Sow For the Future: Native Woodland Perennials

Sowing, growing, and collecting the seeds of our native perennials.

Presented
by Shawn Jalbert
April 12, 2021

Have questions or comments about material in this presentation?

This presentation will be available in .pdf format on my website;

http://www.nativehaunts.com/presentation_archive.html

Contact me directly (email is preferred);

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Much of the information covered in this presentation is condensed into a handout;

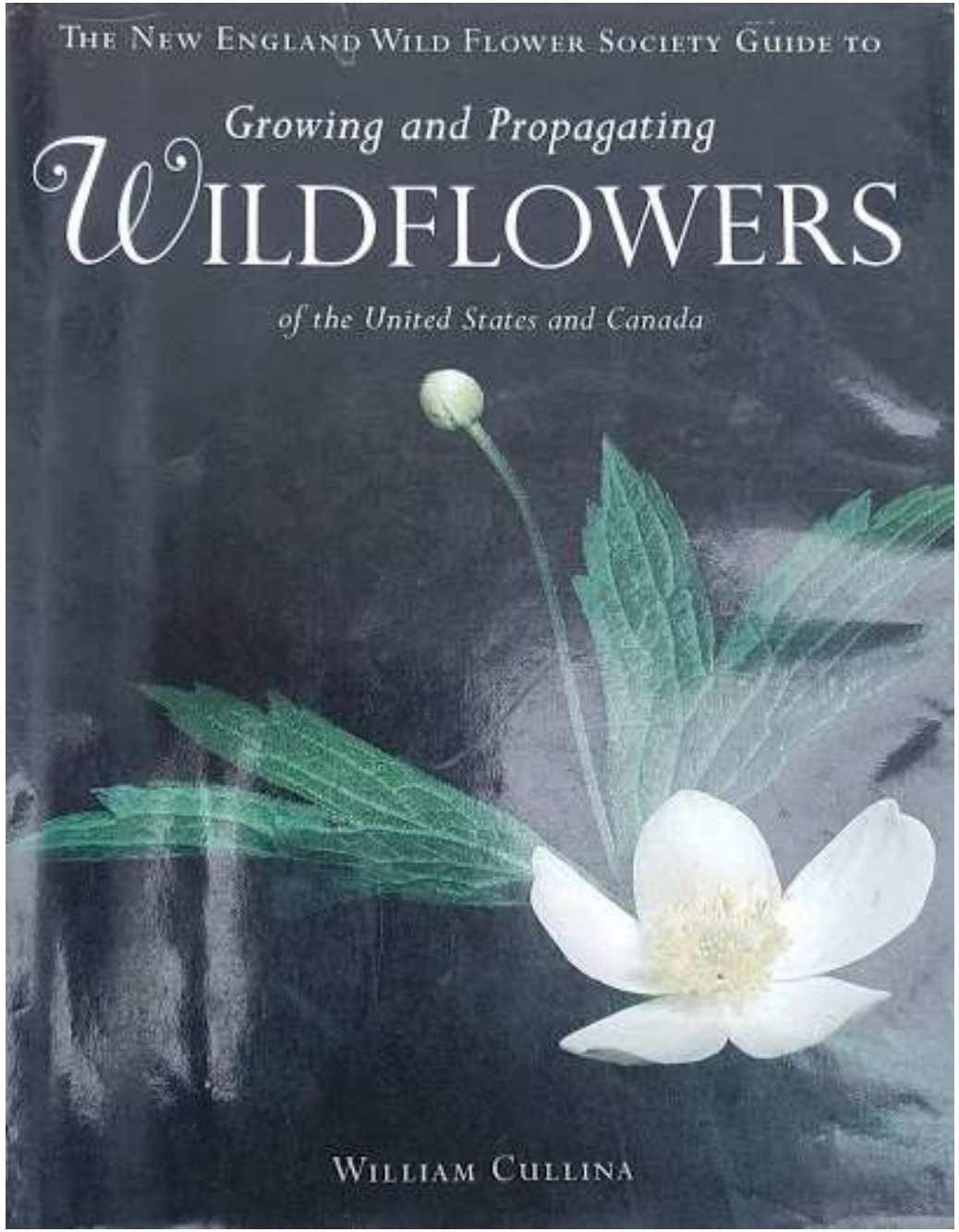
Available from the Coastal Maine Botanical Garden

Or

http://www.nativehaunts.com/presentation_archive.html

Major take home lessons from today's presentation;

- Better understanding and appreciation of the complexities of a plant's life history, with an emphasis on *seed ecology*; the plant stage is only part of the story.
- Correlation between the environmental conditions in a plant's habitat and the germination requirements of its seed.
- The power of predictability and intuition based on habitat conditions and plant relationships.
- Germination and growing requirements of specific woodland species.
- Special horticultural considerations of growing woodland perennials from seed.
- Environmental ethics and considerations when working with natives.



Invaluable reference

Cullina, William. 2000. *Growing and Propagating Wildflowers of the United States and Canada.*
Houghton Mifflin Company, New York.

Seed ecology

- Timing of seed production (phenology).
- Seed dispersal strategies and mechanisms.
- How habitat conditions;

-impose dormancy

-induce germination

- Factors that influence successful seedling establishment;

in the woods

and

the nursery.

<u>To understand how to grow a plant from seed it helps to understand the journey a seed goes through before it germinates.</u>

How is the seed dispersed?
Do ants carry the seed away to their colony and what conditions exist there that are favorable to seedling growth?

Are the seeds part of a package, like fruit, that entices an animal to eat them?
What happens as the seed passes through the animal's gut?
(Germination inhibiting chemicals are stripped away from the seed.
The seed coat is roughed up (scarified) by digestive juices and muscular action.)

These steps are critical for a seed to germinate. If we do not know about them, we will have a hard time getting the seed to grow.

Explanation of seed germination terms

Hydrophilic; Refers to seeds that must stay moist through out their germination period. Dry storage may outright kill the seed or simply delay its germination. This requirement is common in woodland perennial species due to the consistently moist conditions in their habitat.

Clean Seed; Fruit surrounding seed often contains germination inhibiting chemicals. The fruit must be cleaned from seeds by soaking or maceration. Common in animal dispersed seeds.

Warm; Seed will germinate after being placed in a 70 degree environment.

Cold-Refers to cold stratification. Seed must be moist and placed in an approximately 40 degree environment for 60-90 days, then switched back to warm.

Scarification; Seed must be roughed up, usually due to a hard seed coat. This allows moisture to enter the seed and initiate chemical reactions that allow germination.

Warm-cold-warm; This pattern is usually indicative of immature embryos. A warm period is needed to allow the embryo to fully develop. This will prepare the embryo to accept the cold period, which breaks dormancy. Multi-year germinators.

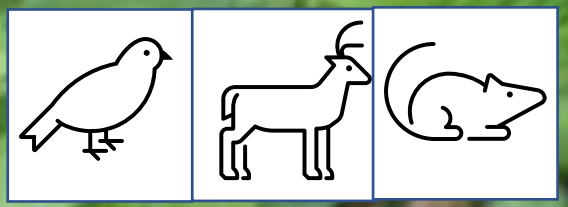
Cold-Warm-cold-warm: Prolonged cycles to fully breakdown germination inhibiting chemicals in the seed. Multi-year germinators.

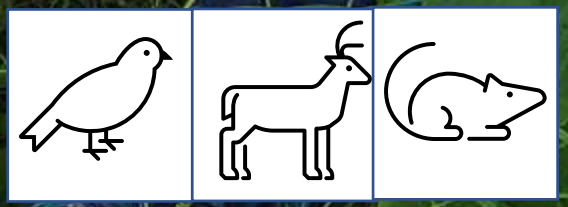

Let’s go for a walk in the woods!

Red baneberry
Actaea rubra

Seed collection time;
Mid to late summer

Germination requirements;
Cold-warm or
Cold-warm-cold-warm





Blue cohosh
Caulophyllum thalictroides

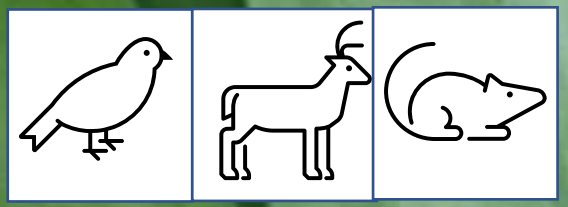
Seed collection time;
Late summer

Germination requirements;
Cold-warm -cold-warm-cold-warm
Cleaning, scarification

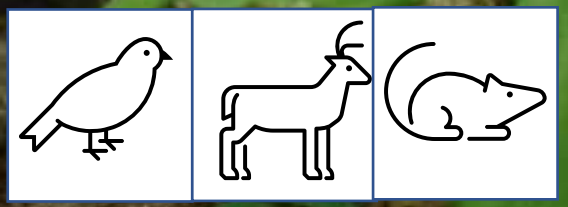
Ramps, Wild leeks
Allium tricoccum

Seed collection time;
Mid to late summer

Germination requirements;
Cold-warm-cold-warm-cold-warm



Jack-in-the-pulpit
Arisaema triphyllum



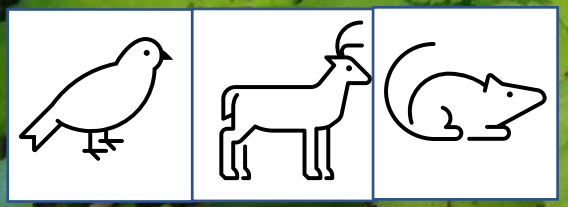
Seed collection time;
Mid to late summer

Germination requirements;
Cold-warm
Cleaning

Foam flower
Tiarella cordifolia

Seed collection time;
Mid to late summer

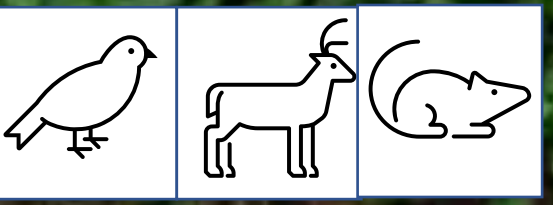
Germination requirements;
Cold-warm
hydrophilic seed



False Solomon's seal
Maianthemum racemosa

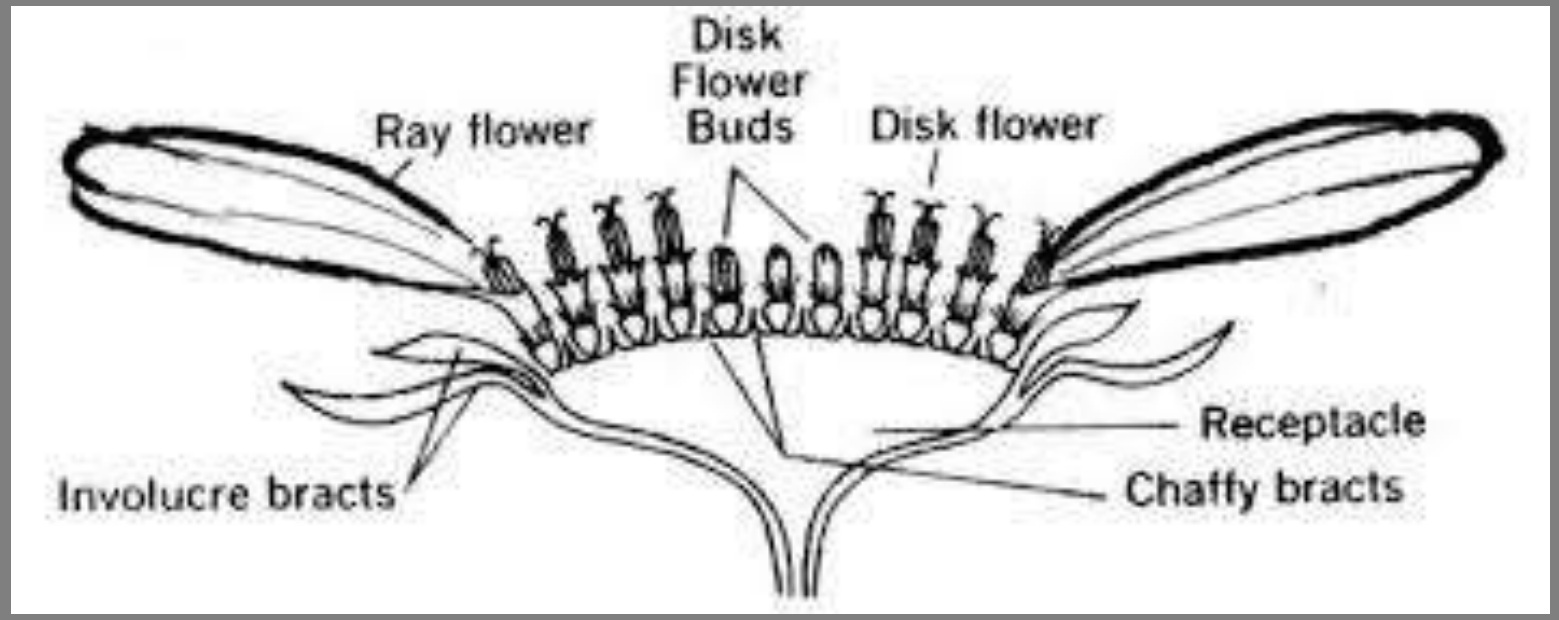
Seed collection time;
Mid to late summer

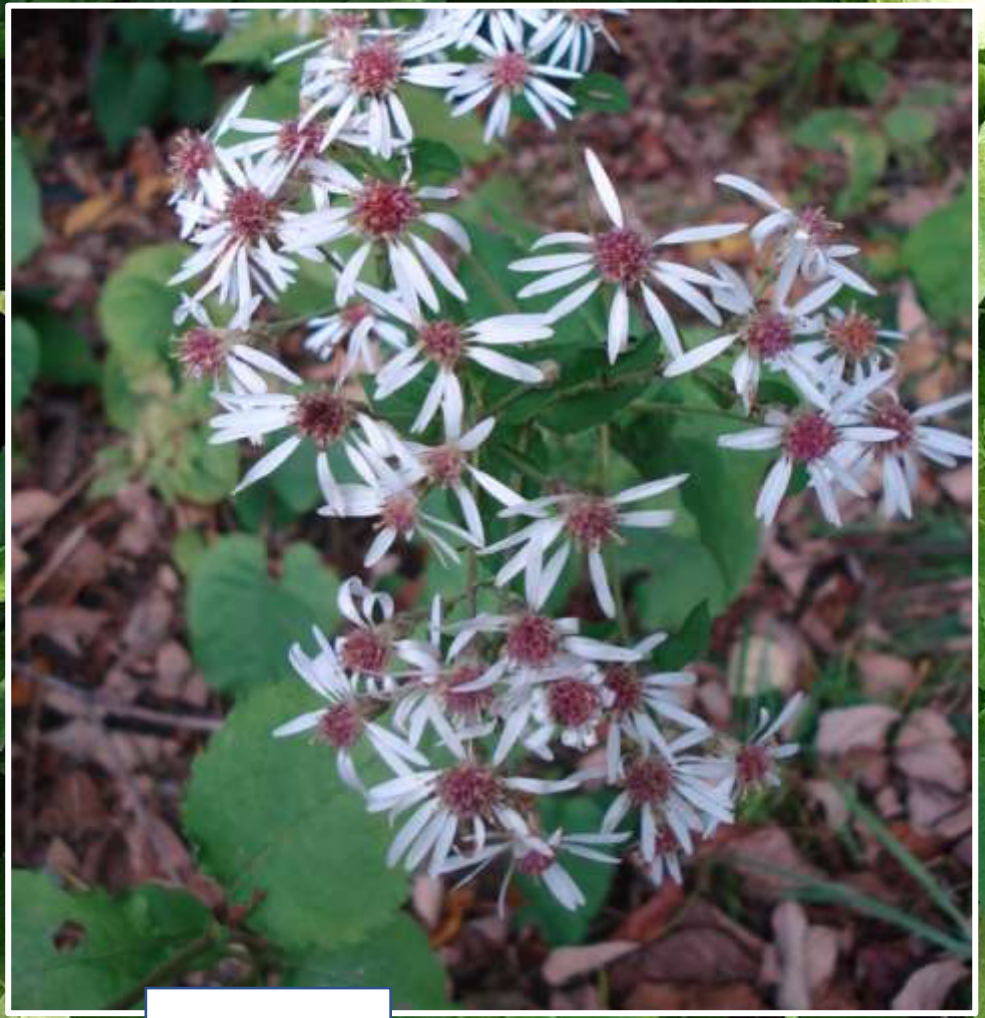
Germination requirements;
Cold-warm
hydrophilic seed, clean



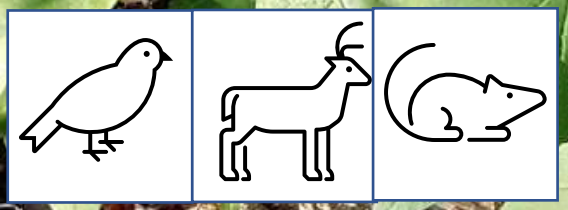

Blue stem goldenrod
Solidago caesia
Seed collection time;
Early fall
Germination requirements;
Cold-warm or warm

Illustration of floral anatomy for typical Asteraceae flower





Big leaf aster
Eurybia macrophylla



Seed collection time;
Early fall

Germination requirements;
Cold-warm or warm

Bunchberry
Chamaepericlymen canadensis

Seed collection time;
Mid to late summer

Germination requirements;
Cold-warm, clean seeds

Wild columbine
Aquilegia canadensis

Seed collection time;
Late spring

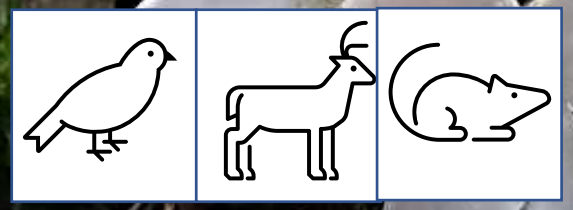
Germination requirements;
Cold-warm

Wild geranium, Cranesbill
Geranium maculatum

Seed collection time;
Late spring

Germination requirements;
Cold-warm, hydrophilic

Trailing arbutus
Epigaea repens



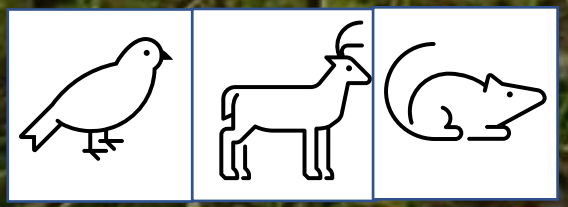
Seed collection time;
Early summer

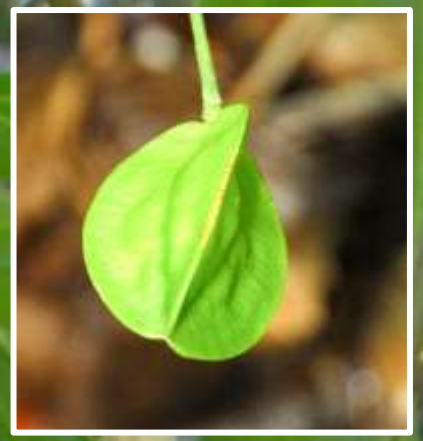
Germination requirements;
Warm, light, hydrophilic

Wild sarsaparilla
Aralia nudicaulis

Seed collection time;
Mid summer

Germination requirements;
Cold-warm-cold, clean, hydrophilic?

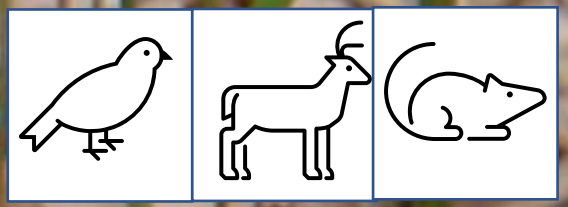




Wild oats
Uvularia sessifolia

Seed collection time;
Late summer

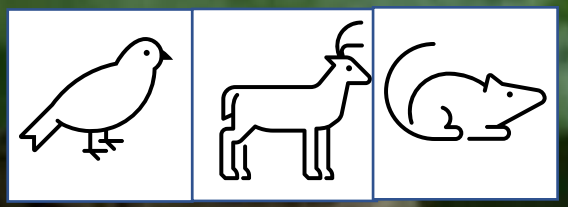
Germination requirements;
Cold-warm-cold-warm, hydrophilic

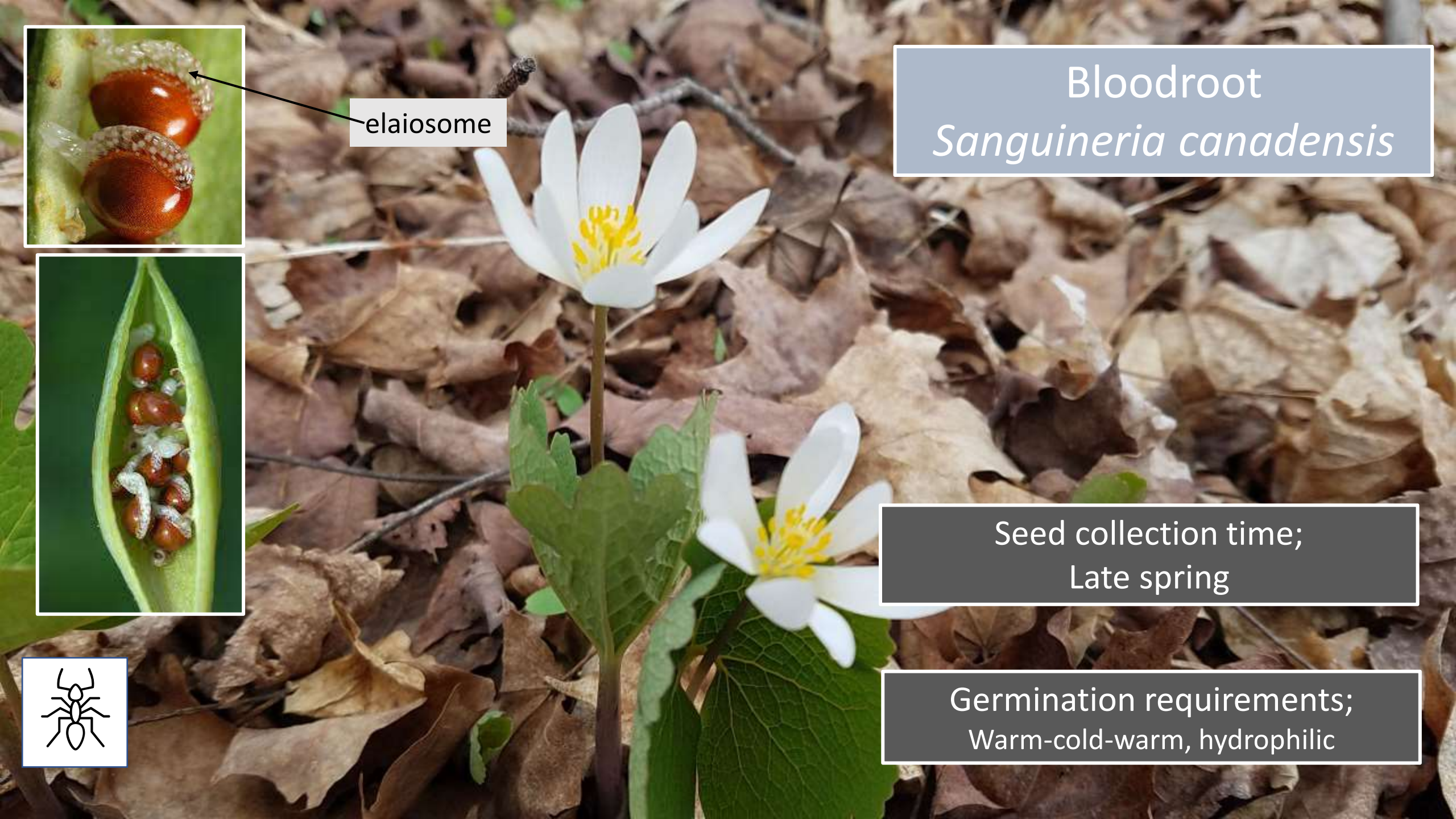


Canada mayflower
Maianthemum canadensis

Seed collection time;
Late spring

Germination requirements;
Cold-warm-cold-warm, hydrophilic,
Clean seed





Bloodroot
Sanguineria canadensis

Seed collection time;
Late spring

Germination requirements;
Warm-cold-warm, hydrophilic

Dutchman’s breeches
Dicentra cucullaria

Seed collection time;
Late spring

Germination requirements;
Warm-cold-warm, hydrophilic

Rock harlequin
Capnoides sempervirens

Seed collection time;
Late spring

Germination requirements;
Warm-cold-warm, hydrophilic

Liverwort, Blunt-lobed hepatica
Anemone americana

Seed collection time;
Late spring

Germination requirements;
Warm-cold-warm, hydrophilic

Painted trillium
Trillium undulatum

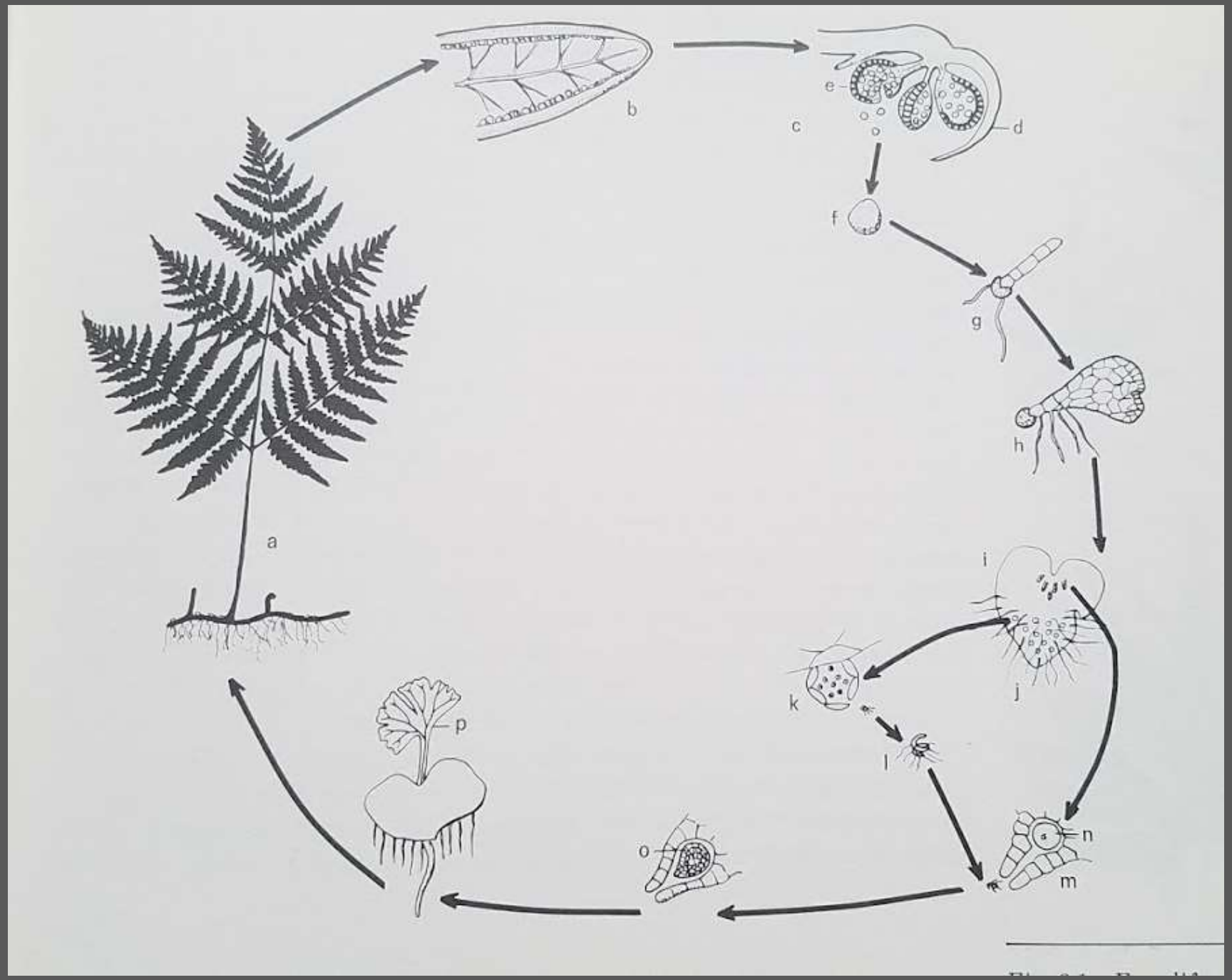
Seed collection time;
Mid to late summer

Germination requirements;
Cold-warm-cold-warm,
hydrophilic,
Clean seed

Polypody fern
Polypodium vulgare

Spore collection time;
Fall

Germination requirements;
Warm, moist, light



Typical Fern Life Cycle

Horticultural Considerations

Seed Harvesting Ethics and Considerations

Contact Information

Horticultural Considerations

Soil and growing media

- Many woodland perennials have long germination periods of several years.
- Soil media must be stable enough to maintain volume and proper drainage during this time.
- Media with high amounts of organic matter will decompose and greatly reduce the soil volume, effecting moisture retention and structure.
- The ideal medium will have a loam like structure which does not break down as readily and has good drainage.
- A significant content of non-organic matter (clays and sands) or slowly decomposing organic matter like finely shredded bark, will help maintain soil volume.

Moisture retention

- Conventional soil mixes rely on compost to retain moisture, which breaks down over several years.
- Mulches such as finely shredded bark or leaf moulde do not break down as quickly and cap off the growing area, be it a bed or container, better controlling moisture loss/retention.

Horticultural Considerations (cont.)

Seed sowing

1. Don't dilly-dally; *get in the habit of planting seeds as soon as you harvest them*. Many of our woodland perennials have hydrophilic seeds that will not tolerate periods of storage.

2. You can certainly use the refrigerator for cold stratification, but overwintering the seeds outside exposed to natural temperature fluctuations seems to have the best outcome.

3. *Protect you seeds*; hungry critters are always on the prowl. The beds and containers we sow our seeds in are essentially concentrated food sources. Voles, chippies, and mice set up quarters and eat until there is nothing left. *The subnivean zone is a treacherous place for a seed*.

4. Physical barriers, such as hardware cloth, securely fastened around the container work well.

5. Scent deterrents like hot pepper wax spray and granular applications like Bonide's Shot Gun Repels All work well to discourage feeding and loitering in the area.

6. *Maintain consistent moisture* in the seed bed; not soaking wet but consistently moist is the key.

7. *Keep the seed beds/containers in the shade.* It may be counter intuitive to conventional gardening wisdom, but these seeds need to be shaded, especially in the growing part of the year.

Seed Harvesting Ethics and Considerations

We all know that digging plants from the wild is taboo, but what of seed collection?
It seems innocent enough, we are preserving the parent plants *in situ.*
But,
We have to take the following into consideration;

We could be denying animals of a life sustaining meal. This is something we are doing for leisure, animals need to harvest these seeds *to survive*.

We are interfering with the natural dispersion of a plant population;
yearly sustained seed collection will have a negative impact.

Seed Harvesting Ethics and Considerations (cont.)

Use restraint when collecting seed.

No matter what it is, when we see a lot of something we tend to get greedy. Greed leads to waste and others being denied. Collect only a portion of what you find.

Do not collect seed from rare plants.

Rare plants are rare for a reason, collecting even a portion of their precious effort will have negative impacts. Regardless of how good of a grower we think we are; observe, take a picture and walk away.

Establish your own seed banks.

One of the main goals of growing our own plants from seed is to establish a captive population that we can harvest seeds from. One plant will make many more plants. It is short sighted for us to be robbing Mother Nature year after year.

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