sp.

“An understanding of the vegetation types allows prediction of what sort of plant community is likely to grow in a certain place.”

(Mohler, Marks and Gardescu 2006 “Guide to Plant Communities of the Central Finger Lakes Region”)

Habitats of the Cayuga Lake Basin

Dry Uplands



Old Fields



Bogs



Unique habitats



Floodplain Forest



Good Questions for the Grower

- Will you use straight species or cultivars?
- Is there TIME to collect seeds and grow plugs?
- Will you WAIT up to five years prior to planting choice species?
- Will local growers supply plants?
- Will you make or purchase bulk seed mix?



**FOR
TOUGH
SITES**

CREATED IN COLLABORATION WITH



**PERFECT FOR GARDENERS
AND FARMERS ALIKE**

SEED MIXES | FALL IS PLANTING TIME!

DEER RESISTANT SEED MIX

Sun: ☀️ ☀️ Soil: Wet ☀️ ☀️ ☀️ ☀️ Dry

This mix is composed of native species that deer tend to shy away from; plants with rough texture (Silphium species), milky sap (Milkweeds), or strong aromas (Hyssop, Mint, Onion, etc).

35 Wildflowers - 7 Grasses - 119 seeds / sq ft. - 11.69 lbs / acre

500 sq.ft.	1,000 sq.ft.	1/8 acre
\$24.00	\$37.00	\$155.00

TALLGRASS EXPOSED CLAY SEED MIX

Sun: ☀️ ☀️ Soil: Wet ☀️ ☀️ ☀️ ☀️ Dry

Compacted clay subsoils present challenging conditions for plant growth. The tough species in this mix like Yellow Coneflower, Purple Coneflower, Wild Bergamot, and Big Bluestem are up to the task.

29 Wildflowers - 6 Grasses - 159 seeds / sq ft. - 13.08 lbs / acre

500 sq.ft.	1,000 sq.ft.	1/8 acre
\$22.00	\$34.00	\$139.00

SEED MIX ENHANCEMENTS ADD MORE COLOR TO YOUR PRAIRIE OR MEADOW



**MORE
CHOICES
ONLINE!**



DRY SOIL SEED ENHANCEMENT

Sun: ☀️ ☀️ Soil: Wet ☀️ ☀️ ☀️ ☀️ Dry

Want to add an extra splash of color to your dry site? Sow this enhancement which includes Butterfly Weed, Black-eyed Susan, Royal Catchfly (pictured above) and many more.

7 Wildflower Species - 56 seeds / sq ft. - 1.44 lbs / acre

500 sq.ft.	1,000 sq.ft.	1/8 acre
\$17.00	\$24.00	\$77.00

MEDIUM SOIL SEED ENHANCEMENT

Sun: ☀️ ☀️ Soil: Wet ☀️ ☀️ ☀️ ☀️ Dry

Add this enhancement to any seed mix for medium soils. Classic prairie wildflowers like Pale Purple Coneflower, Black-eyed Susan (pictured above) and several other species will provide even more color to your site.

6 Wildflower Species - 51 seeds / sq ft. - 2.68 lbs / acre

500 sq.ft.	1,000 sq.ft.	1/8 acre
\$18.00	\$25.00	\$80.00

INSECTOPIA SEED MIX

Sun: ☀️ ☀️ Soil: Wet ☀️ ☀️ ☀️ ☀️ Dry

Great for anyone practicing integrated pest management. This mix will not only attract bees and butterflies, but also predatory insects that prey on garden pests. Design based on the Xerces Society's *Farming with Native Beneficial Insects*.

35 Wildflowers - 5 Grasses - 98 seeds / sq ft. - 8.52 lbs / acre

500 sq.ft.	1,000 sq.ft.	1/8 acre
\$23.00	\$36.00	\$150.00

*Mixes are subject to change without notice depending on availability.

5

Broadcast seed mixes- your own or a commercially available mix

Broad cast seed mix considerations

- Species list
- Seeding rate (Seeds/square foot)
 - Requires seed calculation
- Sawdust mixing for spreading seeds across the site
- Cover with light straw or leaves

Commercial availability

- Ernst Seeds (regional mixes)
- Prairie Moon (Midwest)
- Prairie Nursery (Midwest)

We collect clean and store seeds to grow for the MWFG and the Finger Lakes Native Plant Society.



These seeds are for you as well and they are free!

Plan/ Collect/ Grow

- Collect seeds: 7 months

June - December

- Stratify seeds in cooler: 30/60/90 days

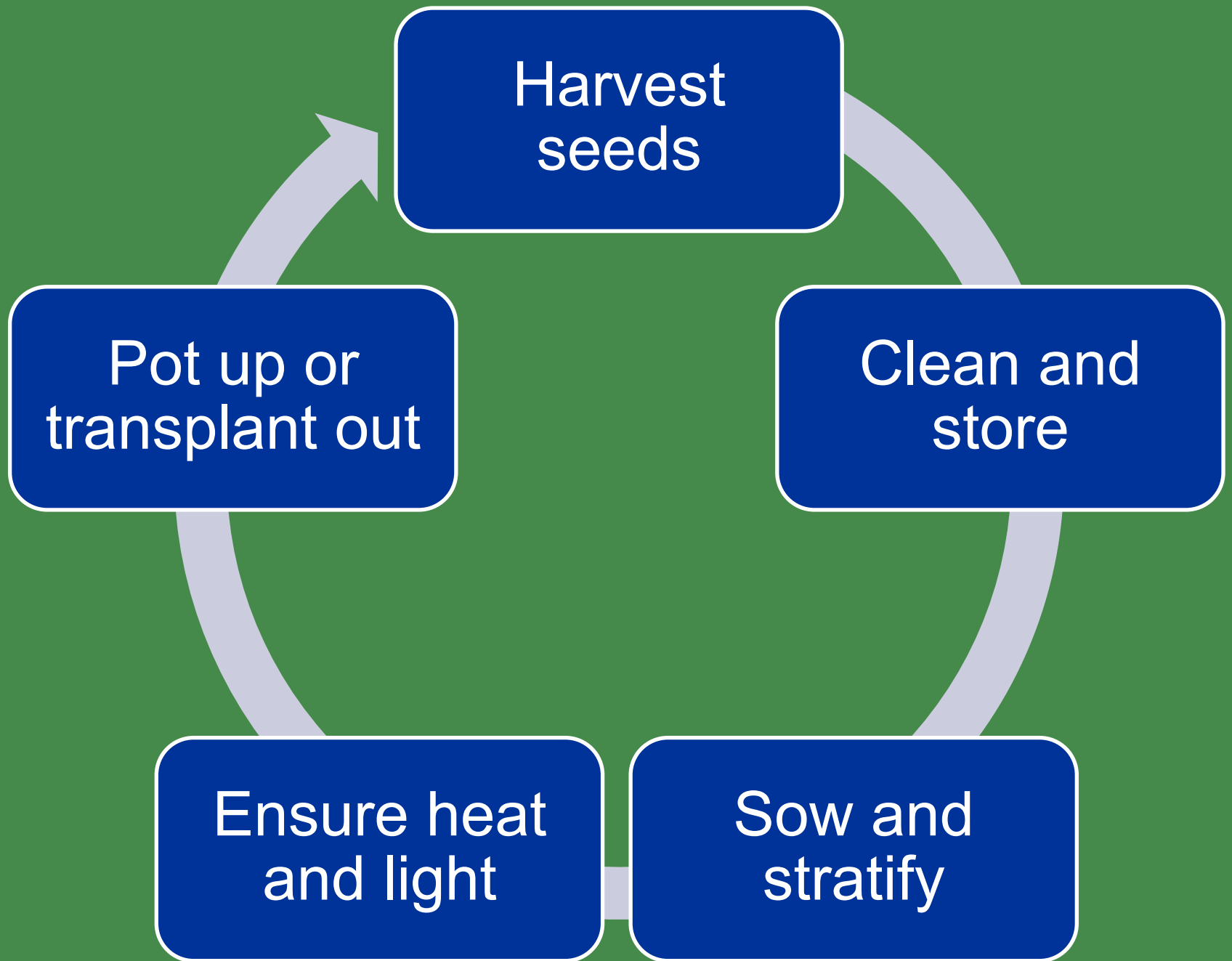
January, February, March, April

- Grow plants: 8-12 weeks

April, May, June

- Plant Plugs

June, July, August, September



Time Line – Overlapping Stages

[illegible]

Harvest seeds when ripe

- look 4-6 weeks after peak bloom
- how do I know if they are ripe?

Capture seeds

Label

- name
- place
- date



Cautions and Exceptions

- Harvest only with permission
- Take only 10% from a healthy population
- Some seeds are harvested slightly green
 - *Trillium, Thalictrum*
 - small tree/shrub fruits
- Moist seeds
 - harvest in plastic bag and keep moist

Check seed viability



12/11/2013 17:48

Check
reference for
individual
species for
proper
handling



Author William Cullina

Cleaning and Storage of Dry Seeds

- Dry seeds in paper bags
- Find seeds in bottom of bag or in seed head
- Separate seeds from chaff
- Use regular household items for screening
 - colanders and strainers, rolling pin!



Cleaning and Storage of Dry Seeds

- Let dry in bag or spread on newspaper
- Put seeds in containers
 - jars, tins, envelopes
- Store at room temperature on shelf



• **Cleaning & Storage of Moist Seeds**

- berries and most spring ephemerals
- remove fleshy covering or pods ASAP
 - soak berries
- put in plastic bags or jars with moist medium
- keep warm, then refrigerate
 - spring ephemerals are kept warm for 30-90 days
 - everything cold by October

Eliasomes /ants want these!



Sanguinaria canadensis

Bloodroot

photos: Patrick Coin

Sieves work well for cleaning moist seeds.
Colanders too.



Remove the pulp from berries.



10/29/2013



Seed packaging - moist seeds

Package to keep moist



Press air out!



Store in the fridge



Seed Stratification

Stratification mimics the natural temperature cycle of warm & cold, moist conditions.

- Most native plant seeds require cold/moist followed by warming.
- “Cold” = $\sim 40^{\circ}$ “Warm” = $\sim 65-70^{\circ}$ (room temp)
- Seeds that ripen in early summer need warm/moist, then cold/moist, & back to warm/moist.
- Some native plant seeds require multiple cycles = years
 - *Lilium*, *Trillium*, *Erythronium*, *Caulophyllum* and others



Cold and Moist!

Winter insulation/protection
from temp. fluctuations

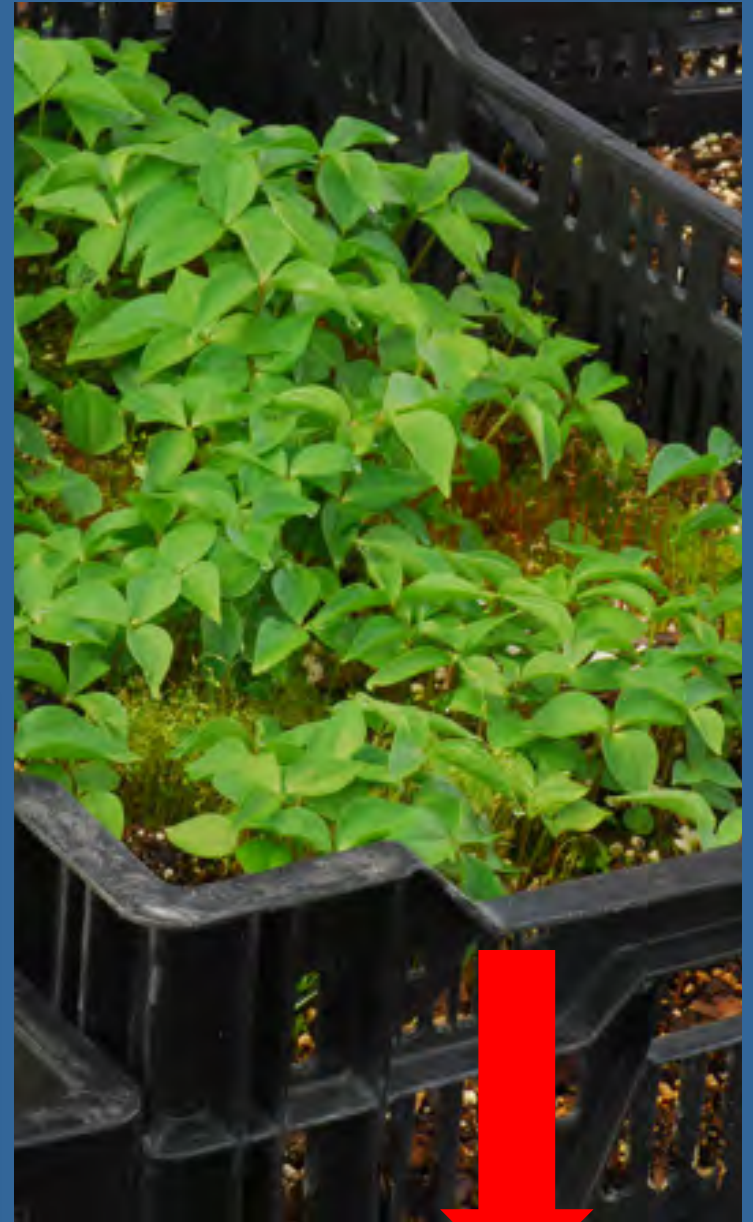


Multiple Cycles

- Two to three years of warm-cold-warm stratification
- Maintain moisture throughout the seasons
- Frequently seen with *Trillium*, *Asarum*, *Hepatica*



- **Seed Sowing**
- Use trays, flats, or pots that are ~ 3-4" deep (shrubs, trillium need 6-8" depth)
- Moisten mix
- Spread potting mix evenly and tamp to 1/4 " below rim





Seed Sowing

1. Spread seeds evenly over top of flat and cover lightly or leave open
 - large seeds - press to depth of seed size
 - seeds that require light – no cover or cover with small amount of sand or grit
2. Water in & cover with plastic bag to keep moist
3. Place in fridge, garage or cold frame (but not in sun)



Sow seeds that need
light to germinate
directly on the surface.

Easy to over sow small seeds !



Light and Heat

- Post-cold/moist treatment
- Put flats in direct sunlight or under lights
 - 16 hours, 2-3" from light
 - Gro-lights or 1 warm & 1 cool fluorescent OK
 - leave plastic bag partly open or perforate
- **Keep** warm and moist
 - 70° is best for germination
 - 80° for warm season grasses
 - not too wet or too dry
- Slowly open plastic bag after germination to acclimate
- Fertilize about 4 weeks after germination

Pot Up or Transplant Out

- Look at size of plant and root growth
 - Plants need transplanting or potting up if they are too big or if roots are growing out of flat
- Wait to transplant
 - if they are tiny
 - if they are slow to germinate
 - if they are slow to develop roots and shoots
 - Examples: *Smilacina* (*Maianthemum*), *Actaea*, *Arisaema*, *Trillium*, *Lilium*



Up size
from tray at
(left)

Into pots
where
roots
have room
to expand
in the pot.

Pot size?
root within
1 in" of the
sides and
bottom.

Jim Engle of White Oak Nursery shows us how Treeband Pots work to keep roots from circling!



Seedling Care

- hardening off
- watering
- shade or sun



A photograph of a greenhouse structure. A screen door is propped open and used as a shade structure over a bed of soil containing many small green seedlings. The screen door is held up by wooden frames. The greenhouse is situated on a gravel surface next to a building with large windows.

Shading can be anything that creates shade — Like, old screen doors , a sheet or a beach umbrella! Invent something when you need to shade plants.

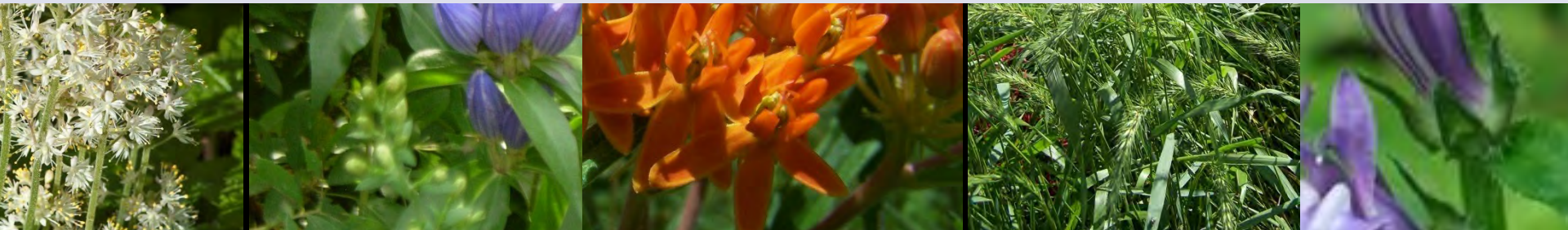
Spun polyester fabric over flats of seeds and plants helps moderate temp hot or cold and keeps out pests. Remember to remove it for pollination.







A Few Native Plants to Propagate from Seeds



Cultural Conditions

- Sun, Shade
- Wet, Dry
- Soil Type
 - Acid, Basic (limey)
 - Drainage

Early April



***Sanguinaria canadensis*, Bloodroot**

**Grows in shade or part sun, in moist to dry soil.
Prefers alkaline soils. Height 6". Keep cleaned
seeds moist**

April

Trillium erectum

Wet Dog Trillium

Moist soil, shade. Ht. 8-24"

keep cleaned seeds moist



April



Trillium grandiflorum,
Large Flowered Trillium
grows best in part to full
shade in a moist
woodland setting.
Keep cleaned seeds moist

Mid-April



***Asarum canadensis*, Wild Ginger Grow in shade. Ht. 3- 5".
Keep cleaned seeds moist**

Late April



***Caltha palustris*, Marsh Marigold grows in moist to wet soil. It likes really wet feet; do not allow it to dry out. Ht. 2'. Keep cleaned seeds moist**



Late April to May

***Geranium
maculatum,***

**Wild Geranium
Grow in part sun
or full shade.**

Height 2'.

**Sow seeds
immediately
upon collection.**

**Or store
cleaned seeds
dry.**

May

Mertensia virginica,

Virginia Blue Bells

Found in drifts
on shady
stream banks.

Grows in
shade or
part sun.

Height 18".

Sow immediately upon collection
or store moist



May

***Aquilegia canadensis*,
Wild Columbine**
is easy to grow
in full sun or
shade and moist
or dry soil. The
height (18-36")
depends on the
amount of light
and moisture.



May



Arisaema triphyllum,
Jack in the Pulpit grows in
part to full shade in moist
soil. Ht. 2'.

September



Clean seeds wearing gloves to
protect skin from oxalic acid
Store seeds moist



Actea pachypoda

Actea rubra

Doll's Eyes grow
in full shade and
well-drained soil.
Height ~ 2'.
Clean seeds and
store moist

Late May

August /September





June



Penstemon hirsutus,
Hairy Beardtongue grows in full sun or
part shade in well-drained soil or
gravel. Naturally a west facing cliff
dweller, but it adapts well to the garden
if given a sunny spot and space. Ht. 1-3
ft.

Clean seeds and store dry does not
need moist cold stratification to
germinate



Late June

***Asclepias incarnata*,
Swamp Milkweed
grows well in the
garden. It prefers
moist to wet soil in
sun, tolerates part
shade. Height 2 - 5',
depending on light
and moisture. Host
plant for the Monarch
butterfly caterpillar.
Nectar plant for other
butterflies. Store clean
seeds dry.**





Pinch pods and pull seeds down
to clean easily.
store all Asclepias species dry

July

*Asclepias
tuberosa*,
Butterfly Weed
-full sun and
well-drained
sand, gravel,
or good garden
soil.
Height: ~1-2.5'.



July

Anemone virginiana Thimbleweed
grow in dry shade. Height 1-2.5'.
Store seeds dry



Mid-July



***Monarda fistulosa*, Wild Bergamot or
Lavender Bee Balm grows best in dry, well-
drained sites in full sun to part shade.
Ht. 1-4 ft. store seeds dry/ does not need
moist cold to germinate**

July



Lobelia cardinalis, Cardinal Flower grows in sun or shade and moist to dry soil, but is best in evenly moist soils and full sun. Height 2-4'. Store seeds dry



Mid-July



***Monarda didyma*, Bee Balm is a good tea plant due to its fragrant oils of bergamot. Grow in moist soils, in sun or shade. Height 3-4'. Store seeds dry**

Late July

***Lobelia siphilitica*,
Great Blue Lobelia**
Is a biennial that
grows in sun or
shade and moist to
dry soil, but is best
in moist soils.
Height 18-36". Store
seeds dry



September

*Symphotrichum
novae-angliae,*

New England Aster An
easy to grow violet-
blue, purple, or pink
aster with a large
inflorescence. Grows
best in moist soil in
full sun, but will
tolerate part shade
and drier sites. A tall
plant; to keep short
cut back by half mid-
season. Height 3-
5'.store seeds dry





Symphotrichum novae-angliae,
New England Aster

Asters can fit into
a more formal
setting.

Cut them by half
or to the ground
mid-season to
reduce stem
length.

These are
Pollinator Plants!



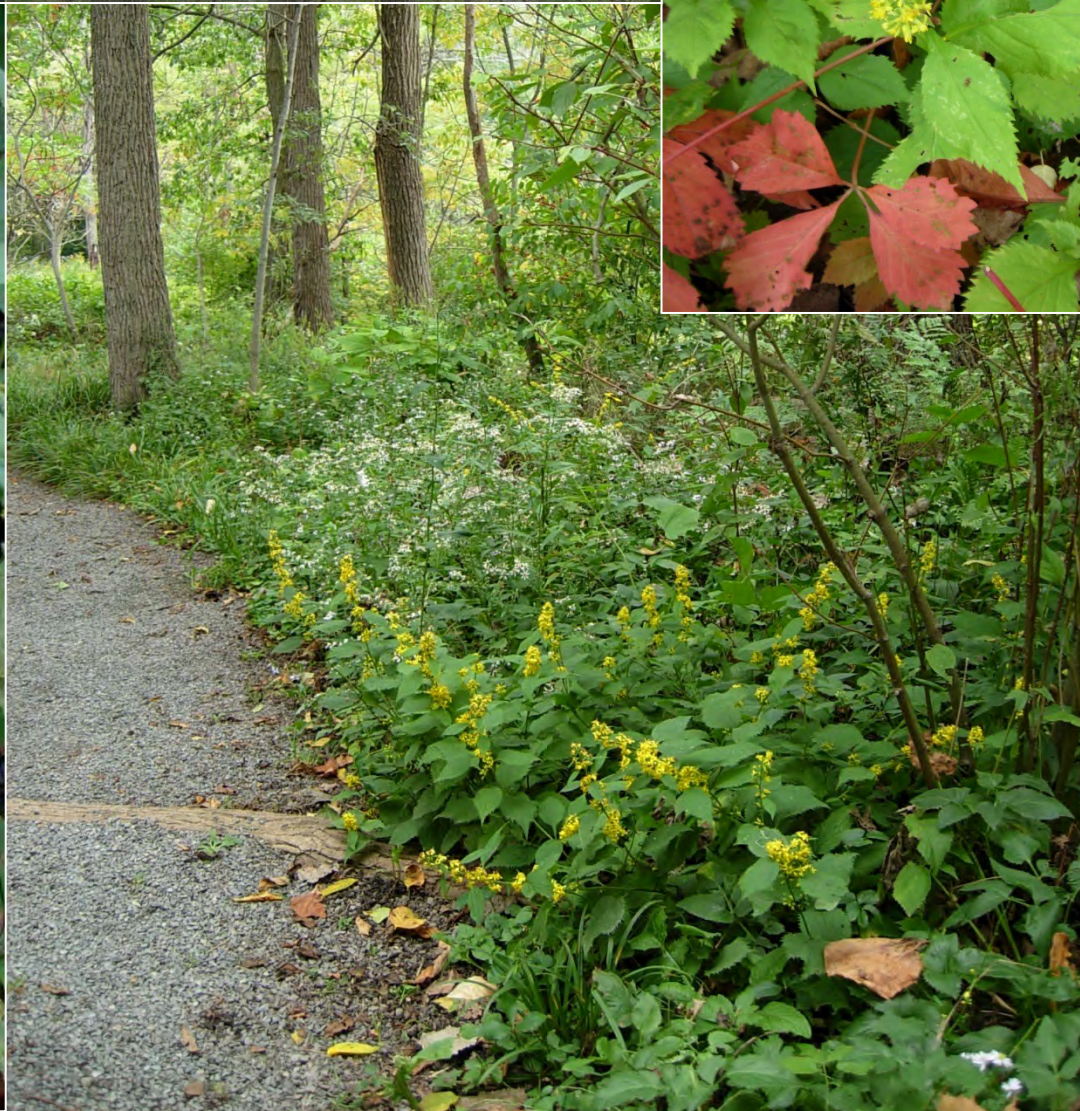
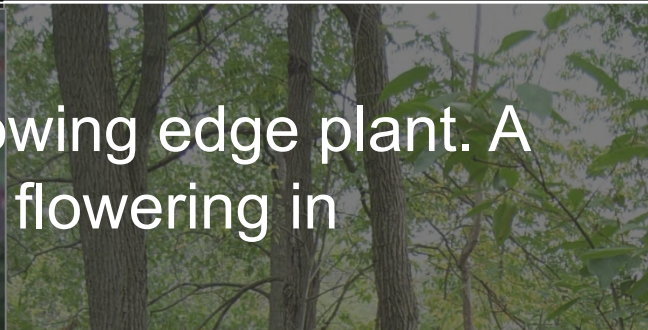
*Symphotrichum
cordifolium*

*Symphyotrichum
novae-angliae*

Symphyotrichum pilosum

Solidago flexicaulis

zig zag goldenrod is a low growing edge plant. A ground cover all season long, flowering in September. Store seeds dry



Fall goldenrods

- *Solidago caesia*



Solidago sempervirens

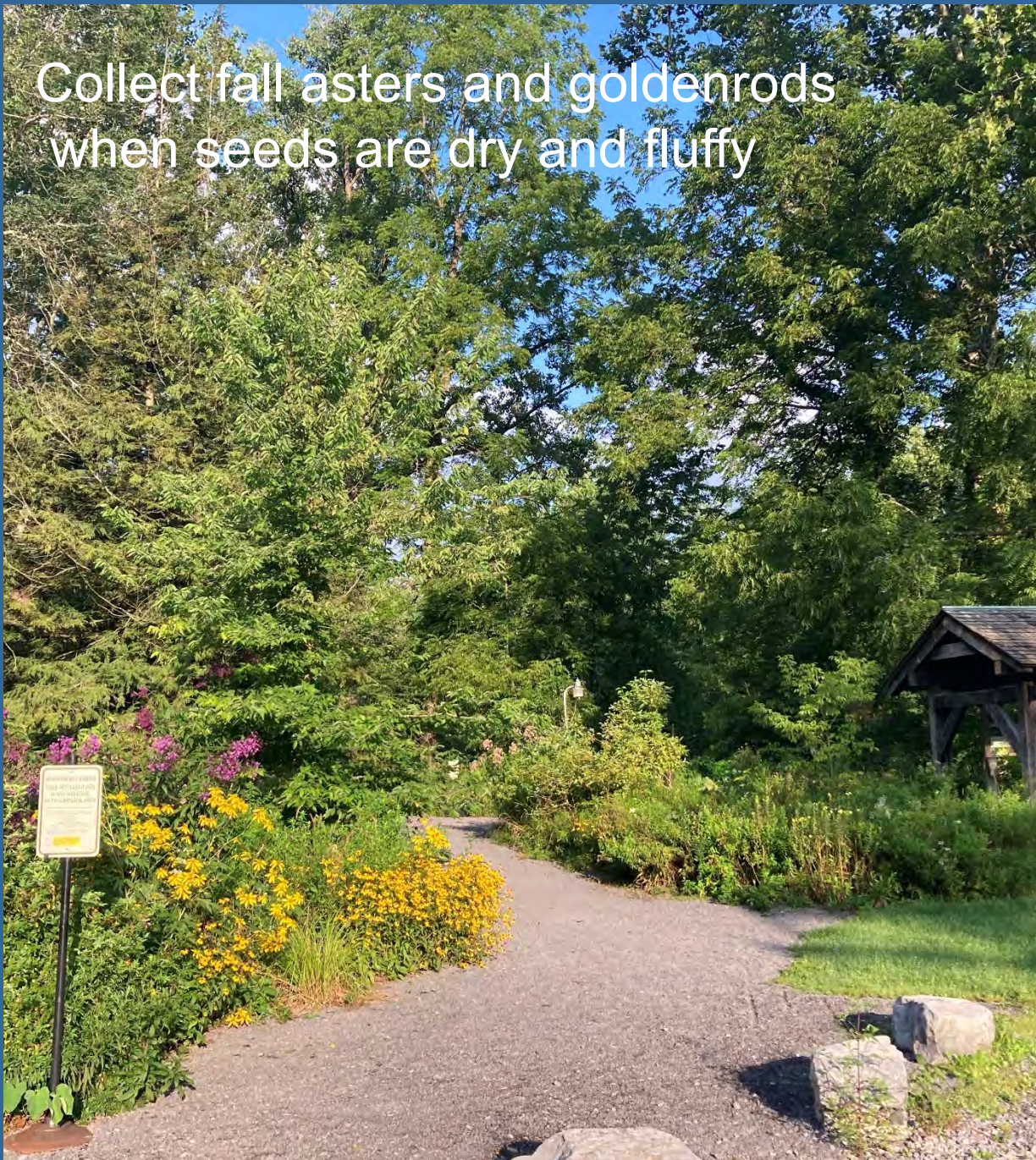


S. bicolor



S. ridgida

Collect fall asters and goldenrods
when seeds are dry and fluffy



**Fall Asters, grasses &
goldenrods -**

**Baird Meadow- Cornell
Botanic Garden's
Arboretum**



Fall

Cool Season Grasses

Elymus canadensis, Canada Wild rye has bluish foliage & fruit. Grow in sun and dry soil. Height 2 to 4'. Collect when seeds are dry and falling from stem. Store dry seeds does not need cold moist stratification.



Elymus hystrix, Bottlebrush grass grows in part shade to sun and dry to moist soil. Height 18-30".

yellow prairie grass- *Sorghastrum nutans* Grows hot and dry from 4-6 feet.

Collect seeds when dry and falling from stem. Store seeds dry- does not need cold moist stratification.



Wild rye, our cool season grasses.
Seedlings germinate in the fall!



Grasses



Shake out seeds



Peel open to release seeds

Vines, Shrubs and Trees



Clematis virginiana

Virgin's bower

Sun to part shade,
moist – collect seeds
when they are dry
and store dry

Echinocystis lobata

Wild cucumber

Coiling tendrils!

***Cornus Florida*- flowering dogwood:**
fruits ripen in the fall.
Collect and clean pulp from seeds and store moist.



***Cornus amomum* – silky dogwood**
fruits ripen in the fall





Rosa
setigera
likes to climb.
Collect fruits and clean seeds –
store dry



Rosa palustris

swamp rose – collect fruits and clean seeds – store dry



*Cephalanthus
occidentalis*
buttonbush

6-8 feet

Collect fruits and clean
seeds- store dry

Naturally grows in
saturated soils- will
adapt to garden soil.





***Sambucus canadensis*,
American elderberry
Height 7-15'.
Clean seeds and store moist**

Viburnum dentatum
arrowwood

Medium to large
shrub – adaptable
Excellent bird food!
Clean seeds and
store moist



*Physocarpus
opulifolius*, Nine
Bark

Medium to large
sized shrub

Grow in part
shade in well-
drained soils

Beautiful bronze
to bright yellow
fall color

Height 6- 12'.
Collect tiny seeds
in a fine mesh net
and store dry





Carpinus caroliniana
musclewood
store dry



Betula lenta
sweet birch
store dry



Viburnum lentago
Nanny berry
Clean seeds-
store moist



Aronia melanocarpa

4x6' mesic-moist sun or part shade

Clean seeds of pulp and store moist

***Lindera benzoin*, spice bush is a slow growing, medium sized shrub. It grows best in alkaline soil in a moist to dry site. Mature height 8-10'.**





Rubus odoratus, Purple Flowering Raspberry is a medium to large shrub with edible fruits and beautiful flowers Mature height 6' x 6'. Enjoy fruits or clean and store dry

Sources

- Garden Fair Plant Sale in Ithaca in early May
- October: FLNPS seed collecting Oct. 23rd 2021
- December: FLNPS Seed Exchange
- Volunteer at the Mundy Wildflower Garden!

Local nurseries:

- Plantsmen, Groton www.plantsmen.com
 - White Oak Nursery, Canandaigua
www.whiteoaknursery.biz
 - Amanda's Garden, Spring Water
www.amandasnativeplants.com
 - Go Native Perennials , Skaneateles on Facebook
 - Grow Wild, Brooktondale www.growwildnatives.com
- Please choose native species that have been propagated from seeds. ASK