ISLANDS TRUST CONSERVANCY

Growing Native Plant Species for People & Place

With Kristen Miskelly

Chocolate Lilies on Sidney Island © W. Tyrrell

Our Speakers

Kristen Miskelly
Biologist, Consultant &
Native Plant/Seed Nursery Co-founder

Satinflower NURSERIES
native plants, seeds & consulting

Kristen Miskelly

Growing native plant species for people and place



Unceded Coast Salish Territories of the Victoria Area

Victoria

Lkwungen-speaking Peoples

Esquimalt Nation

Songhees First Nation

Metchosin

Scia'new First Nation

T'Sou-ke First Nation

Esquimalt Nation

Songhees First Nation

Saanich

W̱SÁNEĆ Territory (5 nations), SENĆOŦEN-speaking Peoples

BOḴEĆEN – Pauquachin

STÁ,UTW̱ – Tsawout

W̱JOŁEŁP – Tsartlip

W̱SÍḴEM – Tseycum First Nation

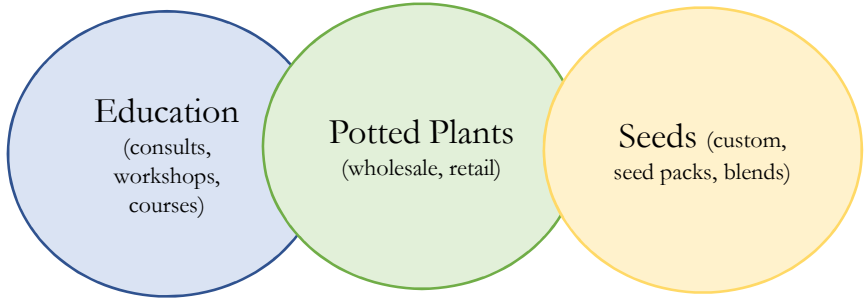
Malahat First Nation (Hul'q'umi'num', Lkwungen, Malchosen, Semiahmoo, SENĆOŦEN, T'Sou-ke)

[Species At Risk Program — Conservancy — Islands Trust]

Satinflower NURSERIES

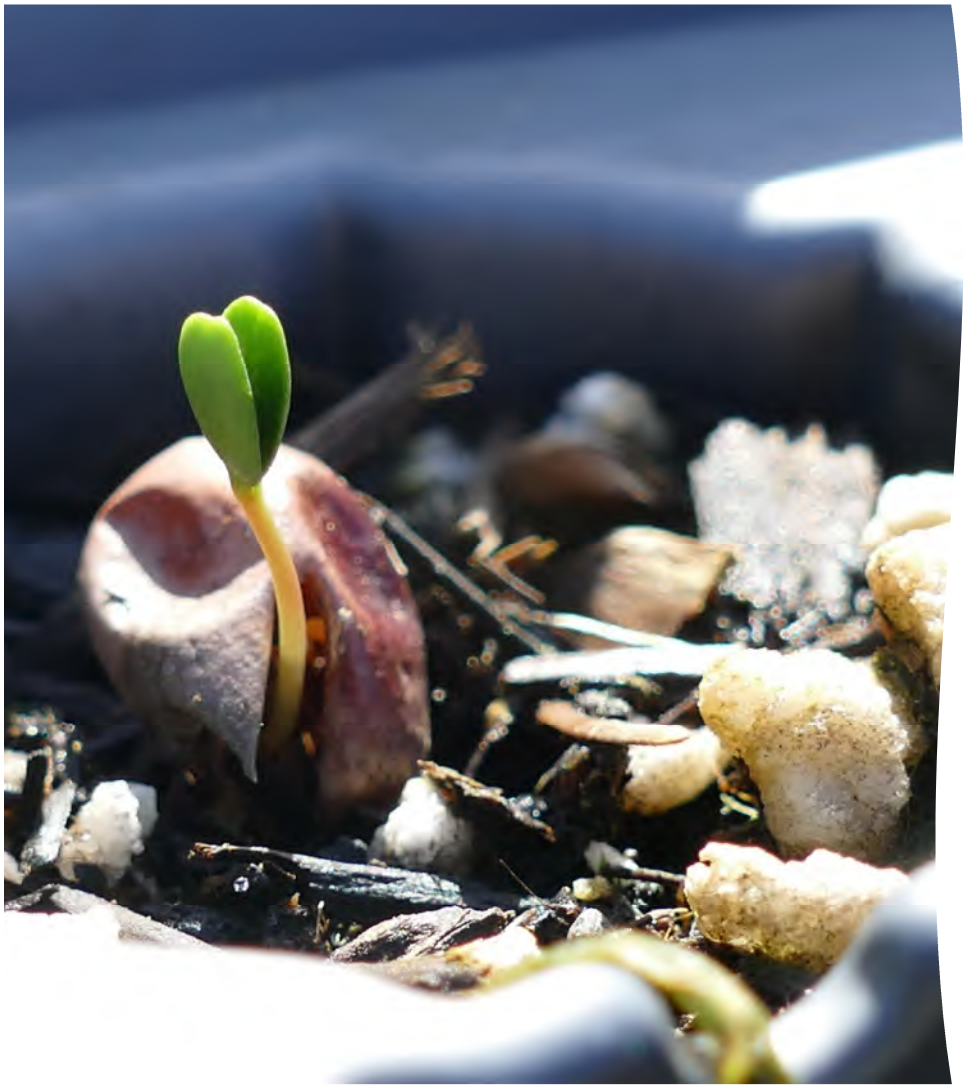
native plants, seeds & consulting

Inspiring and empowering people to connect with nature through native plants



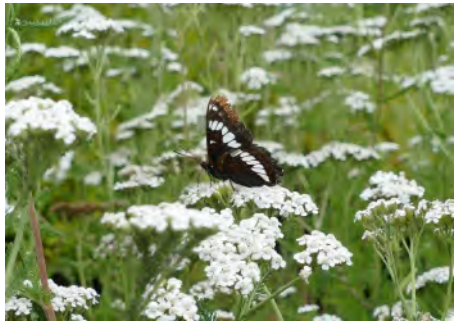
Native Plants, Seeds & Consulting

- ~200 species
- Potted wildflowers, shrubs, trees grasses, sedges, rushes, ferns
- Native seed production
- Grown without herbicides, pesticides, chemical fertilizers
- Genetically local



Plant propagation (growing) is the process of creating new plants

- Propagation involves encouraging, manipulating, controlling, and sometimes accelerating natural plant strategies for reproduction so that we can make more plants.
- To do well at propagation, it is important to study nature, learn about local ecology, and try to understand the individual life histories of species.
- The way plants grow in nature provides clues about how we can grow them.
- This can include timing of seed collection, when to sow them, what soils might be best, light and moisture conditions, and what style of propagation might yield the best results.
- We may also learn that we can't easily propagate them! (and that's okay)

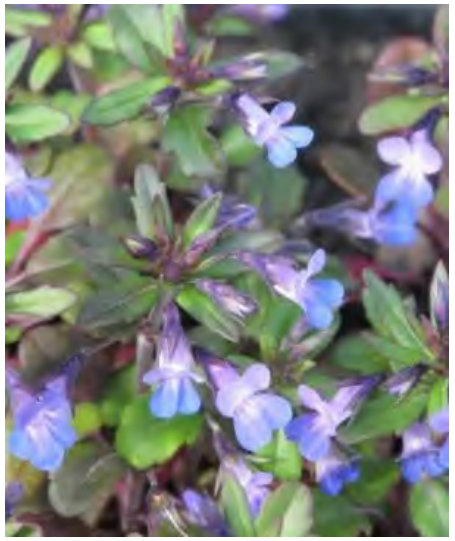


- Unique ecology, flora & fauna
- Conserving the biodiversity of your place
- Respecting heritage

Can you think of ways that our local ecology has influenced the features or type of plants that live here?

Geophytes – die back to an underground storage (e.g. bulb, corm) for part of the year

Annuals

Plant Reproductive Systems

Plants can reproduce by:

- Sexual reproduction (seed set involving meiosis and syngamy)
- Asexual reproduction
  - vegetative reproduction of various types (e.g. stolons, rhizomes, bulb division).
  - Agamospermy (= seed set without fertilization)

Many plant species can reproduce both sexually and asexually.

Asexual Reproduction

- Asexually produced offspring are genetically identical to their parent (i.e., clonal).
- This can work well as a reproductive strategy assuming that environmental conditions remain relatively stable.
- The offspring, being identical, will also be well suited to their environment and would be expected to thrive as well as the parent population.
- Asexual reproduction may also be a useful strategy in habitats where establishment of new seedlings is particularly difficult, like a dark forest understorey or the unstable sands of a river bar.

Rhizomes – *Achillea millefolium*

Stolons- *Fragaria virginiana*

Fragmentation – *Sedum spathulifolium*

Fragmentation - *Salix exigua*

Bulblets - *Frittilaria affinis*

Bulbs - *Camassia leichtlinii*

Cuttings

Sexual Reproduction

Sexually produced offspring are genetically different from one another and from their parents (how different depends on whether they resulted from outcrossing or self-pollination).

Sexual Reproduction (by seed)

- Most angiosperms have hermaphroditic flowers (thus, they could potentially self-pollinate).
- However, they often have adaptations that favour outcrossing (mating with a different individual).
- Why is this advantageous?
  - offspring from outcrossing are more genetically diverse.

Sexual Reproduction (by seed)

- Genetic diversity can afford resilience in changing conditions and is a driver of plant diversity and evolution.
- Strategy requires more resource allocation for the plant
- Risks e.g. animals, fungi, suitable location for establishment.
- There is also a possibility that genetic recombination could result in a seedling that is less suited to its environment than its parents were.

Sexual Reproduction: Starting From Seed

Different species have different germination requirements.

In other words, different plants need different things to sprout

Seeds

A fruit is a mature, ripened ovary, with the ovules inside (ovules turn into seeds).

Danthonia californica

Can simultaneously produce both chasmogamous (potentially outcrossed) and cleistogamous seeds (self-fertilized, non-opening fls)

Native Seed Production

- Native seed production for the purposes of ecological restoration is essential for many larger-scale restoration projects.
- The availability of regionally-specific native seed can help enhance plant species populations, help conserve ecosystems, and contribute towards the recovery of rare and endangered species.

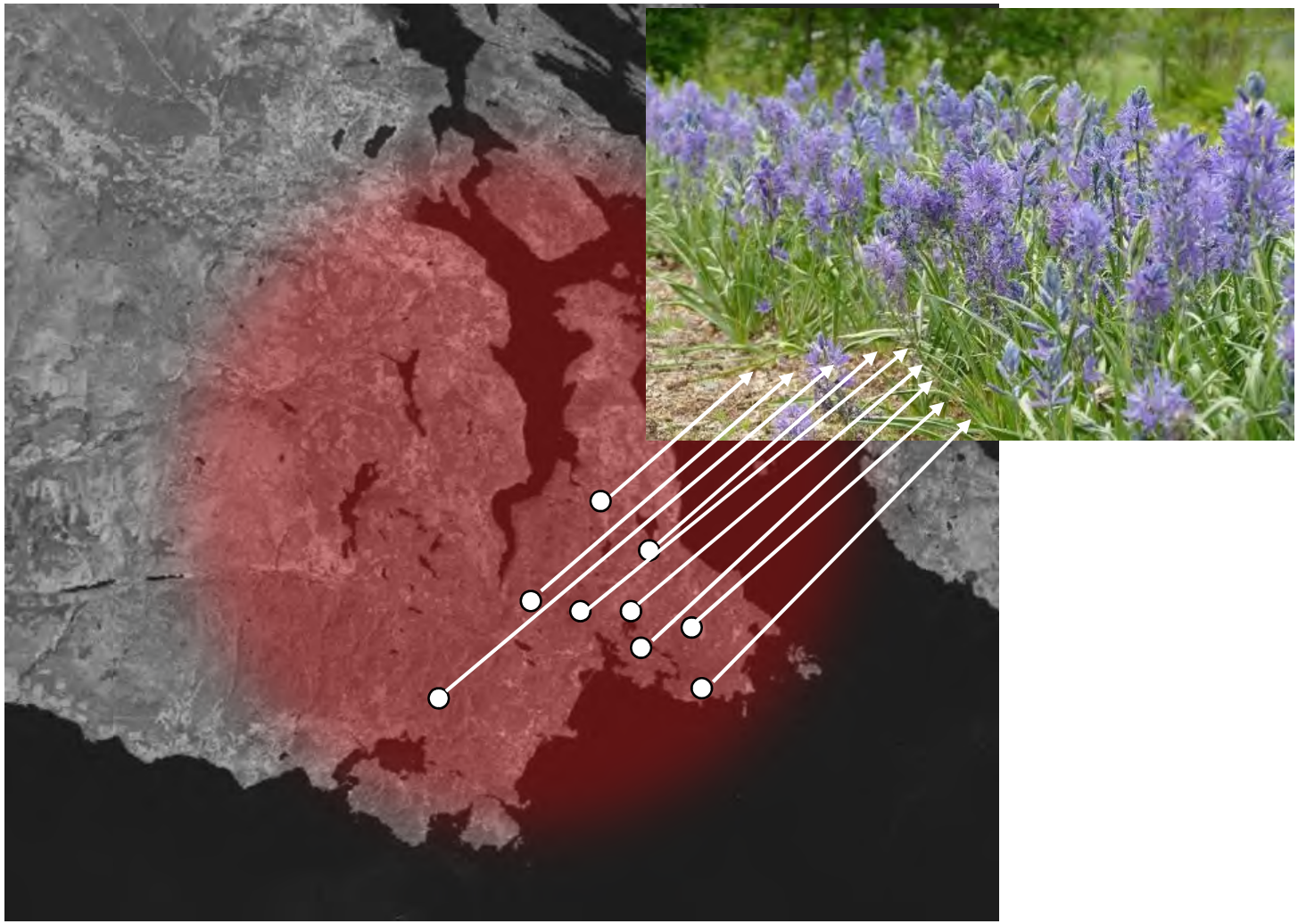


Native seed production for ecological restoration

- The range of genetic variation is sought to be maintained.
- Genetic variation creates resilience in outplanting, allowing a single species to be more tolerant across a range of environmental variation.

Native seed crops:

- have a broad genetic base
- are adaptable
- are non-uniform






Timing your seeding

- Right time of year = successful seeding.
- Adapted to germinate during ideal conditions and to stay dormant when conditions are less ideal.
- Early fall is usually the best time to seed native species (September-October).
- Early spring (February/March) is also a suitable time for some species.

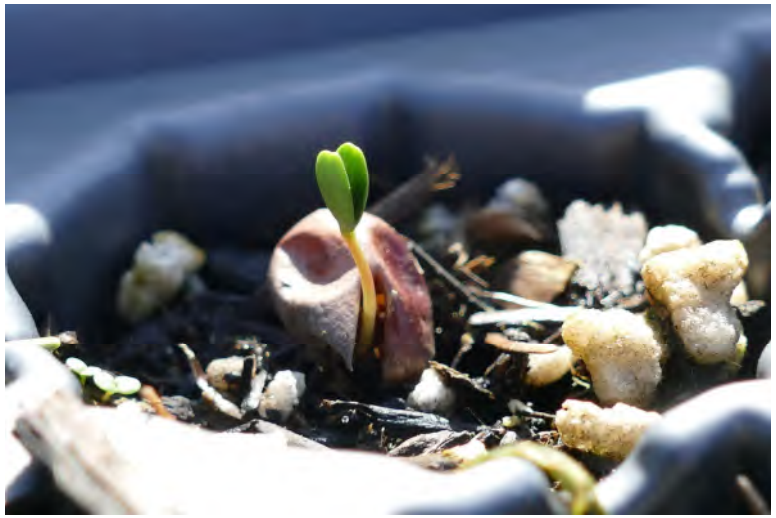
Dormancy

- Many seeds require specific environmental cues to germinate.
- Few local seeds will germinate in the heat of summer, even if they are watered.
- This prevents the new seedling from germinating during a summer rain only to be killed by subsequent dry weather.
- A few species may germinate when cool and moist conditions return in the fall, but this leaves seedlings exposed to cold temperatures and herbivores throughout the winter season.
- Most local trees and shrubs avoid germinating in winter by requiring a period of moist and cold conditions before they will germinate.
- Breaking seed dormancy in this way is called **cold stratification**.

Scarification

- A few species have even more specialized requirements.
- **Scarification** refers to breaking seed dormancy by physically damaging the seed coat with sandpaper, a file, hot water, or other methods.
- This is helpful for species whose seed coats are so thick and tough that they don't even allow water to be absorbed.
- **Imbibition** describes this process where seeds take in water to start a physiological chain reaction that leads to germination.

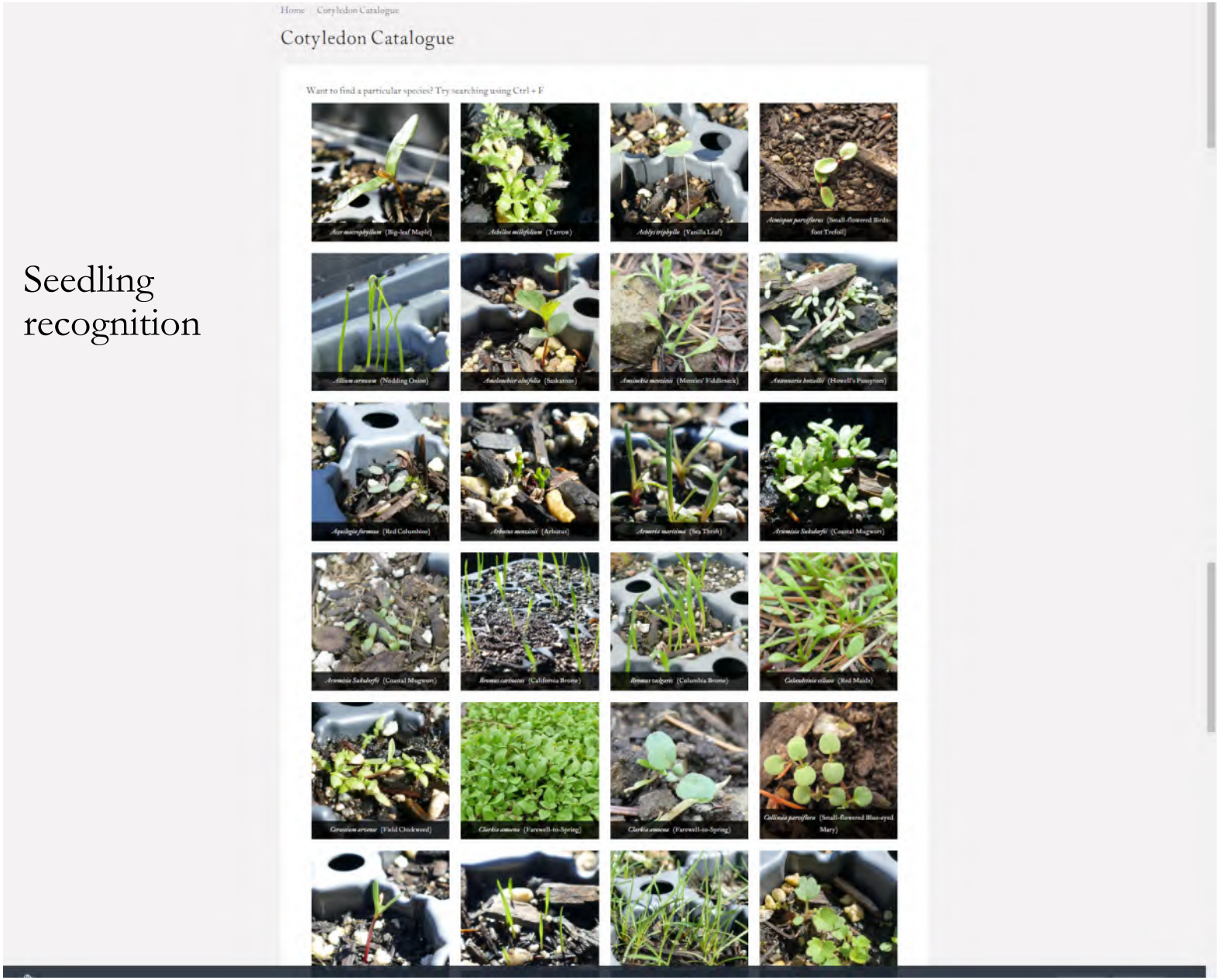
When seed first germinates (sprouts), the first leaves you see are called *cotyledons*. In some plants there are two small leaves (dicot) and in other groups of plants there is a single leaf (monocot).



Crabapple; dicot

Nodding Onion; monocot

Seedling recognition



- Sowing depth

deep as the seed is wide

- Good seed:soil contact

- Larger spaces: Use sand to help distribute seeds more evenly

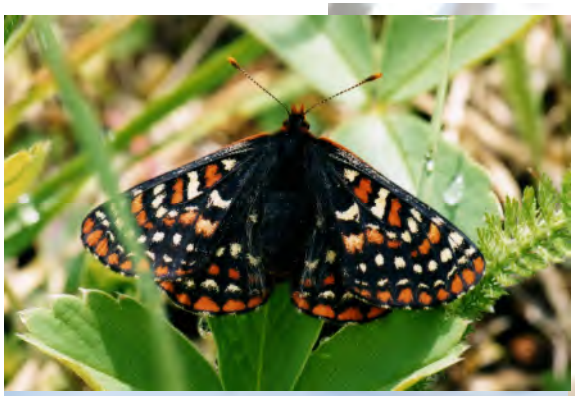
- Soils, protections from elements and critters







Cerastium arvense




Meadow Makers


2018
2021


Hiýáḿ Project: Skwálwen Botanicals

satinflower.ca

Planting from Pots Instructions

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Planting from pots INSTRUCTIONS

Planting from Pots Instructions

Careful and correct planting techniques are critical to the survival of young potted plants from our nursery.

Consult our handout below for information about planting native plants from pots.


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Planting from pots
INSTRUCTIONS
Careful and correct planting techniques are critical to the survival of young potted plants from our nursery.

Download PDF: Planting from Pots Instructions

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Sowing Your Seed: Seeding Instructions

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Sowing Your Seed INSTRUCTIONS

Consult our handout below for information about growing native plants from seed.


Satinflower NURSERIES
Sowing Your Seed
INSTRUCTIONS
SEEDING WITH NATIVE SPECIES

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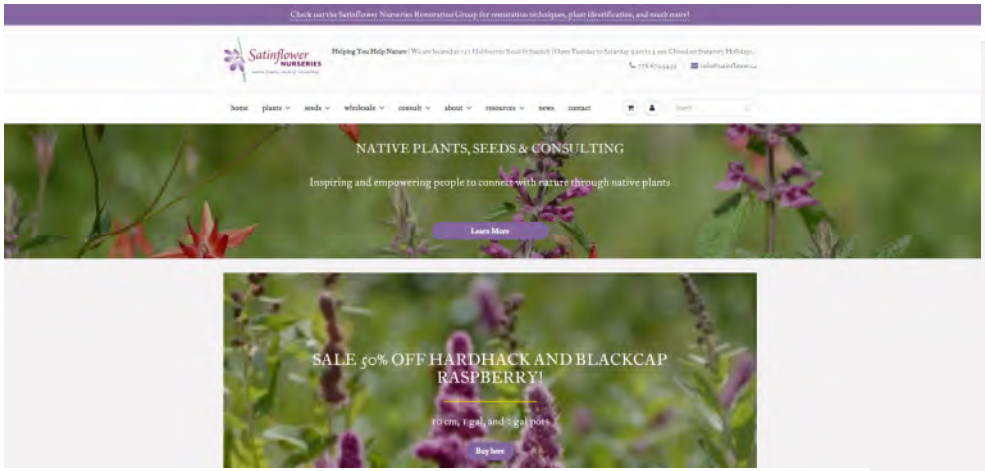
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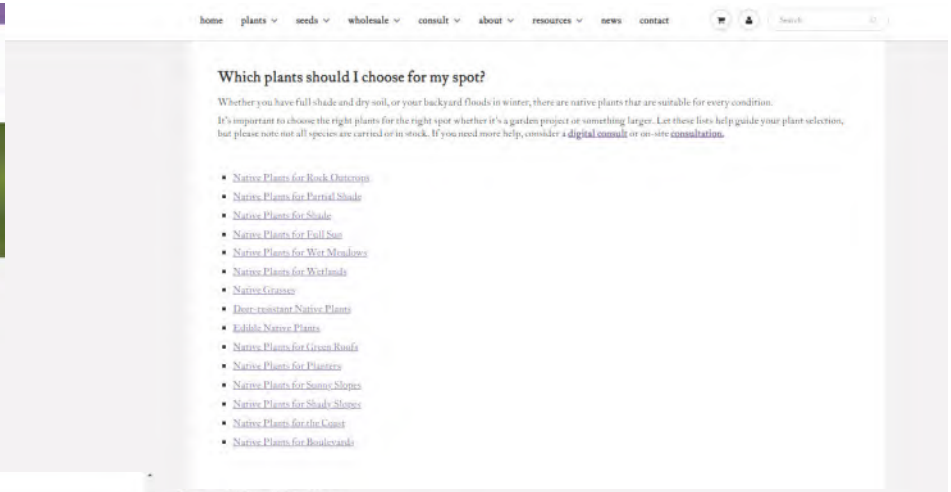
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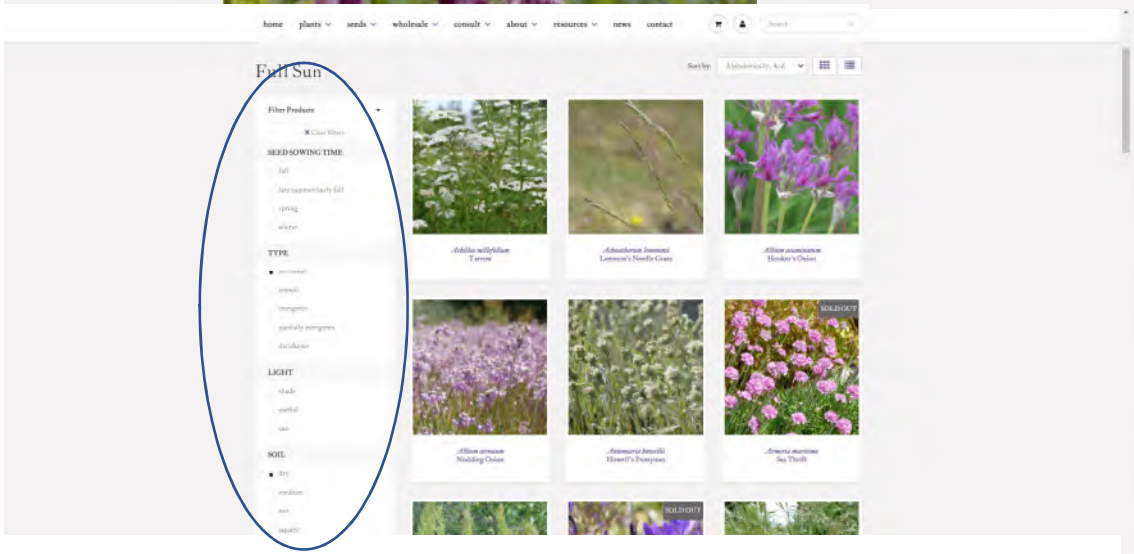
Which plants should I choose for my spot?
Whether you have full shade and dry soil, or your backyard floods in winter, there are native plants that are suitable for every condition.
It's important to choose the right plants for the right spot whether it's a garden project or something larger. Let these lists help guide your plant selection, but please note not all species are carried or in stock. If you need more help, consider a digital consult or on-site consultation.
Native Plants for Rock Outcrops
Native Plants for Partial Shade
Native Plants for Shade
Native Plants for Full Sun
Native Plants for Wet Meadows
Native Plants for Wetlands
Native Grasses
Deer-resistant Native Plants
Edible Native Plants
Native Plants for Green Roofs
Native Plants for Planters
Native Plants for Sunny Slopes
Native Plants for Shady Slopes
Native Plants for the Coast
Native Plants for Boulevards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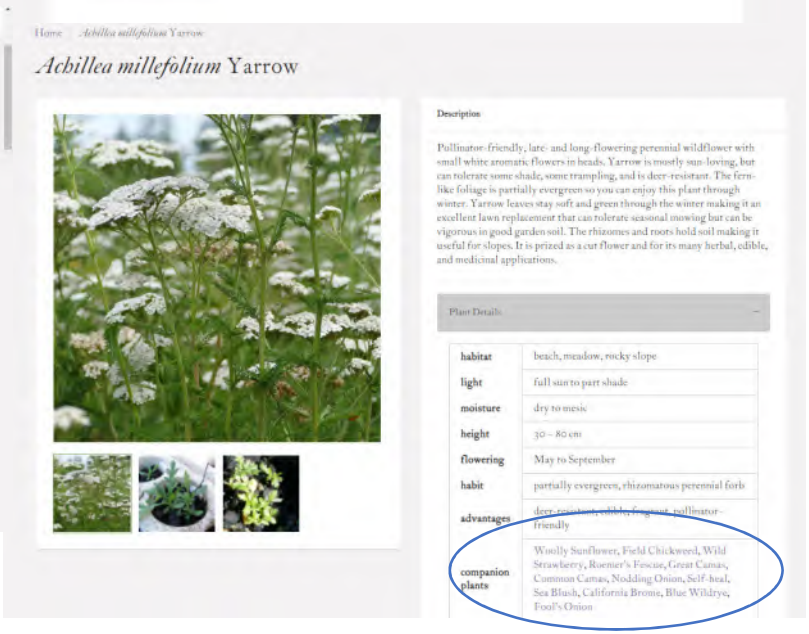
Full Sun
Filter Products
SEED SOWING TIME
TYPE
LIGHT
SOIL
SOLD OUT


Home Achillea millefolium Yarrow
Achillea millefolium Yarrow
Description
Pollinator-friendly, late- and long-flowering perennial wildflower with small white aromatic flowers in heads. Yarrow is mostly sun-loving, but can tolerate some shade, some trampling, and is deer-resistant. The fern-like foliage is partially evergreen so you can enjoy this plant through winter. Yarrow leaves stay soft and green through the winter making it an excellent lawn replacement that can tolerate seasonal mowing but can be vigorous in good garden soil. The rhizomes and roots hold soil making it useful for slopes. It is prized as a cut flower and for its many herbal, edible, and medicinal applications.
Plant Details
habitat beach, meadow, rocky slope
light full sun to part shade
moisture dry to mesic
height 30 – 80 cm
flowering May to September
habit partially evergreen, rhizomatous perennial forb
advantages deer-resistant, edible, fragrant, pollinator-friendly
companion plants Woolly Sunflower, Field Chickweed, Wild Strawberry, Roemer's Fescue, Great Camas, Common Camas, Nodding Onion, Self-heal, Sea Blush, California Brome, Blue Wildrye, Fool's Onion

- Cascadia Prairie Oak Partnership
- Coastal Douglas-fir Conservation Partnership
- CRD Native Plant Workshops; Swan Lake Nature Sanctuary
- Compost Education Centre
- Fort Rodd Hill – Garry Oak Learning Meadow
- Gardens at HCP
- Garry Oak Ecosystems Recovery Team
- Garry Oak Meadow Preservation Society
- Habitat Acquisition Trust
- Pollinator Partnership Canada
- Lifecycles Project Society
- Native Plant Study Group
- PEPÁ̱KE̱N̲ HÁUTW̲ Native Plants & Garden Program
- Pollinator Partnership Canada
- Satinflower Nurseries
- Swan Lake Nature Sanctuary
- Victoria Natural History Society
- **And others!**

Happy Growing and Planting!

Thank you!!

Please complete our survey when you leave!

More Questions? Please Contact – Wendy Tyrrell
sar@islandstrust.bc.ca

ISLANDS TRUST CONSERVANCY

Restoration on Mt. Tuam – Salt Spring Island © C. Funk