

# RARE NATIVE PLANTS IN HABITAT RESTORATION



Environment and  
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CANADA

**PEI FORESTED LANDSCAPE PRIORITY PLACE FOR SPECIES AT RISK**

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# BIODIVERSITY AND RARE NATIVE PLANTS

*"If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of eons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering."*

**Aldo Leopold, A Sand County Almanac**

HUMMINGBIRD MOTH VISITING MILKWEED



Over the past few decades, much has been written on preserving biodiversity around the world. Biodiversity is the variety of life and all its processes and includes the living organisms, their genetic differences, and the communities in which they occur.



WOOD FROG

*"Management for biodiversity consists of providing recognition of, and appropriate consideration for, all living things because of their contributions to a healthy ecosystem. This principle acknowledges the inherent value of living organisms whether or not their benefits are fully known and understood at the present time. Stewardship that incorporates biodiversity is also likely to help protect the health and welfare of people."*

**David W. Taber,  
Department of Natural Resources,  
New York State College of Agriculture and Life  
Sciences, Cornell**

There has been a long history of forest degradation in Prince Edward Island. Most of our woodlands have gone through a cycle of land clearing for agriculture, a century or more of farming, then after the land was abandoned it grew up in plants and eventually became what we think of as a forest. But though the stands of old field white spruce or other early successional species arose from natural means, they are not examples of healthy forests. The soil structure and nutrients are different than what would be found in a healthy forest, and the plants reflect the nearby seed sources whose offspring could grow in a dry, often windy field in full sun.

Yet these areas are still capable of developing into healthy forests. When planting a mix of appropriate native species, small patch cuts or strip cuts in degraded forests and plantings as necessary can work wonders in these stands. And just carrying out enhancement plantings in open areas where trees have fallen down can also be quite useful.

# BIODIVERSITY AND RARE NATIVE PLANTS



RED-EYE VIREO NESTING

Each forested area has to be assessed on its own merits. Some of the questions that will need to be answered include whether the land was ever ploughed, is it wet or dry, how much shade is there, what seed sources are nearby, are there plants present to provide food throughout the year for a variety of wildlife species, and is there evidence of heavy wildlife browse.

Efforts at forest restoration can also involve rare native plants. While some species may be naturally scarce, generally plants are not rare because they are difficult to grow. They are rare because the habitat in which they were growing changed, and at some later time there were no seed sources around to allow them to regenerate with any amount of diversity. We are hoping to eventually change that lack of seed sources with this series of publications on rare plants native to Prince Edward Island.



SNOWSHOE HARE IN NURSERY



RED SPOTTED NEWTS

Clearly, we do not advocate only using rare plants for restoration. Red oak, eastern hemlock, American mountain ash, nodding trillium, cinnamon fern – these native plants and so many others have important roles to play in forest restoration, even if they are not considered rare. They will help diversify our forests and provide a myriad of other benefits, including food sources and nesting habitat for wildlife. And we are not pushing to have the most species on a given piece of land – some forest types are naturally more diverse than others. But rare native plants should be added to appropriate sites whenever possible. We should all be concerned about biological diversity (or biodiversity) and do our best to become the “intelligent tinkerers” that Leopold wrote about.

# BIODIVERSITY AND RARE NATIVE PLANTS

The purpose of these information sheets is to help facilitate the reintroduction of some of our rarest native plants. Repopulating all of Prince Edward Island with plants that are missing from the landscape would be a monumental task and take far too many resources. What we can do is introduce seed sources in appropriate areas and let nature spread the seeds in the future. If we're planting small patches in an old field white spruce site, with the diameter of the patches being about the height of the surrounding trees, we might add one ironwood and three hobblebush in our plantings. On a wetter site, you might add three black ash, yellow violets, and some male ferns or Christmas ferns.



BARRED OWL IN YELLOW BIRCH

Another benefit from these types of plantings is that in the future you will have more plants from which to collect seeds for your own propagating. At Macphail Woods, we're now collecting ironwood seeds from trees that we started from seed 15-20 years ago. For many of the plants, especially wildflowers and even some of the shrubs, you can start collecting seed within just a few years.



GARTER SNAKE IN FOREST CLEARING

While we still have much to learn, we have enough information that we can immediately start the long process of restoring diversity in our forests. We can all learn from each other's experiences and together take positive action to improve the health of our environment.

# PLANT PROPAGATION



SWAMP MILKWEED BED IN NURSERY

If we leave everything to experts, we are often going to spend a lot of time waiting for something to happen instead of making it happen ourselves. Plant propagation – generally defined as creating new plants from existing ones – can take many forms. The easiest way to produce large numbers of plants is through collecting, processing, and planting seeds. Species such as red oak, white pine, and sugar maple all grow well from seeds. Other species, including red osier dogwood, willow, and highbush cranberry, grow very well (and more quickly) from stem cuttings. Still others, such as bayberry, staghorn sumac, and wild rose, can be grown from root cuttings. Finally, there are species such as common elder that are grown from seed, stem cuttings and root cuttings.



DRYING BLUE VERVAIN



WITCH HAZEL SEED

Even ferns, which are trickier, are still possible to propagate. Ferns produce spores instead of seeds. Under suitable conditions, a spore germinates into a small, heart-shaped gametophyte, which has male and female cells. After fertilization occurs, the adult fern starts to grow. We grow ferns under grow lights until they are ready to go outside. It is a bit of a time-consuming process, but you can also grow large quantities, as a single fern can produce thousands if not tens of thousands of spores.

The cultivation of plants gives you a better understanding of forest ecology. When you see birds nesting in plants that you have grown from seed, or eating fruits or seeds from those plants, you gain valuable lessons about the complexities of ecosystems.

# PLANT PROPAGATION



VOLUNTEER RESTORATION PLANTING



TRANSPLANTING DWARF GINSENG

The J. Frank Gaudet Tree Nursery grows some rare species and will grow virtually anything if they have a request. Macphail Woods grows a wide variety of rare species as well. But if you can't afford to purchase them, or if these sources don't have them available, then there are other options. Growing rare plants is a good way to involve volunteers in the work that conservation and watershed groups carry out. Even private landowners can help in this regard as they go about making their own woodlands healthier and more diverse. There is a lot of interest and excitement in growing rare native plants. In the same way that "Citizen Scientists" are regularly measuring stream temperatures and surveying birds, we've also seen a large increase in people wanting to help collect and process seeds, plant their own properties, and even in just identifying where certain plants are growing.



PLANTING MILKWEED AT SUMMER CAMP

In the individual sections on rare species, we offer tips on propagation. These are not the only methods available, just the ones successfully used at Macphail Woods. Some generic tips for growing plants start with making sure that if you are growing plants, you start with good nursery beds that are free of weeds, have access to water, and have a long-term plan to look after them. Here's one way to start with a good, clean seedbed, though it takes some time.

# PLANT PROPAGATION



SHADE BEDS AT MACPHAIL WOODS

If your site is very weedy and lacks nutrients and organic matter, prepare the site and plant buckwheat in the spring. Broadcast seed at a rate of 55-60 pounds per acre, and lightly rake the area. When this crop is in the flower stage, turn it under and plant more buckwheat. When it reaches the flower stage, turn it under and plant winter rye. Next spring, disc in the winter rye and harrow or rototill. The soil will be almost weed-free with improved levels of nutrients and organic matter. Someone once said that beginnings are so important, and it is even more true when you're starting to grow plants. The better your start, the more successful your endeavour will be.

Community nurseries can be a source of inexpensive plants for environmental restoration, beautification or wildlife enhancement. These nurseries ideally are operated by volunteers from one or more local organizations. Find out who else is interested and how much time they will have to put into such a project. Local environmental groups, recreational fisheries associations, church groups, Rotary Clubs, Women's Institutes, 4-H Clubs and Boy Scout troops are good places to start seeking support. Try to get as many groups as you can involved in the project and don't forget local businesses - they may be looking for a project to support. The nursery and future plantings will build community spirit and demonstrate how people can really make a difference in improving the environment.



NATIVE PLANT NURSERY

The key to sizing your nursery is to decide how many seedlings you need to produce and, perhaps even more important, how many you are capable of planting out.



# PLANT PROPAGATION

When looking for seed for any native plant (and especially rare ones), select from local, reliable parents - vigorous plants with heavy crops of seed. Sometimes it is not always possible to find ideal "parents" – the seed of the round-leaved dogwood grown at Macphail Woods came from two specimens we knew of at that time, growing side by side in West Prince. As far as we knew, they were the only two growing in the province at that time, though recently we have heard that there is at least one other site where they can be found. From those initial plantings, we grew out hundreds of young ones. Now we will be able to select from the best plants, but at that time we really had no options.



SWAMP MILKWEED SEED

Most seeds have some kind of dormancy which prevents germination in the fall during a warm spell. Dormancy can be quite complex - a hard seed coat that needs to break down over a winter, an embryo that is not fully developed, chemicals within the fruit that inhibit germination, or any combination of the above. Fortunately, you do not have to worry about dormancy, as long as you follow recommendations for each plant. If you grow some species that germinate in the first growing season and some that sprout the second spring, separate these groups. It makes weeding and mulching much easier and efficiently uses available nursery space.

Seed preparation also differs between species. Some fruits contain multiple seeds, while others have a single seed. Some seedcoats need to be removed or crushed, while other seeds need no preparation. Just follow the recommendations for each species.



YOUNG YELLOW BIRCH SEEDLINGS

# FERN PROPAGATION



Ferns are not the easiest of plants to propagate. They are fussy, taking a lot of care and even more time. But they are certainly worth it. Staff at Macphail Woods—none of whom have any horticultural training—have grown thousands of ferns, including our rarest Braun’s holly fern, male fern, and Christmas fern. Anyone with an interest in propagating plants, and patience, can grow ferns.



The fern genus *Polystichum*, translates to ‘many rows’ which refers to the rows of sori on the back of the fronds. Sori are small papery sacs with each one holding thousands of spores. In the wood fern family, sori are most often neatly lined up in rows. In the case of Braun’s holly fern, they are in rows of two. As the sori dry out, they split open, releasing their minuscule spores into the wind, some of which can soar for incredible distances. The spores themselves are tough, able to survive where they land for years until the wet conditions they need to propagate arrive.

Spores are collected when the sori are just about to burst open. If the sori are on the back of the frond, just cut off a piece near the tip that has lots of sori. Lay the piece of fern on a sheet of paper, sori down. In a day or two you should have a spore print. The dust-like spores can form a beautiful pattern. There will be other material on the paper, but hold the paper on a slight angle, give it some judicious taps, and the chaff will roll off, leaving clean spores behind. Seal these in a jar or tight envelope until needed. It is best to plant as soon as possible, but most spores can withstand some storage.

# FERN PROPAGATION



Start with sterilized soil—sifted peat moss works well, but there are lots of recipes on-line. Moisten the peat moss, and then put two pounds (1 kg) of moist soil in a polypropylene bag, with the top left open. Put this in the microwave and heat for 2 1/2 minutes on full power. Close off the bag and let it cool before removing.

Now comes the fun part. A spore is not a seed. Under the right conditions, it produces a small, heart-shaped gametophyte, like a tiny, flat leaf. If this is kept moist, a male part and a female part emerge, and once they meet up, fertilization occurs and a tiny fern grows. But everything else—from mosses to liverworts to fungi—also wants to start colonizing your sterilized soil, so you'll need to be very clean. Whatever container you use to grow the ferns in should be cleaned well, and then rinsed in a 10% bleach/90% water solution. Treat any utensils you might use the same way. Fill a flat or any relatively shallow container with the soil and sprinkle lightly with the spores. Remember that the spores are tiny so spread sparingly. Give it a very fine misting, cover with a clear bag or a lid, and then be patient.



Once you start seeing the gametophytes form, you'll need to give them a very light spray of water regularly just to wet the surface. With any luck, you'll start to see baby ferns growing, but it is not a quick process. Some can take up to six months or even longer.

Once the baby ferns get to be about 1 inch (2.5 cm) high, or if they are growing too tightly, you can transplant them to flats with individual compartments. Ferns grow slowly to start, so you don't need pots or anything yet. Depending on their growth, they should be ready to transplant into a bed the second growing year. You'll have to overwinter them somewhere (a local greenhouse), but other than that, they just take the occasional watering.

This sounds very complicated, but it really will be worth the effort.

# THE ETHICS OF SEED COLLECTION




If we are going to really improve the health of Island forests, that will mean adding a range of native plants – rare and not rare – to the forests we are working in. And that will mean having the native plants available that are appropriate to the site. The provincial J. Frank Gaudet Tree Nursery is doing a great job producing a mix of native trees and shrubs. The Macphail Woods Ecological Forestry Project grows a wide mix of native trees, shrubs, wildflowers, and ferns.

In some cases, it may be advisable to grow your own plants from seed that you collect yourselves. One thing to be aware of is the ethics surrounding the collecting of seed. The general rule has always been that you don't take more than 10% of the seed crop. You don't want to get into a situation where you're degrading one ecosystem to make another one healthy. Especially with rare plants, you want to make sure that you keep the existing population growing and expanding, if at all possible.



One blog I came across, called The Bee Pasture (<http://thebeepasture.blogspot.com/>) noted "There isn't a consensus on exactly how much seed you can collect from a population without causing harm. Some sources say no more than a third, others say 10%, and others yet say 5% per year over 10 years. I am sure that the exact details of a 'safe collection rate' vary by species, population size, and location. Generally agreed upon exceptions to these guidelines are in the case of plant salvage—where plants are removed from a site prior to its destruction or development. In this case, 100% harvest is acceptable." That's seems like a common sense viewpoint.

# THE ETHICS OF SEED COLLECTION



ASH SAMARAS

Biologist and author **Robin Wall Kimmerer** also delves into this topic in her book *Braiding Sweetgrass* (please see our list of resources at the end of this publication). Kimmerer calls it **The Honorable Harvest**.

*"The canon of indigenous principles that govern the exchange of life for life is known as the Honorable Harvest. They are "rules" of sorts that govern our taking, so that the world is as rich for the seventh generation as it is for us.*

*Though we live in a world made of gifts, we find ourselves harnessed to institutions and an economy that relentlessly ask, "What more can we take from the Earth?" In order for balance to occur, we cannot keep taking without replenishing. Don't we need to ask, "What can we give?"*

*"The Honorable Harvest is a covenant of reciprocity between humans and the land.*

*This simple list may seem like a quaint prescription for how to pick berries, but it is the root of a sophisticated ethical protocol that could guide us in a time when unbridled exploitation threatens the life that surrounds us.*

*Western economies and institutions enmesh us all in a profoundly dishonorable harvest.*

*Collectively, by assent or by inaction, we have chosen the policies we live by.*

*We can choose again."*

The **Honorable Harvest**, a practice both ancient and urgent, applies to every exchange between people and the Earth. Its protocol is not written down, but if it were, it would look something like this:

*Ask permission of the ones whose lives you seek. Abide by the answer.*

*Never take the first. Never take the last.*

*Harvest in a way that minimizes harm.  
Take only what you need and leave some for others.*

*Use everything that you take.*

*Take only that which is given to you.  
Share it, as the Earth has shared with you.*

*Be grateful.*

*Reciprocate the gift.*

*Sustain the ones who sustain you, and the Earth will last forever.*

# SPECIES CONSERVATION DATA

The **Atlantic Canada Conservation Data Centre** (AC CDC) in Sackville, N.B. continues to be a great asset throughout the region for determining whether or not a plant is native and its rarity. They have a ranking system on their excellent web site ([accdc.com](http://accdc.com)) for plants found in each individual province (S1 to S5).



The AC CDC rankings for our least common native plants are:

**S1**

**Critically imperiled:** Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

**S2**

**Imperiled:** Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

**S3**

**Vulnerable:** Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

*There are many native plants in the province that are ranked anywhere between S1 and S3. This series concentrates on rare plants that that would be useful in forest restoration, or at least planted in specific open areas within forests. At best, it is an arbitrary and uncomprehensive list, but the use of these plants should help restore some diversity within our Acadian forests.*

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## NATIVE VINES

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<b>Dutchman's breeches</b> ( <i>Dicentra cucullaria</i> )	S1
<b>Hairy sweet Cicely</b> ( <i>Osmorhiza claytonii</i> )	S2
<b>Swamp milkweed</b> ( <i>Asclepias incarnata</i> )	S1
<b>Canada anemone</b> ( <i>Anemone canadensis</i> )	S1
<b>Cutleaf coneflower</b> ( <i>Rudbeckia laciniata</i> )	S2

## NATIVE FERNS

<b>Braun's holly fern</b> ( <i>Polystichum braunii</i> )	S1
<b>Male fern</b> ( <i>Dryopteris filix-mas</i> )	S1

# Ironwood (*Ostrya virginiana*)

TYPE



HABITAT



**Alternate names:** Eastern or American hophornbeam, hardhack, leverwood

## Description:

This member of the birch family is one of our rarest native trees. It is a relatively short-lived and small tree. It grows to be 40 feet (12.5 m) tall and 1 foot (30 cm) in diameter, although it rarely reaches this size. It is a slender tree, with leaves like yellow birch, although ironwood leaves have teeth of two different sizes. The bark of ironwood is light brown and scaly, shredding off in vertical strips. It has simple alternating leaves with jagged teeth along the margins.

CONDITIONS



## Habitat:

Ironwood prefers rich, moist soil and grows best in dappled light. Often found near rivers, ironwood thrives as an understory tree in our Island forests.

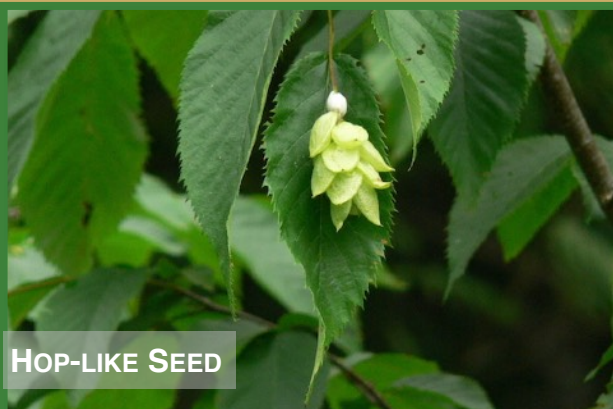
## Wildlife Uses:

The buds and catkins of ironwood are used by ruffed grouse and red squirrels. The seeds are eaten by purple finch, rose-breasted grosbeak, and other birds.

RANKING



BUDS



HOP-LIKE SEED



YOUNG IRONWOOD SAPLING

LEAF

## Areas of Usage:

We should do all we can to conserve this rare species, as it is critical that we keep as many seeds sources as possible. The presence of ironwood should be carefully considered when developing a plan for your woodland. It is an excellent choice for under-planting or inter-planting after a mixed wood thinning, and will help provide diversity of height in older forests. As well, it is good for landscape plantings where there is some shade.





# Eastern ironwood (*Ostrya virginiana*)

## TYPE



## Propagation:

In September, small, greenish seeds can be collected from the trees. The seeds are enclosed in a papery sac, with many sacs being held together in a cluster similar to true hops.

## HABITAT



When ready for harvest, the clusters will start to turn brown and some will drop to the ground. Pick seeds off the tree if possible. When you separate the seed from the sac, you should wear thin gloves and a mask, since the sacs have fiberglass-like hairs that wind up in your fingers and probably shouldn't be inhaled.

## CONDITIONS



Plant seeds every 2 inches (5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/8 inch (3 mm) and mulch for the winter. If the bed is in full sun, some form of shading should be provided during the growing season.

## RANKING



Most seeds take two years to germinate but any that germinate the first summer should be transplanted to another bed. This avoids the problem of having older plants in the bed when seedlings are germinating the second year.

## BUDS



## LEAF



## Additional Information:

Ironwood is rare throughout this province. It has been seen in the western section of the province in the Haliburton area. Small numbers are found in Cavendish.

Ironwood is sometimes called hop hornbeam, as its clusters of seeds resemble those of true hops. The clusters of papery seed sacs are hairy and quite light. They can float away from the parent tree in the wind, they are carried away by birds, and they can float quite a distance downstream before lodging themselves on the bank.

Ironwood produces one of the hardest and toughest native woods and is used for vehicle stock, tool handles and spring poles. Because of its small size it has traditionally not been viewed as an important source of timber products.



# Black Ash (*Fraxinus nigra*)

TYPE



HABITAT



**Alternate names:** hoop ash, swamp ash, basket ash, brown ash, water ash

## Description:

Black ash is a slender tree, and does not grow to be as tall as white ash. It seldom reaches over 50 feet (16 m) or a diameter of 1 foot (30 cm). It has compound leaves with pointed leaflets that turn yellow in the fall. Unlike white ash, it has no stem connecting the leaflet to the main stem. The bark is grey, with shallow fissures and becomes scaly as the tree ages. Buds are opposite and dark brown to almost black. The seeds are ripe in September and can hang on the tree until late fall. The samara (the actual seed plus the wing that it is attached to) is oblong and has a much broader seed cavity than the white ash.

CONDITIONS



RANKING



## Habitat:

Generally only found along stream banks and the edges of swamps, although it was used for street plantings in some areas. It grows well in open stands of eastern white cedar, red maple and other swamp hardwoods. It does not tolerate shade.

## Wildlife Uses:

As with the white ash, the seeds are an important food source for red-winged blackbird, evening grosbeak, pine grosbeak, purple finch, and other birds. Beavers will often use young ash for food.

BUDS



SESSILE LEAFLETS



BLACK ASH SEED

LEAF



## Areas of Usage:

It is a good choice for streambank and wetland restoration if the site has full sun. It will not grow in the shade of other trees and is mainly confined to the floodplains along rivers and brooks, and in the margin of swamps. It grows singly in open stands of eastern white cedar and balsam fir or with red maple and other swamp hardwoods.

# Black Ash (*Fraxinus nigra*)

## TYPE:



## HABITAT:



## CONDITIONS:



## RANKING:



## BUDS:



## LEAF

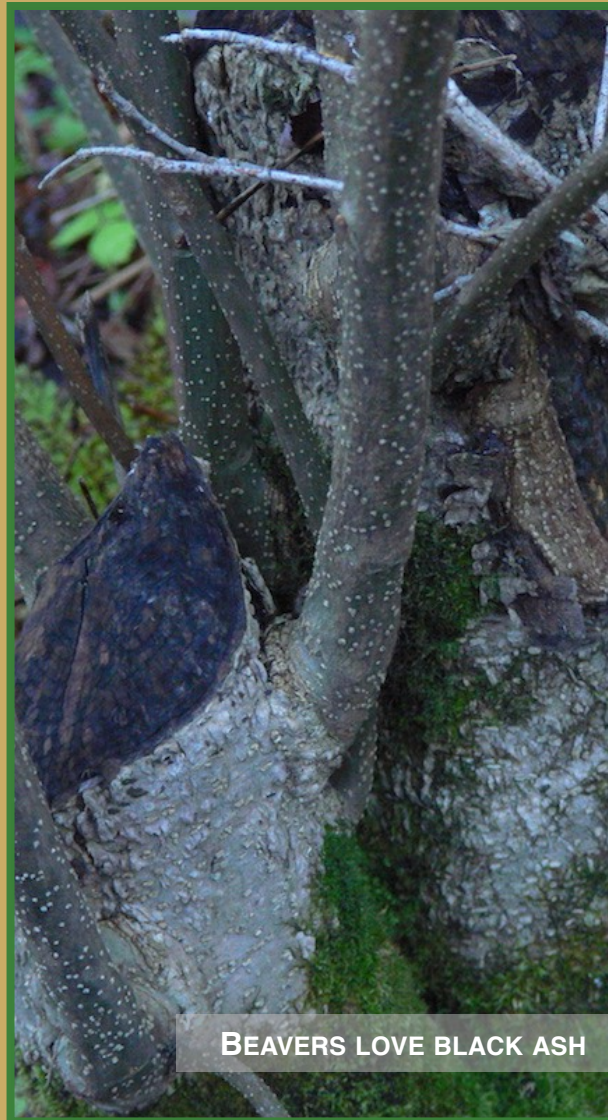


### Propagation:

Seed should be collected from the tree if possible. Crops are usually quite heavy and can hang on late into the year.

Throughout September and into October, collect the seed and plant as soon as possible. If the seed is allowed to dry out, it may take two years to germinate.

Plant seeds every 2 inches (5 cm), in rows 6 inches (15 cm) apart, at a depth of 1/4 inch (6 mm).



BEAVERS LOVE BLACK ASH

### Additional Information:

Black ash is confined to the wet areas of PEI. It seldom reaches a height of over 50 feet with a diameter of one foot. The crown, of slender, mostly upright branches, is narrow and fairly open. It is distinguished from the white ash by its stemless leaflets, dark brown to almost black winter buds, and light grey bark on the twigs.

In the past, black ash was heavily used by Indigenous peoples for basket making and it is still used today for this purpose. The wood is not as strong or as hard as that of white ash and is therefore used mainly for decorative purposes, such as interior finish, fixtures, and cabinet work.

# Witch Hazel (*Hamamelis virginiana*)

TYPE



HABITAT



Alternate names: none

## Description:

Another very attractive yet rare native shrub. It grows to a height of 20 feet (6 m) and is a slender, graceful shrub. The leaves are 2-6 inches (5-15 cm) long, wavy and toothed, and turn yellow in the fall. In September and October, as the leaves are falling, the bright yellow flowers bloom. The flowers look like those of the forsythia shrubs commonly planted around Island homes, yet appear at the opposite end of the growing season. The seeds are shiny and black, encased within a capsule 1/2 inch (1.2 cm) long. Buds are small, velvety-brown, and alternate.

CONDITIONS



RANKING



## Habitat:

The best growth is made under light shade in rich, well-drained soil, but witch hazel tolerates a wide range of soil conditions. This shrub is slow growing but is quite hardy.

## Wildlife Uses:

The value to wildlife is relatively low, but red squirrels and ruffed grouse eat the seed and the plant provides cover and protection for other species.

BUDS



LEAF



MATURE WITCH HAZEL SHRUB



WITCH HAZEL LEAVES

## Areas of Usage:

Witch hazel is an excellent landscape plant if you have some shade. It is important in woodland plantings for its beauty and the diversity it provides in species, flowering times, and height. Witch hazel is very useful as a medicinal. The twigs, bark, and leaves are used to produce oil of witch hazel, while the roots are used to produce a tincture that is also known for its healing powers. Witch hazel salve is still made and sold throughout the world as a topical remedy for burns and rashes. It is also made into liniments and tinctures, and often used by veterinarians for pain relief in horses.

# Witch Hazel (*Hamamelis virginiana*)

## TYPE



### Propagation:

Seed should be collected from the shrub if possible. Crops are usually quite heavy and can hang on late into the year.

## HABITAT



Throughout September and into October, collect the seed capsules, which contain two seeds. Store them in a box with a lid, or a closed paper bag in a warm, dry location. As the capsules dry, they will burst open, releasing the seeds. Then it is an easy task to sort out the husks from the seed.

Plant as soon as possible. Plant seeds every 2 inches (5 cm), in rows 6 inches (15 cm) apart, at a depth of 1/4 inch (6 mm).

The plants grow slowly at first, so you'll have to be patient, but it will be worthwhile.

## CONDITIONS



## RANKING



## BUDS



## LEAF



### Additional Information:

In the past witch hazel was often thought of as a magical shrub, revered for its medicinal properties. It was also used to find underground water. Known for its water-divining powers, a forked branch from this shrub was thought to be magically tuned to underground sources of water. One would walk around, guided by the pull of the branch till you felt it vibrate or pull downwards, indicating where one should dig a water well.

Another fascinating adaptation of the witch hazel is the unique seed pods. These two-seed capsules are engineered under tension. As the husk dries in the fall, they split open with such force, they can shoot the seeds more than 20 feet (6m). This ensures that the seed is spread away from the parent plant, reducing competition.

The unique yellow fall flowers are an autumnal treat. Not only are there few native species which flower that late in the year, but the flowers give off a wonderful lemony scent—one of the best fragrances of autumn. As these shrubs can grow quite large and often have a prolific number of flowers, these sweet smells can waft for some distance. Sometimes in the fall, it can be easier to find a witch hazel with your nose rather than your eyes.

# Hobblebush (*Viburnum lantanoides*)

TYPE



HABITAT



**Alternate names:** American wayfaring tree, witch-hobble, alder-leaved viburnum

## Description:

This is one of our showiest plants throughout the year, although these shrubs are so rare that few Islanders have had the chance to see them. Growing to a height of 6 feet (2 m), hobblebush has opposite, velvety buds that develop into large, heart-shaped leaves which turn bronze in the fall. The flowers form large, flat clusters and are very white. The berries turn a very attractive cranberry red in late August and finally purple-black when fully ripe.

## Habitat:

Like so many of our rare plants, these favour shade and rich soil and are usually found in mixed wood stands.

## Wildlife Uses:

Hobblebush produces heavy crops of berries, which are used by ruffed grouse, pine grosbeak, Swainson's thrush, and other fruit-eating birds. Although it is not listed as a preferred food by most wildlife manuals, for several years now the heavy seed crops have vanished quite quickly, so they obviously are favoured by some birds, as well as squirrels and chipmunks. and chipmunks.

BUDS



LEAF



YOUNG HOBBLEBUSH



EARLY SPRING LEAVES

## Areas of Usage:

A premier landscape plant if you have any shade at all around your home, especially given its attractiveness throughout the year. It works best in a naturalized situation, perhaps in a wild area under larger trees. It is also important in woodland plantings, not only for its beauty but for its heavy seed crops for wildlife and the diversity it provides.

# Hobblebush (*Viburnum alnifolium*)

## TYPE



### Propagation:

The easiest way to grow this shrub is from seed. When ripe in mid-to-late September, the fruits are mashed by hand in a bucket of water. The pulp floats to the top, while the clean seeds sink to the bottom.

## HABITAT



Plant these every 2 inches (5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Seeds generally take two years to germinate and should be lightly mulched and given light shade.

Any that germinate the first summer should be transplanted to a separate nursery bed under light shade and mulched well.

## CONDITIONS



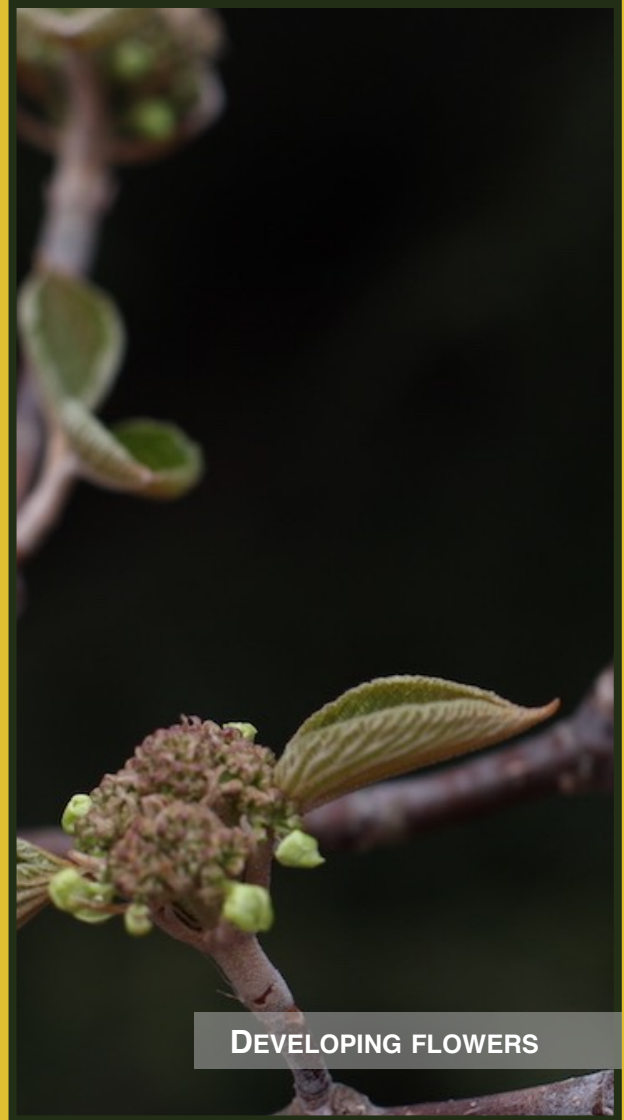
## RANKING



## BUDS



## LEAF



DEVELOPING FLOWERS

### Additional Information:

The names hobblebush and trip-toe come from the plant's habit of tip-layering, a strategy for vegetative reproduction. Hobblebush develops a good number of large showy flowers which end up as attractive berries which bird will spread throughout the woods. To hedge their bets, they also propagate vegetatively but not through underground rhizomes. Their drooping branches can sprout roots as they bend and touch the moist forest soils, eventually rooting in place and developing into a separate but cloned shrub. The name becomes obvious when you find a well-developed patch in the woods. As you walk amongst the shrubs you'll be tripping over the curved branches, truly "hobbling" your gait.

# Round-leaf Dogwood (*Cornus rugosa*)

TYPE



HABITAT



**Alternate names:** roundleaf dogwood

## Description:

Round-leaved dogwood is one of our rarest native shrubs. It is at once distinctive as a member of the dogwood family, with veins running towards the tip of the leaf, instead of off to the sides. Rarely exceeding 10 feet (3m) in height, this woody shrub lacks the tree like shape of alternate-leaf dogwood, and the low thicket form of red-osier dogwood. It has red-hued twigs with purple spots. The leaves are simple and opposite, with strongly paralleled veins. Its flowers are creamy white and four-petaled with reduced sepals but with four stamens, distinctively longer than the petals, surrounding a single white style. After flowering in early July, the fruit matures into a cluster of round berry-like drupes which are white, and then take on a distinct bluish tinge, perched upon dull red stalks. Some distinctive features of round-leaved dogwood include small soft hairs on leaves, and of course generally larger and rounder leaves than our other native dogwoods.

## Habitat:

Round-leaved dogwood is naturally found in semi-open woodlands and forest edges. If soil moisture levels are low than it prefers light shading. It can also grow in open wet areas such as the edges of marshes.

## Wildlife Uses:

Large blooms and delicious berries make the round-leaf dogwood an excellent shrub for wildlife. Pollinators such as bees, wasps, beetles and flies make use of the flowers. The late summer berries provide food sources for a variety of birds including woodpeckers, purple finch, cedar waxwing, American robin, and evening grosbeak.

CONDITIONS



RANKING



BUDS



LEAF



A VERY ROUND LEAF



YOUNG ROUND-LEAF DOGWOOD



# Round-leaf Dogwood (*Cornus rugosa*)

## TYPE



## HABITAT



## CONDITIONS



## RANKING

S1

## BUDS



## LEAF



### Areas of Usage:

Round-leaved dogwood is a showy shrub. A more contained and upright form than its cousin red-osier dogwood, it is a shapely medium sized shrub. Its blooms are prominent and its wildlife uses varied. It makes an excellent landscaping shrub for slightly shaded areas or open moist sites. Whether in a naturalized planting or as a showpiece shrub, this plant can really enhance your yard. It is also great for restoration plantings, especially along open riparian zones and wetlands. It helps to restore biodiversity to the site, attracts pollinators, and provides fruit sources for wildlife. It can also be an excellent nesting shrub for local birds.

### Propagation:

Like our other native dogwoods, this shrub is quite easy to grow from seed, despite its rareness. In September, collect the ripened fruits that are full-sized and have at least started to turn blue. Put the fruit in a small bucket of water and mash with your hands. Once the fruit has been separated from the seed, the pulp will float to the surface while the seed will sink. You may have to do this a few times, changing the water each time.

When you have clean seed, you should plant them as soon as possible. At Macphail Woods, the germination has been very good when planting the seeds every 2 inches (5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Most seeds germinate the following spring.

Round-leaved dogwood also root suckers quite prolifically. These suckers can be cut off at the roots and transplanted into a shady location for a few years to grow more roots. Then they can be moved out to appropriate planting sites.

### Additional Information:

Round-leaved dogwood is another woodland plant that helps diversify forests and forest edges, not only in species and food sources, but also in vertical structure. Many birds like to feed at one level, and nest at another. Diversity in plant height also gives vulnerable prey species more places to hide from predators.



SPRING TWIG

# Bog Birch (*Betulus pumila*)

TYPE



HABITAT



**Alternate names:** dwarf birch

## Description:

Bog birch is the only member of the *Betula* genus on Prince Edward Island which is distinctively a shrub. Generally having multiple stems, it rarely grows over 10 feet (3 m) in height. It shares many similarities with the rest of the birches; simple leaves, alternating buds, and catkins. Like all young native birches, bog birch has shiny reddish-brown bark with small white spots called lenticels. However, it never develops a change in bark colour as it matures like white, grey or yellow birch. Its leaves are round or oval, often leathery, and with rounded teeth. The whole shrubs sports delicate cylindrical flower clusters in May or June which are reddish and 1-2 inches (2.5-5 cm) long.

CONDITIONS



RANKING



BUDS



BOG BIRCH LEAVES



FEMALE CATKINS

## Habitat:

Bog birch lives up to its name, being found in acidic, boggy areas. It needs full sun to thrive and is usually surrounded by plants with similar tolerances—willow, rose, Labrador tea, eastern larch, and black spruce.

## Wildlife Uses:

As with the other birches, bog birch provides food for many species of birds. Due to its rarity in PEI, data on local feeding habits surrounding this shrub haven't been collected, but we do know that birch seed are eaten by American goldfinch, pine siskin, dark-eyed junco, blue jay, and chickadees and sparrows. Often loaded with seed, and with dense, tight growth, bog birch is sure to be providing food and nest sites for a variety of birds.

LEAF



# Bog Birch (*Betulus pumila*)

## TYPE



## HABITAT



## CONDITIONS



## RANKING



## BUDS



## LEAF



### Areas of Usage:

Bog birch loves full sun and will tolerate boggy and marshy conditions. They can be found in bogs and wet areas. It can be excellent in wetlands, swampy meadows and in sunny riparian zones. It is also versatile around the house or cottage. Although bog birch naturally grows in wet areas, proper placement, planting, and mulching can help it thrive; the drier the site, the less wind bog birch will tolerate. Boasting beautiful spring flowers, shallow roots, and a compact shape, this rare shrub is more versatile than its name suggests.

### Propagation:

Birch seed is grouped in cone-like strobiles and can be collected by hand in late September through to November. Pick when the strobiles are fully developed and break apart quite readily.

Birch seed is easy to clean. Simply rub the strobiles over a screen or strainer that will allow the seed to drop through and catch the bracts.

Seeds need a cold period before planting, so they can be stored in a fridge with a small amount of damp peat or potting soil. In the spring, sprinkle the mixture on top of a seedbed, but do not cover with soil. Birch seed needs light for germination but doesn't like to dry out. A slatted table (providing 50% shade) and regular light mistings provide optimal conditions for germination. Once the seeds start to grow, you can add some fine mulch to the bed to retain moisture.

### Additional Information:

Bog birch is one of our rarest plants and all efforts should be made to conserve this species. It can still be found growing in bogs, although many of the bogs where it may have historically been found have suffered serious disturbance. Fortunately, wetland alterations have been greatly reduced since the implementation of the Province's Wetland Conservation Policy in 2003, resulting in the functional protection of the remaining bog birch habitat in the province.



MALE CATKIN

# Virgin's Bower (*Clematis virginiana*)

TYPE:



HABITAT:



**Alternate names:** devil's darning needle, love vine, woodbine, traveller's joy

CONDITIONS:



RANKING:



BUDS:



## Description:

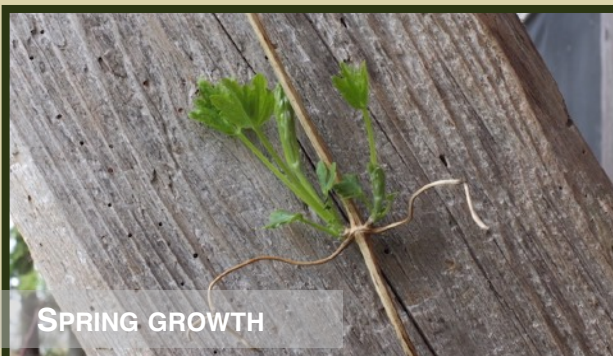
Part of the buttercup family, our native clematis shares that family's mild toxicity. This woody vine "climbs" using leaf petioles which have adapted to be springy and grasping. It can grow to up to 20 feet (6 m) or longer, if it has something to climb up or along. It has oppositely arranged compound leaves divided into three long-stemmed leaflets with large irregular teeth. White flowers emerge in August in two long panicles arising from the leaf axil. The flowers have no petals but rather petal-like sepals. The flowers develop into long plumed seeds which look like they are adorned with feathery tails.

## Habitat:

Clematis thrives in sunny and moist sites such as stream banks, ditches, and forest edges. It will tolerate light shade if the soil is not too dry, such as open woodlands in riparian zones.

## Wildlife Uses:

Clematis have a number of uses to wildlife. The flowers provide nectar to pollinators, their tangled mass can create excellent nest sites, and the fluff on their seeds makes great nesting material.



## Areas of Usage:

Clematis is another versatile native plant. Tolerating light shade, thriving in sun, and its ample wildlife benefits make clematis an excellent plant for restoration along forest edges and riparian zones. Its showy flowers, delicate fluffy seeds and climbing abilities make it an excellent plant for landscaping, beautifying your yard while providing a host of ecological benefits. Clematis is not always the most prolific climber and will end up a tangled mess on the ground if it isn't provided something to climb on.

# Virgin's Bower (*Clematis virginiana*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



BUDS:



## Propagation:

Our native clematis is surprisingly easy to propagate, either from seed or cuttings.

Collect the seed when dry from September to late October. It is a bit difficult to separate the seeds from the fluff, so just plant everything every 2 inches (5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Cover with a light mulch, and most seeds will germinate in the spring.

You can also take winter cuttings when the vine is dormant. Make the top cut just above the bud, and the bottom cut about 6" (15 cm) below that. Store in slightly moist soil in a plastic bag in a refrigerator. In the spring, plant the cuttings with the bud about 1 inch (2.5 cm) above the surface in a shaded nursery bed about 4 inches (10 cm) apart in all directions. Cover with a light mulch, and before too long the cutting will grow roots.

As with all cuttings and seed collection, please remember that you need to have permission and that you want to be careful to only take a small amount.



## Additional Information:

Although it can ascend up various shrubs and even spruce trees, clematis will compete for light with these other species. Some kind of trellis or even a system of strings can be crucial to keeping your vine growing up rather than out. Clematis will also require some light pruning when used for landscaping, although it is like trying to tackle a sprawling grape vine.

Our native clematis is often confused with purple flowered clematises. Ours sports a white flower. Although the purple species is beautiful, it is not native. One of the big differences in using non-native varieties rests on the ecological connections inherent in an ecosystem. Our native clematis has spent millennia co-evolving with other various native species, creating coordinated connections such as flowering time and when its main pollinators are active. Using non-natives can disrupt these relationships.

# Partridgeberry (*Mitchella repens*)

TYPE:



HABITAT:



**Alternate names:** running box, running fox, two-eyed berry,

## Description:

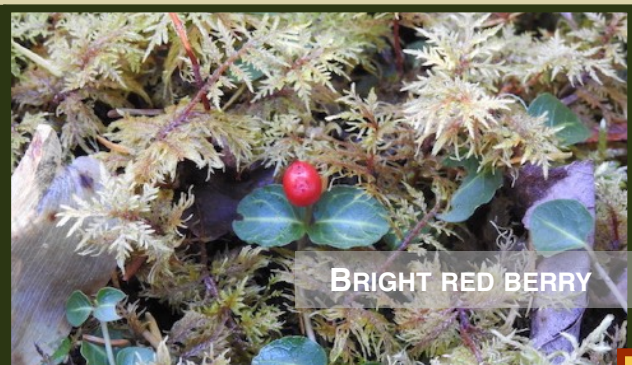
Prince Edward Island has relatively few vines and partridgeberry is a rare one. This ground-creeping evergreen grows in dense mats up to 4 inches (10 cm) tall. It has small, oppositely arranged, almost round leaves with white veins. The funnel-shaped pinkish white flowers appear in July and come in pairs. The twin flowers share an ovary, resulting in one red fused double berry at the end of the branch. The flowers are four petalled and have small white hairs on the interior.

## Wildlife Uses:

True to its name, partridgeberry is a favourite food of ruffed grouse and grey partridge. The fruit is also eaten by songbirds, red fox, raccoon, and some rodents, including the red squirrel. Partridgeberry is used by many other species of wildlife. Forest insects and foraging pollinators visit the flowers and while doing so become food for various warblers and other woodland birds. The berries are also particularly enjoyed by members of the thrush family, such as the American robin, and both of our native hermit and Swainson's thrush. This is especially important, as both of these thrushes tend to thrive in older forests, a rare habitat across PEI. Allowing forests to age across the province will help restore these habitats over time. However, the addition of plants like partridgeberry can increase the carrying capacity of these rare habitats.



PATRIDGEBERRY FLOWERS



BRIGHT RED BERRY

## Habitat:

Partridgeberry favours coniferous and mixed forests that are mossy and moist. They prefer shade and do not do well in competition with grasses and herbs.

RANKING:



BUDS:



# Partridgeberry (*Mitchella repens*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



BUDS:



## Propagation:

Partridgeberry is quite difficult to grow from seeds. It can be done, but the germination rate is quite low. Even then, you have to be patient with them, as most of the germinating will be done the second spring. Plant seeds every 2 inches (5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Cover with a light mulch. Like most groundcovers, this sub-shrub can be grown from cuttings, but unless you find a very large patch and have permission, you should avoid this.

One exception is if you find it on a woods road (again, having permission and making sure there are sufficient numbers of other partridgeberry plants around.) In that case, cut off about 6 inches (15 cm) from the tip of the plant, carefully dig up the section and preserve any roots, and transplant to a shaded nursery bed or a place in a mixed wood forest that has rich, moist soil.

## Areas of Usage:

A lover of shade and a plant that shies away from competition, partridgeberry has a more limited diversity of acceptable planting sites than some of our other rare native plant species. Excellent for forest restoration, it prefers rich and moist soils, such as along woodland rivers and forest trails. Assessing the forest ground cover can help determine appropriate sites for plantings. If ground cover flora are predominately shade-loving species like bunchberry or ferns rather than sun-loving species such as grasses and hawkweeds, it is a good indication that partridgeberry will take hold.

## Additional Information:

The paired flowers of partridgeberry are unusual in that they work together to grow a single berry. Both of the flowers must be pollinated in order to produce a berry, which shows two "dimples near its end. These result from the two flowers joining to produce one berry.

The flowers grow in pairs and work together to produce the berries. Both flowers in each pair must be pollinated for the berry to form. The berries display their joint parentage with a pair of dimples which are said to represent each of the unique characteristics of the flowers it was formed from.



# Yellow Violet (*Viola pubescens*)

TYPE:



HABITAT:



**Alternate names:** downy yellow violet, smooth yellow violet

CONDITIONS:



RANKING:



## Description:

Although one of the tallest plants by violet standards, it is actually a rather small and compact woodland perennial by most others, growing up to 9-12 inches (23-30 cm) tall, with flowers all along the stem. Yellow violets have many similarities to the rest of the violet family. The leaves are almost heart-shaped notched at the base, with rounded teeth along their margins and delicate irregular five petaled flowers. The yellow violet boasts yellow flowers, with brown or purple lines in the centre. The flowers are carried in leaf axils and are sometimes slightly hairy or downy. The flowering time continues between May and October. It is a remarkably long flowering period for our climate.

## Habitat:

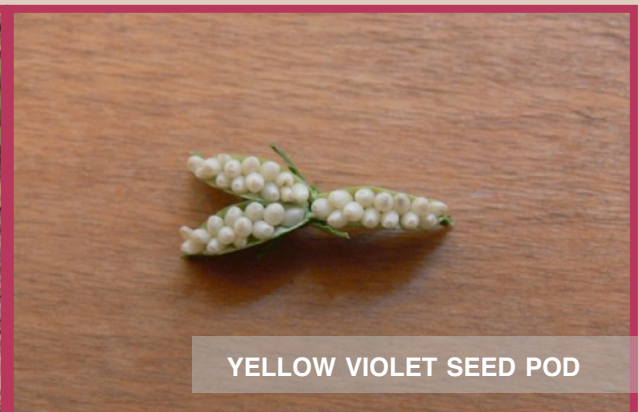
Prefers cool, moist woods with good shelter from the wind and dappled light.

## Wildlife Uses:

Flowers are visited primarily by bees, but also by flies and butterflies. Seeds are eaten by a variety of birds and mammals.



SMALL AND COMPACT FORM



YELLOW VIOLET SEED POD

## Areas of Usage:

Although a woodland flower, yellow violet is a very handsome addition to any bed of wildflowers around a cottage or yard. It can even be planted in a relatively sunny spot as long as there is shelter from the wind and proper mulching each year. It does best in the woods and simply pops with greens and yellows from spring well into fall along a hiking trail.



# Yellow Violet (*Viola pubescens*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



## Propagation:

The fruit is an egg-shaped capsule that when mature, shoots seeds several feet from the parent plant. Collect the capsules when full and plump, and store in a paper bag in a warm, dry place. Once the capsules have opened, the seeds are easy to collect and plant. Though one of our rarest native plants, yellow violet is incredibly easy to grow. Plant the seeds as soon as possible every inch (2.5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Most seed will germinate in the spring.



YELLOW VIOLET IN FLOWER

## Additional Information:

The violet family has a special relationship with ants. Violet seeds boast elaiosomes, appendages which are delicious to slugs and ants. These creatures transport the seeds, eat the elaiosome and leave the seed to germinate away from its parent plant. There is even a name for seed dispersal by ants: myrmecochory.

Another plant family, the trilliums, employ this ant-based tactic. Trilliums and violets are hardly close family and so may have developed their use of an elaiosome separately, an example of convergent evolution.

# White Baneberry (*Actaea pachypoda*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



**Alternate names:** doll's eyes

## Description:

For most of the growing season, white baneberry can be difficult to distinguish from its much more common cousin, red baneberry. The names give the obvious difference away—one has white berries, the other red. Both species are perennial woodland wildflowers sporting compound leaves with irregular teeth along the margins. The white baneberry's stems and leaves are smooth, lacking the sparse "hair" of the red baneberry. To make things confusing, red baneberry has a white version. All have black dots on the end of the fruit, but the true white baneberry has a larger dot (hence the alternate name, doll's eye). The easiest way to tell the species apart is the thickness of the flower/fruit stems. White baneberry has thick, stout red fruit stems, while red baneberry (including its white form) have skinny fruit stems. It has white flowers in late May to early June.



WHITE BANEBERRY FLOWER



SPRING GROWTH

## Habitat

Typical of open woodlands and edges of woods and generally in loamy soils. It prefers dappled light such as that provided by primarily deciduous forests.

## Wildlife Uses:

Some plant poisons predominantly affect mammals but not birds. Baneberries are just such a plant. While the pulpy flesh of the fruit is poisonous to most mammals, birds seem to enjoy the berry all the same. Mammals are clever though and some manage to strip away the pulp to feast on the seed inside.

# White Baneberry (*Actaea pachypoda*)

## TYPE:



## HABITAT:



## CONDITIONS:



## RANKING:



### Areas of Usage:

As a woodland plant, white baneberry does best in dappled light and other shaded areas. Deciduous groves or along woodland trails make excellent sites but sheltered areas in a wildflower garden can work just as well. As always, mimicking the species' natural conditions helps the specimens to thrive; mulching mimics the forest floor's natural leaf cover, conserving soil moisture and providing a slow release of nutrients.

### Propagation:

White baneberry is an easy wildflower to propagate. Add the fruit to a small bucket with water, and (wearing gloves) mash the berries. The pulp will float to the surface while the seeds will sink. Repeat several times with clean water until the seeds are free of pulp. Plant as soon as possible every 2 inches (5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Most seed will germinate in the spring.



DEVELOPING BERRIES

### Additional Information:

A member of the often-poisonous buttercup family, our native baneberries live up to their name. Both species of baneberries on PEI are equally poisonous, although the red baneberry looks more appetizing than the white. A common woodland wildflower family, if you own a woodlot there is a good chance you have red baneberry growing. Even so, give some thought if children or pets will frequent the planting site before adding another poisonous species.

# Dutchman's breeches (*Dicentra cucullaria*)

TYPE:



HABITAT:



**Alternate names:** white hearts, soldier's caps, ear-drops, squirrel corn

CONDITIONS:



RANKING:



## Description:

Dutchman's breeches is a remarkable plant. Incredibly showy for a short time in the spring, it almost vanishes later in the season. This woodland wildflower's most distinctive feature is its delicate and unique flowers. Leafless stalks carry a raceme of hanging white and yellow-tinged flowers, made up of two opposing waxy petals which have fused giving the name-bearing look of breeches. Emerging from corm-like miniature tubers, the foliage is also delicate. The compound basal leaves have a long petiole and are finely divided into long slender segments with an almost fern-like appearance.

## Habitat:

This rare native wildflower thrives in dappled light with rich, moist soils. They can be found in forest habitats, particularly deciduous woods near rivers. Look for them in spring as they are an ephemeral species, going dormant by summer.

## Wildlife Uses:

The unique shape of the flower is adapted for bumblebees, requiring aerobatic flying and a long proboscis to access the nectar. These flowers are a crucial spring food source for native bumblebees.



SPRING FOLIAGE



TRANSPLANTING DUTCHMAN'S BREECHES

## Areas of Usage:

Dutchman's breeches is a wonderful spring treat along a woodland walking trail. In addition, its particular relationship with bumblebees and propensity to grow along shady rivers makes it a wonderful for forest and riparian restoration. Its beautifully lacy foliage, unique and charming flowers, and shade tolerance can make it a versatile flower for landscaping. However, it will not tolerate exposed sites, wind, salt spray, or full sun. It is a great choice for shaded and sheltered mixed wildflower beds. As the Dutchman's breeches go dormant, other flowers will come into bloom.

# Dutchman's breeches (*Dicentra cucullaria*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



## Propagation:

These delicate natives are another difficult to propagate wildflower. Seed should be collected once the flowers start to dry up, and then planted as soon as possible. Plant seeds every 2 inches (5 cm) in rows 3 inches (7.5 cm) apart, at a depth of 1/8 inch (3 mm). Cover with a light mulch, and most seeds will germinate in the spring.

You can also separate the bulblets in early summer and replant them about 1/2 inch (12 cm) deep. Please remember that you want to have permission before collecting seed and especially before collecting bulblets. Also, only take a small percentage, and make sure you are collecting from a large enough population that you won't do any damage.

At Macphail Woods, we had a landowner contact us about finding them growing on his property. We collected a small amount of bulblets and have been growing them out, so that we don't need to be transplanting from the wild. If anyone would like a small amount of bulblets to grow out, please contact our nursery. We should be able to provide these for free.



DUTCHMAN'S BREECHES IN FLOWER

## Additional Information:

Dutchman's breeches are another plant whose seeds carry elaiosomes, those oil-rich, fleshy attachments. As with trilliums and yellow violets, the ants move the seeds to their colonies and only eat the tasty elaiosomes, leaving the seeds to grow. It is an excellent seed dispersal strategy.

These plants, and others such as our native ginseng, make use of the spring sunshine that hits the forest floor before the deciduous trees leaf out. Later in the summer, with the trees providing lots of shade, Dutchman's breeches fade away. It is a brief period to behold their beauty and delicacy, but their viewing has become a favourite spring ritual.

# Hairy Sweet Cicely (*Osmorhiza claytonii*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



**Alternate names:** Clayton's sweet root

## Description:

Hairy sweet Cicely is a delicate plant, beautiful when you really look closely but sometimes innocuous and easy to miss. Like other members of the carrot or parsley family, when crushed it gives off a pleasant odour sometimes compared to anise, especially the root. It has small compound umbels carrying fewer white flowers than one would see on its cousin, Queen Anne's lace. A perennial woodland plant, its alternating leaves are palmately lobed, hairy and toothed. The fruit is flat and long with a bristly hook. It flowers between May and June.

## Habitat:

A woodland inhabitant, hairy sweet Cicely prefers moist, rich forest soils with dappled light. It can most often be found along rivers in forests and upland hardwood stands.

## Wildlife Uses:

These unassuming forest pollinator plants are integral to spring pollination. Most woodland wildflowers utilize the spring light before many tree leaf buds open to flower, a time of



SPRING GROWTH



HAIRY SWEET CICELY FOLIAGE

## Areas of Usage:

Hairy sweet Cicely prefers moist, rich soils with dappled deciduous light. They are excellent plants for woodland restoration and along trails. Food for early pollinators and its relative rarity add ecological values for forests, and its pleasing smells and delicate beauty add many aesthetic values for the people who walk those woods. Although it will not tolerate much wind, light or dry soils, it is still adaptable to sheltered and shaded sections of yards and wildflower beds. Definitely not a good choice for exposed seaside plantings.

# Hairy Sweet Cicely (*Osmorhiza claytonii*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



## Propagation:

Cicely is another rare native plant that is actually quite easy to grow. Seeds are collected once they turn dark brown and plant as soon as possible every 2 inches (5 cm) in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Cover with a light mulch, and most seeds will germinate in the spring.



## Additional Information:

A very noticeable identifier in the mid to late summer season are the locally-unique hooked seeds of the hairy sweet Cicely. If you are ever weeding a bed with these plants in August, you'll quickly understand, as your pants and shirt will be covered in these prickly seeds. This is actually an ingenious strategy for seed dispersal. Evolving alongside furry mammals, hairy sweet Cicely specialized its seeds to catch a ride, helping to reduce competition between the parent plant and its offspring.

# Swamp Milkweed (*Asclepias incarnata*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



**Alternate names:** pink milkweed, rose milk flower

## Description:

A wet-loving perennial, swamp milkweed is the daintier native cousin of the more familiar common milkweed that grows throughout Ontario. It is a tall wildflower, sometimes growing over a meter in height. The stems grow from a compact white fibrous root system with more stems emerging each year. It has oppositely arranged smooth leaves that are pointed at the tip and rounded near the petiole. The pink and white flowers emerge in early August with a vanilla-like scent. Milkweed gets its name from the bitter milky sap it bleeds when torn or broken.

## Habitat:

Swamp milkweed thrives with full sun and wet soils. Naturally found in marshes, swamps and other open wet sites. It has become an incredibly rare plant on PEI, occurring naturally on a handful of properties.

## Wildlife Uses:

An incredible wildlife plant, swamp milkweed is a crucial food source for Monarch butterflies. It also attracts a dizzying number of pollinators from wasps to bees to flies and much more. It is a standard in all pollinator gardens, since it is both useful and beautiful.



## Areas of Usage:

Don't let swamp milkweed's rarity fool you into thinking this isn't an amazingly adaptable and tough plant. With some thoughtful care, our native milkweed can thrive in an incredible variety of sites. Like all wetland plants, it will tolerate wind on wetter sites but needs shelter if things are dryer. Proper mulching and the addition of organic matter go a long way in ensuring the health of your milkweed. They also self-seed, so planting a few will have far-reaching results in just a few years. They are also excellent plants for open riparian zone and marshland restoration.



# Swamp Milkweed (*Asclepias virginiana*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:

S1

## Propagation:

Milkweed is very easy to propagate. Wait for the a few pods to start to open, then check to make sure the seeds are quite brown. They should not be dried out, but also shouldn't be showing any green. The seeds are attached to long, fluffy fibres. The easiest way to clean the seed is to leave them in the pod. Pull on the fibres at the outer end of the seeds and you'll come away with the fibres in one hand and the clean seeds in the pod in your other hand. If you initially take the seeds out of the pod and then try to clean them, it is quite a task if you are doing any amount.

Seeds should go into the ground as soon as possible. Plant seeds every 2 inches (5 cm), in rows 4 inches (10 cm) apart, at a depth of 1/4 inch (6 mm). Cover thinly with mulch. Germination will be quite high in the spring.



MONARCH CATERPILLAR

## Additional Information:

Milkweeds and Monarchs make an incredible duo. Monarchs have adapted over time to rely on milkweed for food, egg laying sites, even processing the milky sap into a defence mechanism. We've grown milkweed at Macphail Woods since 2012 and each year more and more Monarchs come. That being said, it is always risky to put all your eggs on one plant and the rarity of swamp milkweed on PEI is yet another challenge for the hard-pressed Monarchs. Luckily, it is a tough and vigorous species and a prolific seeder. Local community-driven efforts are starting to restore this beautiful species' population across the province.

Milkweed has seen a number of commercial uses over the years too. The fluff attached to their seeds is both an excellent insulator and quite bouyant. During World War II, it was used as stuffing in flight suits and life jackets, and plantations were grown in the United States to supply the Air Force. Today, several companies are using milkweed fluff to replace, or to add to, goose down in their high-end outer-wear jackets.

# Canada Anemone (*Anemone canadensis*)

TYPE:



HABITAT:



**Alternate names:** Canada windflower, meadow anemone

CONDITIONS:



RANKING:



## Description:

Canada anemone is a small, spreading, and rare native wildflower. Part of the buttercup family, its flower resembles a larger buttercup. The flower has five bright white petal-like sepals, a yellow center. Flowers occur on a long leafless stalk. Its palmately lobed leaves are split into usually 5-7 parts which themselves can be deeply cut or toothed. Along the stem the leaves are opposite and sessile. After flowering between May and July, the plants develop clusters of spiky seeds.

## Habitat:

Canada anemone is a sun-loving wetland plant. It is very rare in PEI, officially being found on only a handful of properties. Look for found in damp meadows and other relatively open places with poor drainage.

## Wildlife Uses:

The large and numerous flowers of the Canada anemone attract a variety of pollinators, from butterflies to bees. Many varieties of moths are often attracted to white flowers.



ANEMONE BED IN NURSERY



ANEMONE IN FLOWER

## Areas of Usage:

With unique foliage and gorgeous white blooms, Canada anemone is an easy choice for any gardener. It grows well in full-sun in sheltered-dry areas and windy-wet areas. It flowers for months with its large attractive white and yellow blooms. It also spreads through underground rhizomes more prolifically than through seeding. It doesn't do so aggressively, but planting just a few specimens in the right place will begin to do you work for you filling areas with luscious greens and whites.

# Canada Anemone (*Anemone canadensis*)

## TYPE:



### Propagation:

Canada anemones specialize in vegetative reproduction. Relying on seeds for propagation has its benefits, allowing for more genetic diversity and a larger geographic dispersal. However, it is an energy-intensive strategy with lots of risk. Through the growth of underground rhizomes, Canada anemones can form large clonal colonies. This method is much faster than seeding and less risky in the short term, as new shoots receive nutrients from the whole colony. However, it does have drawbacks. The whole colony is genetically identical, which results in shared vulnerabilities and much less chance of adaptive mutations.

## HABITAT:



## CONDITIONS:



## RANKING:



The easiest way to increase numbers of Canada anemone is to buy a few and then plant them in a suitable location. One plant quickly becomes two, then ten, and soon you have dozens. The new plants can easily be transplanted as soon as they emerge in the spring. You can also grow anemones from seed, though success to date has been quite low. Collect seed once the spiky flower clusters are dry, separate the seed from the chaff and then sow the seeds close together, covered by a small amount of soil. Mulch for the winter and in the spring you should have some tiny seedlings popping up.



CANADA ANEMONE FOLIAGE

### Additional Information:

Ánemos is the Greek word for 'wind' and ónē is a suffix that means 'daughter of', so anemōnē means 'daughter of the wind'. This is based on a myth, told in Ovid's *Metamorphoses*, in which the goddess Venus (Aphrodite) created all 'windflowers' while mourning the death of her love, Adonis. Some research shows that the name might have arisen from a mixed interpretation of translation of Adonis' name. In some versions of the myth, the red anemones of Europe and Asia sprang from the blood of Adonis.

# Cutleaf Coneflower (*Rudbeckia laciniata*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



**Alternate names:** greenhead or tall coneflower, wild goldenglow, thimbleweed, sochan

## Description:

This rare coneflower belongs to the same family as sunflowers and daisies and it shows. It has large composite flowers in August with striking yellow petal-like rays. The flowers elongate into "cones" and turn brown as seeds ripen. The dark green basal leaves vary slightly in form, usually having three lobes or 5-7 pinnate lobes. The leaves ascending the stem are alternating. Growing over 6 feet (2 m) tall, their height, colour, and distinctive cone make them hard to miss.



HERBACEOUS SPRING GROWTH



COMPOSITE FLOWER

## Habitat:

Cutleaf coneflower is usually found in open and relatively wet areas like the edges of swamps, sunken areas like ditches, anywhere sunny where water is plentiful.

## Wildlife Uses:

Coneflowers are important plants for a wide variety of pollinators, everything from wasps and bees to moths and butterflies. They are a mainstay of native pollinator gardens, along with swamp milkweed and Joe Pye weed. An additional benefit to wildlife is the prolific amount of seed produced each year. In the early fall the coneflower patches in the Macphail Woods arboretum are alive with mixed flocks of finches, sparrows and other birds. At times there have been 60 American goldfinches feeding on the seeds.

# Cutleaf Coneflower (*Rudbeckia laciniata*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



## Areas of Usage:

Another rare native plant with a variety of uses, cutleaf coneflower is easy to use in any relatively sunny areas. Lots of organic matter and mulch will help compensate for drier locations. Wind in drier areas causes the coneflowers to never reach their maximum height and be much more prone to wilting during droughts.

They naturally seed the surrounding area. This can require some maintenance in more manicured plantings due to their prolific seed-load.

In restoration work, coneflowers would be planted on the edges of wet woods, as long as they had adequate sunlight.



## Propagation:

Coneflowers are quite easy to propagate, and once you have seed sources growing in the wild, your work in that area becomes easy as they continue to self-seed. When you see the birds start harvesting the seed, that's your call to action. This generally occurs in September and into October. Cut the heads off healthy plants with lots of seeds and dry them on newspaper in a sunny indoor location. When the seeds can be easily removed from the heads, broadcast them on a nursery bed, and apply a light coating of mulch. Most seeds will germinate the following spring.

## Additional Information:

Cutleaf coneflower is a popular pollinator plant. Not only does it attract a wide variety of native bees but also predatory wasps (beneficial to gardens), butterflies and more. It also attracts moths during the night time, a sight worth staying up for. It is also interesting in that each seed head seems to be a different size and shape, and the leaves themselves can be quite unique. There is a lot of variety within the species.

# Braun's Holly Fern (*Polystichum braunii*)

TYPE:



HABITAT:



CONDITIONS:



RANKING:



**Alternate names:** prickly shield fern

## Description:

Braun's holly fern is part of the wood fern family. The Braun's holly fern gains its name from the similarity of its sub-leaflets (pinnules) to the leaves of holly. The frond can be evergreen in milder climates and is generally a dark green. The fronds have a narrowed tip and base, with scales on the underside. The fronds are typically large, growing up to 70cm high and 22 cm wide. The sub-leaflets of Braun's holly fern have serrated margins with bristle-edged teeth. When ferns have these secondary serrations, they are called "twice cut." The stem is short,

## Habitat:

Braun's holly fern prefers cool, moist, and shaded areas within a forest, but is also capable of growing on rocky slopes and moist cliffs.

## Wildlife Uses:

A woodland fern, Braun's holly provides cover for ground nesting birds such as ovenbirds, juncos, and black and white warblers.

BRAUN'S HOLLY SORI



EARLY FRONDS



## Areas of Usage:

An excellent fern for woodland restoration as it prefers cool, shady forests. It is showy enough to enhance hiking trails and grows well along forested riparian zones. It also can thrive in shady areas of an urban yard, especially with a good mulching. Keep it out of direct sun and wind. Braun's holly fern does not readily reproduce through underground rhizomes, it relies primarily on spores for its propagation.

# Male Fern (*Dryopteris filix-mas*)

TYPE:



HABITAT:



**Alternate names:** basket fern

CONDITIONS:



RANKING:



## Description:

A relatively low-growing forest fern due to the short stipe (stem) of the frond, male fern grows up to 40 inches (1 m) tall. The stipe is also thickly covered in pale brown slightly bronze scales. The twice-divided fronds are relatively narrow, tapering at the tip and towards the base. With small teeth along the margins of the pinnules and a slightly leathery texture, the male fern appears stouter and less delicate when compared to many of the more common wood ferns.

## Habitat:

Like most of our native ferns, male fern is a woodland fern preferring deciduous forests with tall canopies. Historically male fern would have been found amongst the oaks

## Wildlife Uses:

Ferns fulfill a number of functions such as providing ground nesting habitat for woodland birds or food sources for larval insects and their predators.



## Areas of Usage:

Male fern is not our showiest native fern—it doesn't boast the rusty colours of the cinnamon fern, or the plumes of the ostrich fern—but its deep green fronds hold their colour late into the year and it really stands out as a handsome plant. Male fern has become a forest restoration standard at Macphail Woods. It seems to thrive best in older deciduous woods but does very well in younger mixed stands and along forest paths. It is also a versatile plant for landscaping, working well in shady wildflower or fern gardens or tucked away from the sun near a deck or shed.

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## SOURCING NATIVE PLANTS

J. Frank Gaudet Provincial Tree Nursery: 183 Upton Road, Box 2000, Charlottetown, PE, C1A 7N8, Phone: 902-368-6450.

They're growing a lot of great native trees and shrubs, which in the past have included rare species such as witch hazel, black ash and ironwood.

Macphail Woods Native Plant Nursery: 271 Macphail Park Road, Orwell, PE, 902-651-2575. Website: [macphailwoods.org](http://macphailwoods.org)  
The largest selection of rare native plants in the province.

## ICON REFERENCES

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