

Roadsides

A Guide to Creating A Pollinator Patch



A Guide to Creating a Pollinator Patch

This booklet is created for you by the Ontario Horticultural Association. We encourage you to create your own pollinator patch. Form a group, pick a site and make a home for pollinators.



Funding for the printing of this guide was provided by:



Copyright: Ontario Horticultural Association 2010

Created by the members of the Conservation & Environment Committee
Carol Dunk (Chair), Suzanne Hanna, Don Matthews, Robert Simmons, Pat Stachon, Kees Stryland

Contents

1	Roadsides is ...	1
	Pollinators Need Help	1
	What We Can Do	2

2	Who Are The Pollinators?	3
	Bees	3
	Solitary Bees3
	Bumblebees3
	Others	4
	Moths and Butterflies4
	Beetles and Flies4
	Hummingbirds.4
	Crops Pollinated by Native Bees4
	Native Pollinator Habitat Requirements	5

3	Choosing a Site...	6
	The Site	6
	Obtaining Permission	7
	Your Proposal7
	Site Possibilities	7

4	Provincial Highway	Plantings	8
----------	---------------------------	------------------	----------



5	Planting the Site	10
----------	--------------------------	-----------

6	Preparing the Site	11
	Mark Your Site	11
	Mow Or Weed-Whack Your Site.	11
	The Newspaper Layer	11
	Soil	11
	The Use of the Backbone	12
	Watering	12
	The Planting Guide	13

7	The Plants	13
----------	-------------------	-----------

8	After Care	16
	Habitat vs Garden	16
	Year 1	16
	Years 2 and 3	16

9	Nesting Sites	17
	Nesting Boxes	18

Appendices		19
	Sources of Native Plants	19
	Native Plants You Might Use	21
	Photo Credits:	22

1 Roadsides is ...



Roadsides is a planting project : a project to create pollinator-habitat patches in units of 10 feet by 20 feet (3m by 6m) in Ontario – along roads, in unused public spaces and in home gardens.

The goals of the project are three-fold:

1. to provide habitat for our native pollinators,
2. to reintroduce native Ontario plants that are otherwise absent from many areas in Ontario, and
3. to beautify the province, especially the part of the province seen from our highways and biways.

“Don’t doubt the impact of a patch of wild flowers and native fruit trees to the health of bees,” said Peter Kevan, professor emeritus at the University of Guelph and executive director of the Canadian Pollination Initiative (www.uoguelph.ca/canpolin).

Pollinators Need Help

“Pollinators are really a keystone group that other organisms rely on,” says Eric Mader, assistant professor of extension at the University of Minnesota and the national pollinator outreach coordinator at the Xerces Society for Invertebrate Conservation. “Pollination is almost as essential to life as water and oxygen.”

The European honeybees, the most commonly-used pollinators for many food crops, are in trouble due to a situation called “colony collapse disorder” (or CCD). Of the 2.4 million honeybee colonies in the U.S., about one million died off in the winter of 2007 and the problem continues. Big declines have also been experienced in Europe and Asia. The cause of this world-wide honeybee problem is a mystery. Bee experts point to stress caused by pests, pesticides, transportation, and diseases, but no one is certain.

Studies

continue.

As a result of the problem with honeybees, scientists and farmers are hoping that native pollinators, such as bees, moths and beetles, can pick up some of the slack caused by honeybee

It is estimated that at least 80% of plants on earth rely on pollinators in order to reproduce. Without pollinators, many of our favourite foods would fade from existence. Imagine -- no coffee, no chocolate!



loss. In many ways, native bees are superior pollinators to domesticated honeybees. As few as 250 orchard mason bees (*Osmia lignaria*) -- native metallic-tinted bees present throughout the province-- can pollinate an acre of apples, a job that could require 40,000 honeybees. In addition, bumblebees will fly in bad weather when their domestic cousins are holed up.

Native pollinators, then, could be the solution to the pollination needs of many growers. But our native pollinators are in trouble, too. They have been stressed by pesticide use, habitat loss and urban development.

Native pollinators can help pollinate cultivated crops, but they need a place to stay and to breed. They need regular access to natural foraging and nesting areas, and brushy fencerows as well as brushlands and shrubby areas.

Manicured lawns, expanses of weedy road allowances and reforestation plantations may be green, but without blooming plants they might as well be concrete as far as pollinators are concerned.



See photo credits on Page 22



Native bees are not aggressive. They rarely sting and then, only because they are personally threatened. Here a native bee rests on a biologist's forefinger.

What We Can Do

We (you, me and governments) can assure that our native pollinators have a place to call home. We can convert large and small parcels of unused public land into pollinator habitat. The very least we can do is to convert to pollinator patches that part of the planet we control: our residential garden space.

And we can approach local municipalities and county and provincial road commissions to provide space for us to plant pollinator patches throughout the province.

Roadsides is a plan -- a planting plan -- to guide you and to challenge the gardener in you. Change part of Ontario into pollinator habitat by creating a pollinator patch.

2 Who Are The Pollinators?

The pollinators native to Ontario are predominantly bees but the number also includes beetles, moths and butterflies.



Bees

Solitary Bees

are the most common native pollinators. Native bees are usually solitary, nesting in pithy plant stems, holes in standing trees, bare patches of soil and dirt mounds. Some do the excavation themselves while others nest in abandoned beetle or mouse holes. The burrows of ground-nesting bee may be mistaken for ant hills.



Some solitary bees are specialists and pollinate one particular species or flower type. Others are generalists and will pollinate a

number of plants. Solitary bees usually have one generation per season.

To hear more about mason bees and see mason bee houses, view this video:

<http://www.youtube.com/watch?v=He3Nuy1FSqY>

Bumblebees

are social bees and will build a colony. They have many overlapping generations throughout spring, summer and fall. Bumblebees are generalists and will pollinate a wide variety of plants.



Of interest to tomato growers is the ability of bumblebees to use a method of obtaining pollen not practiced by honeybees, called “sonication” or “buzz pollination.”

The bumblebee grasps the flower with its legs or mouthparts and vibrates its flight muscles very rapidly without moving its wings. . This vibration shakes electrostatically charged pollen out of the anthers, and the pollen is attracted to the bumblebee’s oppositely charged body hairs.



Buzz pollination can be useful for releasing or collecting pollen from many types of flowers, but it is

essential for some, including tomatoes and blueberries. For that reason, growers often buy and breed bumblebees as part of their agricultural practice.

Others

Moths and Butterflies

are another group of native pollinators working hard in our garden. The majority of moths are nocturnal and are very important pollinators of night-blooming plants such as Moonflowers and Brugmansias.



Beetles and Flies

make up another group of native pollinators. Many flies look very much like bees and sometimes it's difficult to decide whether you are looking at a bee or a fly. The biggest difference between the two is that flies have two wings while bees have four. Now you know!



Hummingbirds

are attracted to many of our garden plants. While they are sipping the nectar in our plants, their head or chins work as pollinator points taking pollen from one flower and depositing it on the next flower they visit.

In order to assist pollinators, you and I can make sure that our native pollinators have someplace to stay and something to eat. The chart on page 5 will help you with your habitat choices

Crops Pollinated by Native Bees

Alfalfa Seeds	Almonds
Apples	Avocados
Blueberries	Canola
Cherries	Chokecherries
Cranberries	Cucumbers
Grapefruit	Macadamia nuts
Pears	Plums
Prunes	Pumpkins
Soybeans (hybrid	seed production)
Squash	Sunflower seeds
Tomatoes	Vegetable seeds
Watermelons	

Native Pollinator Habitat Requirements

Pollinator	Food	Shelter
Solitary bees	Nectar and pollen	Most nest in bare or partially vegetated, well-drained soil; many others nest in narrow tunnels in dead standing trees, or excavate nests within the pith of stems and twigs; some construct domed nests of mud, plant resins, saps, or gums on the surface of rocks or trees
Bumble bees	Nectar and pollen	Most nest in small cavities (approx. softball size), often underground in abandoned rodent nests or under clumps of grass, but can be in hollow trees, bird nests, or walls
Butterflies and Moths – Egg	Non-feeding stage	Usually on or near larval host plant
Butterflies and Moths – Caterpillar	Leaves of larval host plants	Larval host plants
Butterflies and Moths - Pupa	Non-feeding stage	Protected site such as a bush, tall grass, a pile of leaves or sticks or, in the case of some moths, underground
Butterflies and Moths – Adult	Nectar; some males obtain nutrients, minerals, and salt from rotting fruit, tree sap, animal dung and urine, carrion, clay deposits, and mud puddles	Protected site such as a tree, bush, tall grass, or a pile of leaves, sticks or rocks
Hummingbirds	Nectar, insects, tree sap, spiders, caterpillars, aphids, insect eggs, and willow catkins	Trees, shrubs, and vines. Typically need red, deep-throated flowers, such as twin berry or penstemons

[Adapted from: Native Pollinators. Feb. 2006. Fish and Wildlife Habitat Management Leaflet. No. 34.]

3 Choosing a Site...

The Site

Make your native pollinators feel at home. Place your site in an area that would normally be good for them. When choosing your site, think habitat, not garden.

Pollinators have two basic habitat needs: a diversity of flowering native or naturalized plants, and egg-laying or nesting sites. Native bee nests have been found in orchards, front yards, along farm roads, and even in cultivated fields.

Look for a well-drained site. We chose a south-facing site on a slope to ensure drainage and sun.

In general, areas of level or slightly sloped land with full sun throughout the day, and good air circulation are best. Water is an asset but not necessary.

Try to site your plot close to areas that are already bee-friendly. Grassy thickets, or other areas of dense, low cover free from mowing or other disturbance are excellent sites. Here bumble bees might find the nest cavities they need, not to mention already available biennial or perennial forbs that can provide significant food resources.



Keep dead or dying trees and branches whenever it is safe and practical. Wood-boring beetle larvae often fill dead trees and branches with narrow tunnels into which tunnel-nesting bees will move. In addition, retain rotting logs where some bee species may burrow tunnels in which to nest. If your site doesn't have a place for burrowing bees, you can import a old log segment or several to your site.

A good place to create a pollinator habitat is close to a vegetable garden or fruit trees. Pollinators aren't just pretty faces. They will be happy to pollinate your garden as pay for a place to live.

Your site should be people-friendly, too. If your site is adjacent to a road, make sure there is room to pull a vehicle completely off the road. A safe place for people work in a pollinator patch would be at least 6m (10 feet) away from traffic.



A good rule of thumb is to have 6m (20 feet) to play with: 3m (10 feet) for your vehicle, access to the vehicle and unloading and 3m feet for your pollinator patch.

Choose more than one site. Have two or three in mind. You will be asking permission or writing a proposal and presenting that to local authorities. Your first site may not be one that you can get permission to plant. Have a Plan B and even a Plan C.

Obtaining Permission

Before you begin work, it is always necessary to obtain permission. Find out what governmental body has jurisdiction over the site you have selected and then ask permission to create your habitat area. Often you will be asked to make a proposal in order that your request can be taken to a committee or other body.

Your Proposal

Introductory Material

an explanation of the project
the reason behind the project
the desired location of patch (gps stats are good)
the benefits of the project



your

Project Details

- site preparation
- your planting plan
- plant choices
- A drawing or diagram of your planned patch
- your working schedule
- the number of people who will be working on the site. *Note also that some, like Adopt-A-Highway, actually want the names of those who will be working with you and the name and contact of the person in charge.*

Follow-up

- ongoing maintenance
- any evaluation

Site Possibilities

Initially Roadsides was, as the name implies, focussed on planting along the roads of Ontario following the example of many States to the south. After discussions with the Ministry of Transport, another site for pollinator patches arose -- cloverleaves. Traffic around cloverleaves is somewhat slower than on the highway itself and the area in an average cloverleaf gives lots of room for one or two or more pollinator patches.

An adaptation of the roadsides concept is the roadside space attached to rural homes. Many homes along county and township roads abut a roadside. Such spaces could easily be converted to become pollinator patches.

After discussions with the Ministry of Transport, another site for pollinator patches arose -- cloverleaves. Traffic around cloverleaves is somewhat slower than on the highway itself and the area in an average cloverleaf gives lots of room for one or two or more pollinator patches.

An adaptation of the roadsides concept is the roadside space attached to rural homes. Many homes along county and township

roads about a roadside. Such spaces could easily be converted to become pollinator patches.

If you are an urban dweller, look within your town and city for unused public spaces. Particularly good spots are the stormwater collection areas in many of the newer suburbs.

Be creative in your hunt. There are literally hundreds of thousands of acres of land that is not being used. Claim some of it!

One of the best places for a pollinator patch is your own garden. Survey your garden. Do you have plants to attract pollinators and places for pollinators to nest? Just imagine the difference you and I could make by setting aside space in our garden for pollinators.



4 Provincial Highway Plantings

If you wish to place your pollinator patch on a stretch of provincial highway, you should work through the Ontario Adopt-A-Highway program.



Please note that the Adopt-A-Highway program includes a planting component. The Terms and Conditions section is easy to fill out but the Volunteers' Responsibilities should be read over carefully before proceeding. There are 38 responsibilities and a statement of what the ministry will do.

The Ministry will select the section of highway usually and will want to approve your choice of plants and your planting plan.

The Adopt-A-Highway program will require some paper work and training before you are free to work on the side of the road.

First contact the Adopt-A-Highway office in your district (the contact list follows). You will be sent application forms and will need to provide the following information:

1. the actual section of highway you wish to adopt
2. the period of time which you intend to participate in the program. A Roadside project should be a minimum of three years.
3. The name of the group adopting the section of highway.
4. the name of the Authorized Group Representative (who's the boss?)
5. The number of volunteers in the group
6. Tentative dates that you will be working

There is an official agreement to be signed so be sure to read all the requirements carefully.

You will then be sent information about what you must do and must not do along with a CD for you and all your volunteers to watch.

If you wish, you may contact



**Roadside Vegetation Management Unit
Maintenance Office
Room 230, Central Building
1201 Wilson Avenue
Downsview, Ontario
M3M 1J8
(4160 235-3652)**

ADOPT-A-HIGHWAY DISTRICT CONTACT LIST

<i>District</i>	<i>Telephone No.</i>	<i>Fax No.</i>
<i>Chatham</i>	<i>(519) 354-1400</i>	<i>(519) 354-2452</i>
<i>London/ Stratford</i>	<i>(519) 873-4669</i>	<i>(519) 873-4236</i>
<i>Central Region</i>	<i>(416) 235-5462</i>	<i>(416) 235-5276</i>
<i>Owen Sound</i>	<i>(519) 376-7350</i>	<i>519) 376-6842</i>
<i>Kingston</i>	<i>(613) 544-2220</i>	<i>(613) 545-4786</i>

5 Planting the Site

Materials and tools

many newspapers, or cardboard

stakes and tape, or a can of spray paint

gas lawnmower or weed-whacker

screened native soil with no additives to a depth of 6 to 8 inches
(approx. 4 to 5 cubic yards)

rakes and hoes

water and water holders



Topsoil is sold in cubic yards. To calculate the number of cubic yards:

(length in feet x width in feet x depth converted to feet) divided by 27

A good website to help you is: http://www.carrexcavating.com/soil_calculator.php

6 Preparing the Site

Mark Your Site

When you have access to your site, mark out the dimensions of your patch. The suggested dimensions are 10ft by 20ft (or 3m by 6m) If your group feels that they can handle a bigger area, that is fine. Stakes and tape can be used to outline our patch; spray paint is another alternative.

Mow Or Weed-Whack Your Site

In late fall or spring just when the growth is starting, mow or weed-whack your patch as low as possible. The first time you mow, you may have to go over the area more than once.

Mow or weed-whack your area again just before adding the newspapers and soil.



The Newspaper Layer

Just prior to adding the soil to your plot, add a layer of moist newspapers at least 1-inch thick or even a layer of cardboard to your mown area. The job of the newspapers/cardboard

is to suppress the weeds and grass below. All the newspaper and/or cardboard will work best if it is moist. It can be quite a chore placing newspapers if there is any wind! Moist newspapers will not blow away as easily. Another advantage of using moist material is that it will decompose more quickly.

Soil

Native plants and native pollinators don't need to be babied. They will be quite contented living and growing in unamended soil.

To see what kind of soil you want to add, visit an area of native plants in a sunny spot and look at the soil. The soil you add to your patch should be like that: about 30% sand and, perhaps, a bit pebbly.



You may have to research a source of unamended native soil with no additives before you make a purchase. (By the way, native soil should be much cheaper than soil to which organic matter has been added.) Visit several nurseries and your municipal parks commission to source the

soil you want to use.

When you have made arrangements for getting your soil to the patch (easier said than done!), plan to give your patch that last mowing just before laying the newspaper and applying the soil.

Apply the soil to the newspaper plot forming as you go a slightly raised central “backbone.” Stabilize the soil by lightly tamping it down. Be sure to maintain the “backbone.”

The Use of the Backbone

Notice in the diagram on page that there are areas left with access to the surface of the soil. Many native bees look for areas with direct access to the soil surface, often on sloped or well-drained sites, for their nesting burrows. They either use holes dug by beetles, or they dig the nest burrows themselves. To accommodate the nesting needs of ground-dwelling bees, the central, raised area (backbone) will be left unplanted.

Watering

Your patch will need to be kept watered for its first season, at least. The first month after planting is critical. Your new plants have had their roots disturbed and need time to grow new roots and establish themselves.

The pilot patch had no source of water so it was necessary to truck water to the site. We thought it would be onerous but with our solution of water bladders and watering pails it worked out fine. We used three water bladders purchased at Canadian Tire. This gave us 15 gallons for each watering. That amount seemed to work well. We were lucky that we seemed to have rain in May and June about every 5 days or so and the patch was able to take care of itself except for maybe 6 trips with water. In the picture,

you will see our low-tech watering system.



Please use native plants in your Pollinator Patches. Native plants are preferred because they: (1) are the plants that our pollinators are most familiar with; (2) promote local native plant diversity; (3) do not require fertilizers nor pesticides for maintenance; (4) require less water than other non-native plants; and (5) are less likely to become invasive than non-native plants.

You decide on the degree of “nativeness” in your plot. For our guide, all the plants suggested are native to Ontario. The following excerpt from a National Resources Conservation Service bulletin gives some easy-to-follow advice when choosing plants for your pollinator patch:

“The level of plant community diversity can be measured in several ways. One system used in managed woody plant ecosystems is the 10-20-30 Rule. This rule states that a stable managed plant community (i.e. one able to resist insect and disease epidemics) should contain no more than 10% of a single plant species, no more than 20% of a single genera, and no more than 30% of a single family.”

(Illinois Biology Technical Note No. 23, POLLINATOR BIOLOGY AND HABITAT)

7 The Plants



It is also important to have more than one species of plant blooming at any given time throughout the whole growing season (May until late October). A good rule-of-thumb for your planting would be to have at least three different species of plant blooming in each of the blooming periods (spring, mid-summer and late summer/fall). The planting guide suggests a variety of plants for different times of the growing season. You may find others in the appendices that are easier to obtain or that you like better.

The native plants chosen are all hardy to Zone 5. Most of the plants are hardy to Zone 3 and Choke Cherry is hardy to Zone 2.

If you are above Zone 4, you will want to check for hardiness. Here is a website to help you choose native plants hardy to Northern Ontario:

http://www.ontariowildflower.com/plant_list.htm

Early Spring is perhaps the most challenging time of the year. We picked the two shrubs, Choke Cherry and New Jersey Tea to provide our native pollinators with springtime pollen. We added Wild Strawberry

because it not only provides spring pollen but also sends runners from the main plant to populate the surrounding space. On our dry and windy, south-facing patch, we have noted that the strawberry is doing well. Next season, strawberries will have spread over a much larger area than the original 12 plants do this year.

The plant selection included 3 native grasses. Native, warm season grasses provide shelter and food to a variety of wildlife. Bumblebees often use a grass clump as a nesting spot.

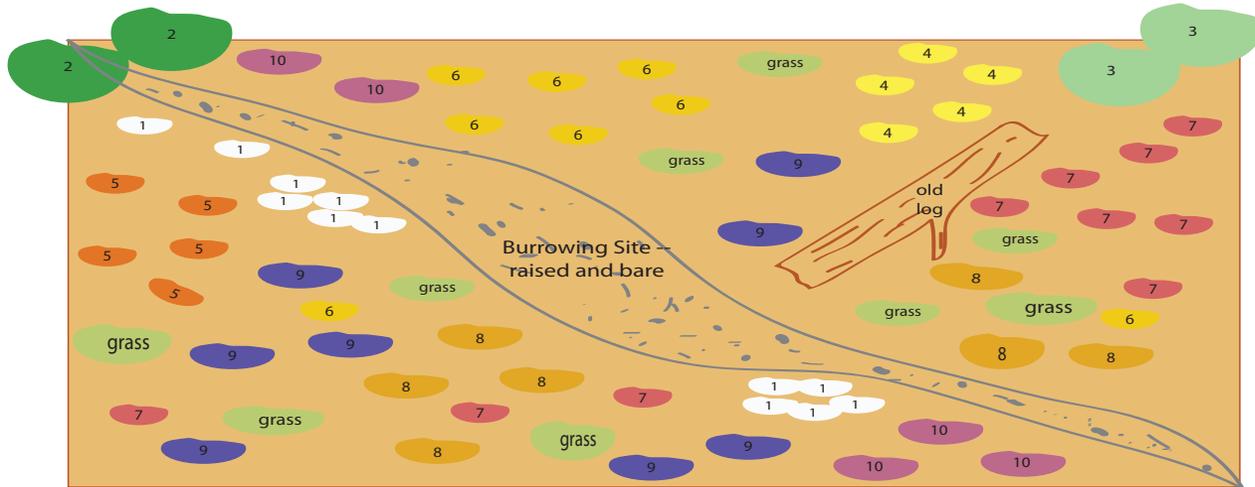
Native grasses are slow to start. The first year is usually taken up with establishing a deep root system and you might not have a lot of top growth. Don't let that fool you. By Year 3, your grasses will be matured and a real asset to the beauty and usefulness of your patch.

The Planting Guide

Our planting guide is just that -- a guide. The pilot patch contains a little over 60 plants. Although it looked a bit sparse when we planted it, the plants will spread to fit the patch. Planting sparsely also leaves a little room to add a new plant or two as preferences change.

The guide shows the plants for a 6m by 3m patch. This is not a big patch -- ours really looked small in such a big area! Depending on the enthusiasm, the funding and the number of volunteers, the patch could be expanded a little each year.

Roadsides Pollinator Patch



Early Plants

1. Wild Strawberry
2. Choke Cherry
3. New Jersey Tea

Mid-Season Plants

4. Rudbeckia Hirta
5. Butterfly Weed
6. Golden Alexanders

Mid-Season Plants

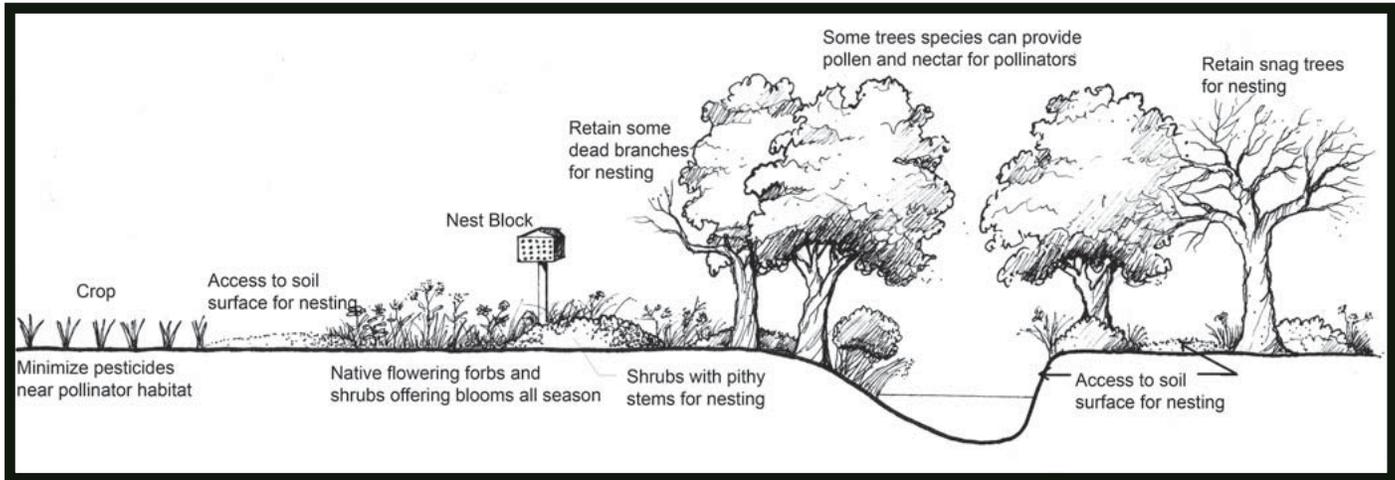
7. Purple Coneflower
- grasses

Late Plants

8. Goldenrod
9. Aster
10. Joe-Pye-Weed

Note: plants are suggestions only. Other native plants may be substituted. Keep in mind, however, that continuous bloom from spring to fall is the ideal.

Native Bee Habitat Illustration USDA



USDA National Agroforestry Center AF note -- 34 -- February 2007

8 After Care

Habitat vs Garden

Your pollinator patch is a habitat, not a garden. This distinction has impact on the yearly care. Butterflies and native bees often overwinter in the canes and on the stems and dead leaves of plants. For that reason, plant material should not be removed from the patch. Leave things as nature would leave them.

Many native plants take at least 3 years to establish themselves. The interval between planting and maturity involves some maintenance on your part. Look upon your pollinator patch enterprise as a 3-year commitment.

Hand weed only. No pesticides (herbicides, insecticides or fungicides) are to be used on your pollinator patch -- EVER!

Year 1

Year 1 is the critical year. The newly-planted grasses and native plants will need watering, and the plot itself will need weeding to discourage alien weeds from encroaching into your patch until your plants are established. Nature loves to fill in gaps and during this first year there will be gaps.



Make a point to visit and inspect your site often during the growing season of the first year. Learn to recognize the weeds in the area and eliminate them before they can gain a foothold in your pollinator patch.

Watering is critical during the first year.

Keeping your plot watered may be your biggest challenge. If you are at a distance from a water source, you will need to be creative. Water can be transported in containers to your site using a low-tech system like the one on Page 10. We found that a good watering could be had with about 15 gallons of water.

Years 2 and 3

Depending on the weather, your pollinator patch may still need some watering but that will not be so critical after the first year. A check on the water situation every week or so should be enough.

Your plot will still need weeding. A good weeding schedule might be once every two weeks in spring and once a month thereafter. Weeding is not done for curb appeal. The reason for weeding is to keep invasive weeds at a minimum until the native plants are robust enough to hold their own against weeds.

Cutting back some perennials to encourage more growth may begin in Year 3. No more than one-third of the growth should be cut back in any given year. The old canes and grass clumps can be left on site to be used as homes by many native bees and other pollinators.



9 Nesting Sites

One of the main purposes of your pollinator patch is to create an area where pollinators can nest.

Most of the native bees that you will want in your pollinator patch are solitary and many are ground nesting. For that reason, areas of undisturbed, bare soil are a good idea. On the planting plan, notice the central “backbone.” Ideally this will be a raised and firmed area comprised of about 30% sand. This raised backbone will be one of the spots in your pollinator patch where solitary bees may make their nests.

Below is a picture of a group of native bee burrows. Some solitary bees will use the burrows dug by beetles but many construct the burrow themselves. Solitary bee burrows resemble ant hills and are often overlooked.

In general these constructed ground nest sites should receive direct sunlight, and dense vegetation should be removed regularly, making sure that some patches of bare ground are accessible. Once constructed, these nest locations should be protected from digging and compaction.



Our garden practice of mulching to conserve moisture and to prevent weeds, also prevents solitary bees from making their nest. Parts of your pollinator plot should be left without mulch.

Another nesting spot for other solitary bees is the pithy centre of old plant canes. The picture above shows a bee in its borrow in the centre of a cane. How easily these nests can be overlooked and how disastrous it could be for many pollinators when we clean up garden sites and discarding canes that may contain bees in their nests.

Nesting Boxes

One of the most popular and important native bees are the little mason bees. They are easy to house and do a fantastic job of pollinating fruit trees.

These little bees will nest in holes in wood or in hollow canes of plants. Artificial holes can be made by drilling into pieces of 2 by 4 or by bundling drinking straws or bamboo sticks together. Above are examples of nesting sites made for mason bees.

You will find many examples of mason bee nesting boxes on the Web -- some you can buy and some you can make.

To learn more about our native bees and their needs, visit the

Xerces Society (<http://www.xerces.org/>). This American group is dedicated to the preservation of native bees.

The Xerces Society's Pollinator Conservation Handbook is a good source of information for mason bee houses.

Once you have the itch for establishing mason bees and bee houses you may want to include one in your pollinator patch or in your backyard.

Mason bees are spring bees. When they hatch in early April or May, they will need a pollen source. Put their habitat near spring flowering fruit or berry trees.



Bees will nest in many places.

Appendices

Sources of Native Plants

Local Garden centres may carry some native plants. Before you buy, remember to ask if the plants/seeds are locally grown. Buy only those native plants certified by the seller as nursery propagated.

Acorus Restoration

#722 6th. Concession Road
R.R. #1
Walsingham, ON N0E 1X0
Phone: (519) 586-2603
Fax: (519) 586-2447
Email: info@ecologyart.com

Bluestar Nursery Ltd.

5056 Malden Rd.
Windsor, ON N9E 3T9
(519) 966-5673



Bee house, each log has holes drilled for bees.

Connon Nurseries Ltd.

Box 1218, 383 Dundas St. E.,
Waterdown, ON. L0R 2H0
P: (905) 689-4631
F: (905) 689-5481
sales@connon.ca
www.connon.ca
carries wide variety of Carolinian
Canada species

Grow Wild

Mail: 22 Birchcliff Ave. Box 12
Dunsford, ON K0M 1L0
4735 Durham/York 30
Claremont, ON L1Y 1A
Phone: (705) 793-3136
Cell: (416) 735-7490
By appointment only

Humber Nurseries Ltd.

8386 Hwy 50,
Brampton, ON. L6T 0A5
P: (905) 794-0555
(416) 798-8733 (Toronto)
F: (905) 794-1311
humber@gardencentre.com www.gardencentre.com

Keith Somers Trees Limited

Office: 10 Tillson Ave, Tillsonburg
(519) 842-5148
Farm Centre: Concession #8, off Elgin Rd.
44, Eden, ON
carries full range of native Carolinian Canada
species

Limestone Creek Restoration Nursery

RR 1, Campbellville, ON. L0P 1B0

P: (905) 854-2914

F: (905) 854-3363

Native Plant Nursery

Jeff Thompson, President

info@nativeplantsource.com

Tel (519) 748-2298

Fax (519) 748-2788

1098 Wurster Place, Breslau

318 Misty Crescent

Kitchener, ON N2B 3V5

Native Plant Source

Jeff Thompson, President

E-mail:info@nativeplantsource.com

Tel (519) 748-2298

Fax (519) 748-2788

Nursery Address:

1098 Wurster Place, Breslau

Mailing Address:

318 Misty Crescent

Kitchener, ON N2B 3V5

Nith River Native Plants

4265 Wilmot-Easthope Rd.,

New Hamburg, ON N3A 3S7

(519) 662-2529 or

Contact Graham Buck at

(519) 780-1816

buckgraham@hotmail.com

Ontario Tallgrass Prairie Nursery

PO Box 1168

Chatham, Ont. N7M 5L8

P: (519) 354-7340

Otter Valley Native Plants

Box 31, RR 1

Eden, Ont. N0J 1H0

P/F: (519) 866-5639



Bluestar Nursery

St. Williams Nursery and Ecology Centre

885 Hwy 24

P.O. Box 150

St. Williams, ON NOE 1P0

Phone: 519-586-9116

Toll Free: 1-866-640-TREE (1-866-640-8733)

Fax: 519-586-9118

Email: info@stwilliamsnursery.com

Sweet Grass Gardens

RR 6, 470 Second Line Rd,

6 Nations of the Grand River,

Hagersville, ON. N0A 1H0

P: (519) 445-4828

F: (519) 445-4826

info@sweetgrassgardens.com

www.sweetgrassgardens.com

Not So Hollow Farm

838369 4th Line E Mulmur Twp

Glencairn, ON L0M 1K0

fax:705-466-6341

ph: 705-466-6290

idpayne@enviroscape.on.ca

Native Plants You Might Use

Native Ontario Plant List*						
Name		Scientific Name	Growth Type		Bloom Period	
Common Name	Forb		Shrub	Early	Mid	Late
Beebalm		<i>Monarda didyma</i>	●			
Black-Eyed Susan		<i>Rudbeckia hirtae</i>	●		●	
Blue Gramma Grass		<i>Bouteloua gracilis</i>				●
Butterfly Weed		<i>Asclepias tuberosa</i>	●		●	
Canada Wild Rye Grass		<i>Elymus canadensis</i>				●
Chokecherry		<i>Prunus virginiana</i>		●		
Common Elderberry		<i>Sambucus canadensis</i>		●		
Cylindrical Blazing Star		<i>Liatris spicata</i>	●		●	
Early Goldenrod		<i>Solidago juncea</i>	●			●
Elderberry		<i>Sambucus racemosa</i>		●	●	●
False Sunflower		<i>Helopsis helianthoides</i>	●		●	
Golden Alexanders		<i>Zizia aurea</i>	●		●	
Greenheaded Coneflower		<i>Ratibida pinnata</i>	●		●	
Grey Goldenrod		<i>Solidago nemoralis</i>	●			●
Hoary Vervain		<i>Verbena stricta</i>	●			●
Little Bluestem		<i>Schizachyrium scoparium</i>				●
New England Aster		<i>Aster novae-angliae</i>	●			●
New Jersey Tea		<i>Ceanothus americanus</i>		●	●	
Pasque Flower		<i>Anemone patens</i>	●		●	
Purple Coneflower		<i>Echinacea palida</i>	●		●	
Serviceberry		<i>Amelanchier spp.</i>		●	●	
Wild Bergamot		<i>Monarda fistulosa</i>	●			●
Wild Columbine		<i>Aquilegia canadensis</i>	●		●	
Wild Strawberry		<i>Fragaria virginiana</i>	●		●	

* This list is not inclusive and is meant as a place to begin in your selection of native plants for your pollinator patch.

Photo Credits:

Cover: www.freefoto.com (ref: 9907-06-24), 2007, Ian Britton.

i -- Barrie pilot project, 2010, Carol Dunk

ii Virginia DOT

p.1 Red native plants, Virginia DOT

p.1 highway shot -- Scott Steeves (www.onthighways.com)

p.2 left, Male squash bee, Jim Crane, USDA-ARS

p.2 right, Robin Colville

p.3 left top, A female *Agapostemon texanus*, nicknamed the ultra-green bee for obvious reasons. These bees mainly appear in mid- and late summer, Robin Colville

p.3 mid left, *Osmia ribifloris* on barberry flower, Jack Dykinga, courtesy of Suzanne Batra, USDA ARS

p.3 right, bumblebee, Jason Sabler (www.inhabit.com)

p.4 upper, clear-wing moth, US Forest Service, T.G. Barnes

p.4 mid, blister beetle, US Forest Service

p.6 left, the Barrie, Ontario site, MG Dunk

p.6 right, soil for the site in Barrie, Ontario, MG Dunk

p.7 left, I-10 in California, Wikipedia, no source given

p.7 right, country road, unknown sources

p.8 MOT sign

p.10, from tinyfarmblog.com

p.11, soil for the patch, Barrie site, mgdunk, 2010

p.12, lo tech watering system, mgdunk, 2010

p.13, placing plants, Barrie, mgdunk, 2010

p.16, mulch applied, Barrie, mgdunk, 2010

p.17, burrowing bee, Nancy Adamson

p.17, burrows, Eric Mader, Xerces Society

p.18 top left, bamboo bee abode, Stan Breeze

p.18 right, bee in plant cane, Anna D. Howell

p.18 right, bee house, Duncraft website

p.19, Northern Woodland, Marc Carlton

p.20, Bluestar Nursery, Windsor, Ontario



Bumblebees “buzz” pollinate tomatoes, photo from Gipaanda Greenhouses, BC.



Close up of bee house. For precise instructions visit www.foxcleas.com, photo by Marc Carlton

You Can Make A Difference

There is a story of a father and his small son walking along a beach. It happened that on that very day a batch of sea turtles were hatching.

As the hatchlings emerged and began their run to the sea, seagulls swooped and picked them off in great numbers.

The little boy bent, picked up one small turtle and walked with it to the surf. He gently placed the tiny turtle into the sea.

When he returned to his father's side, his father said, "That won't make a difference to anything."

The little fellow nodded toward the surf and said, "It made a difference to him."

Your one little pollinator patch won't change the world, but it will make a difference to one area of that world.

Make that difference.

A Project of
The Ontario Horticultural Association
Conservation & Environment Committee

Keeping Ontario Beautiful_{tm}