

Project Swallowtail

PLANT AND BUTTERFLY GUIDE

May 2021 Edition





Author:

Kathleen Law, Pollinator Partnership Canada

www.pollinatorpartnership.ca

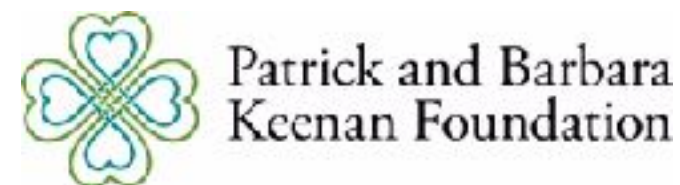
Contributors:

Lorraine Johnson

Dr. Clement Kent

Ryan Godfrey, WWF-Canada

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Project Swallowtail: Plant and Butterfly Guide © Pollinator Partnership Canada 2021

Project Swallowtail is a collaborative effort that involves residents, neighbourhoods and community groups as well as a variety of individuals and organizations including Pollinator Partnership Canada, WWF-Canada, the Horticultural Societies of Parkdale and Toronto, the David Suzuki Foundation, the High Park Stewards, Birds Canada, the North American Native Plant Society and Ecoman; and continued expert advice and support from Pete Ewins, Lorraine Johnson and Colleen Cirillo.

Cover photo: Eastern black swallowtail, @thegreenjay (iNaturalist, CC BY-NC)

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Hop tree (Ptelea trifoliata) host plant to the giant swallowtail.
Photo: Steve Janda, iNaturalist (CC BY-NC)

GROWING TOGETHER

Just over a year ago, a small group of like-hearted west Torontonians launched a network of habitat gardeners, re-wilders, ecologists and urban placemakers - and then a global pandemic swept through our city and around the world. Our dreams of garden tours, bee safaris, and street parties were replaced with social distancing and Zoom webinars, yet the spark of connection at the root of our community managed to push through these challenges like a dandelion through cement. I am filled with gratitude for the many relationships that are growing out of this community and that have already led to meaningful changes, for us humans and all other beings with whom we share this land. Project Swallowtail has been a source of purpose and renewal in the midst of hardship because of your willingness to show up and participate. Thank you!

As we start our second year, I'd like to express my heartfelt gratitude to the dozens of Block Ambassadors who are



Community organizer Angel Beyde at the Parkdale People and Pollinators Peace Garden, in honour of Black Lives Matter, during a Project Swallowtail and Parkdale Green Thumbs Enterprise plant giveaway, September 2020.



finding creative ways to engage friends and neighbours in local initiatives while respecting public health guidelines. From sidewalk plant giveaways, to pollinator art projects, to growing native plants from seed with seniors in long-term care (remotely!), there is no limit to the inventive ways you are helping re-wild our city and nourish our social bonds.

Often working behind the scenes are the many members of the steering committee, listed on the next page, whose contributions are as diverse as they are invaluable. Thank you for your time, your knowledge and your wisdom.

In the following pages, you can learn more about the vision behind Project Swallowtail, as well as our namesake butterfly group and their host plants. And of course, you will find all the information you need on the plant kits for sale this year on page 22 !

Happy planting!

- Kathleen Law,
Pollinator Partnership Canada



Photos: Block Ambassador Jill Oxner's sidewalk plant giveaway; wild strawberries.

Meet the steering committee

Working behind the scenes – and in front of webinar audiences and in the DIY plant nursery – is an incredible group of people who share an enormous amount of knowledge, time and expertise to make Project Swallowtail possible:

Annemarie Baynton, *City of Toronto*

Colleen Cirillo

Pete Ewins

Ryan Godfrey, *WWF-Canada*

Andrés Jiménez, *Birds Canada*

Lorraine Johnson

Clement Kent, *Horticultural Societies of Parkdale and Toronto*

Junaid Khan, *Pollinator Partnership Canada*

Patricia Landry, *City of Toronto*

Kathleen Law, *Pollinator Partnership Canada*

Sharon Lovett, *High Park Nature Stewards*

Jode Roberts, *David Suzuki Foundation*

PROJECT SWALLOWTAIL IS

- a community of over 600 Torontonians
- including two dozen community groups and schools
- spearheaded by 75 Block Ambassadors (aka awesome volunteers)
- and supported by a group of knowledgeable individuals and organizations (aka the steering committee)

Neighbours United for Nature

PROJECT SWALLOWTAIL

*"Nature is not a place to
visit. It is home."*

—Gary Snyder

In human-dominated landscapes across Canada and the world, many wildlife species are in decline or at risk of extinction because of habitat loss. The best way to reverse this is through ecological restoration – the process of re-introducing not only species to a landscape, but also, through their interactions, the ecological phenomena that sustain ecosystems: photosynthesis, plant and animal reproduction, water filtration, and soil creation, to list just a few. These processes are the building blocks of life.

By participating in Project Swallowtail, you are practicing a basic principle of ecological restoration: the re-introduction of native plant species. You are also doing so in a novel and innovative way: by restoring nature in the city (the urban ecosystem). Planting native plants is also a nature-based solution to mitigate climate change: it draws carbon out of the atmosphere (as all plants do) but also makes our landscape more resilient to extreme weather, drought, and flooding while simultaneously building habitat for wildlife, including pollinators.

Ecological restoration is usually applied to natural landscapes like tallgrass prairies, or to places that have been degraded because of resource development, like tar sands, mines and former agricultural lands. But the time is long past when we think of humans and nature as separate, or of national parks as the only reserves of biodiversity. The dual environmental crises of the 21st century – climate change and biodiversity loss – require re-imagining our place in nature, and nature's place in the city.

Connecting neighbours

Project Swallowtail is an invitation to action and to connection: connection with nature and connection with each other. We are citizens, community groups, non-profits and government agencies working together to restore nature in the city, from private garden to community garden, from balcony to sidewalk median, and from street to street. We are showing how communities can fight the dual crises of biodiversity loss and climate change through collaboration.

Connecting habitat

West Toronto was chosen as the original the project area because ecological connectivity is at the core of our strategy: High Park, the Lakeshore trails, the West Toronto Railpath and the many city parks are already significant habitat. By planting native plants in our gardens, we are helping connect these important habitat hot spots to each other.

In 2021, we are growing! Visit the website to find out about our new hubs across the city.



The birds and the bees and the swallowtails

“Why swallowtail butterflies?” you might ask. Aside from the fact that they are a diverse, beautiful and fascinating group of butterflies, swallowtails rely on a large variety of host plants for their caterpillars as well as nectar-producing plants to feed on as adult butterflies. Host plants and nectar plants also provide food and shelter to countless other species of bees, butterflies, moths, flies, and birds. For example, swallowtails are attracted to the nectar of milkweed plants, which are the host plants of another iconic butterfly, the monarch. The shrubs in the willow family (*Salix* spp.), which are a host plant to the Canadian tiger swallowtail, are one of the most important early-spring sources of pollen for bees. And in the fall, the spicebush that earlier hosted the caterpillar of its namesake butterfly produces berries on which migrating birds feast. In other words, to plant for swallowtails is to plant for an entire ecosystem.

How to use this guide

This guide is meant as an introduction to the swallowtail butterfly species present in and near Toronto, and as a reference for the plants that are available through our spring sale. To learn about the plant species available in May 2021, turn to page 22.

This resource is also meant to be a starting point for project participants in what we hope will be an ongoing exploration of the natural world right here in our gardens. On page 30 you will find a list of other resources to consult as you plan your garden and become more familiar with the wildlife that visit it.

Useful terms

- **Adult**

The butterfly is the adult form and the last of four life stages in a butterfly's life cycle.

- **Carolinian Zone**

An ecozone in Eastern North America characterized by deciduous forest, spanning from the Carolinas north to southern Ontario. It has the highest biodiversity and the largest number of Species At Risk found anywhere in Canada. Toronto is the northeastern most point of the Carolinian Zone.

- **Chrysalis**

The chrysalis is the third life stage in a butterfly's life where it undergoes metamorphosis from caterpillar (second stage) to butterfly (fourth stage). The chrysalis stage is also known as the pupa and colloquially referred to as a cocoon.

- **Community science**

Research conducted, in whole or in part, by amateur scientists. Often involves collecting observation data through the use of apps like iNaturalist and eButterfly.

- **Egg**

The first life stage in the butterfly life cycle. Butterflies begin life as an egg, deposited on a host plant by an adult female butterfly.

- **Habitat**

The natural home or environment for an animal, plant or other organism that provides all the elements required to live and grow, including food and shelter.

- **Host plant**

A species or group of plants upon which the caterpillars of specific butterfly species rely for food. These are usually close and stable evolutionary relationships. For example, pipevine swallowtail caterpillars can safely consume the leaves of Dutchman's pipe vine, which are toxic to other species, and this renders the pipevine swallowtail butterfly toxic to potential predators.

- **Larvae**

Also known as the caterpillar, this is the second life stage in the butterfly life cycle, between egg and pupa.

- **Life cycle**

The series of changes in the life of an organism, including reproduction. There are four stages in the butterfly life cycle.

- **Mimicry**

A resemblance between two or more non-closely related organisms. This relationship confers an advantage. For example, the spicebush swallowtail mimics the pipevine swallowtail, which is toxic, to ward off predators, even though the spicebush swallowtail itself is not toxic.

- **Native plant**

Plants that occur naturally in an area in which they evolved. In Canada, the term usually refers to plants that were present before European colonization; or plants that have evolved here since the last glacial period (~12,000 years ago). They are therefore adapted to local environments and have co-evolved with other native species.

- **Nectar**

A sugar-rich liquid produced by many flowering plants to attract pollinators, which is a part of a mutualist relationship (mutually beneficial).

- **Overwinter**

Live through the winter. All the swallowtails present in Ontario overwinter in the chrysalis stage (as pupa).

- **Pupa**

The third stage in the butterfly life cycle, also known as the chrysalis, in between the caterpillar and butterfly stages (between larvae and adult stages).

THE SWALLOWTAILS

There are eight species of swallowtail butterflies present in Ontario. The most common ones are the eastern tiger, the Canadian tiger, and the black swallowtail. One of the reasons why you are more likely to see them here in west Toronto is that their host plants – the plants their caterpillars rely on – are relatively common. The pipevine, spicebush, giant and zebra swallowtails, on the other hand, all rely on host plants that are less common and in some cases, even rare. These host plants are mainly associated with the Carolinian Zone, an ecozone that stretches from the Carolinas into southern Ontario, with Toronto at its northeastern most tip. The old world swallowtail, the eighth species, is only found in northern Ontario, in clearings in the boreal forest.

photo: eastern tiger swallowtail on thistle - Vicki DeLoach





Eastern tiger and Canadian tiger swallowtails

Papilio glaucous and *Papilio canadensis*

Host Plants:

Canadian: ashes, willows, poplars, cherries

Eastern: tulip tree, hop tree, cherries, ashes



The eastern tiger and Canadian tiger swallowtail species appear very similar and can be difficult to tell apart – especially in flight! To add to the identification challenge, these two species can mate with each other and create hybrid descendants. One differentiating characteristic is that the eastern tiger swallowtail is larger than the Canadian tiger.

photos: top - eastern tiger swallowtail - Vicki DeLoach; bottom - Canadian tiger swallowtail- Kent McFarland

The eastern tiger swallowtail is mainly associated with the Carolinian Zone (southwestern Ontario, including Toronto at its northeastern most end), though it can be found anywhere south of the boreal shield. The Canadian tiger swallowtail is present across most of the province, including in the boreal shield, though it is not found in the Carolinian Zone (southwest from the Bruce Peninsula to Hamilton) and has been less frequently sighted in Toronto in the last few years than in the past.

While the Canadian tiger swallowtail has only one generation per year, the eastern Tiger has two overlapping generations. They both overwinter in the chrysalis stage.



photos: top - eastern tiger swallowtail caterpillar - Judy Gallagher; bottom left - tulip tree flower - JR P.; Bottom right - wild cherry tree (Prunus serotina) fall foliage - Sandra Richard.



Pipevine swallowtail

Battus philenor

Host Plant:

Pipevine



Pipevine swallowtails is a Carolinian species and has been increasingly spotted in Toronto. Though not all that common in the city, a resident population survives on Toronto Island where pipevine (also know as Dutchman's pipe), its host plant, persists. Though this plant is not quite native to Ontario, it can be considered a 'near-native' and was very popular in Toronto gardens in the early 20th century as a 'green screen' around porches.

photos: pipevine swallowtail butterfly - John Flannery; pipevine swallowtail caterpillar - Dann Thombs

Pipevine contains the poisonous chemical aristolochic acid. Pipevine swallowtail caterpillars have the amazing capacity to use this poison to make their own bodies toxic to predators. Through evolution, spicebush swallowtails and the female forms of the black and eastern tiger swallowtails have taken advantage of this by mimicking the pipevine swallowtail's colouring. They are said to be part of a mimicry ring.



photos: Top - Evan Raskin iNaturalist CC BY; bottom left - Sean McDonough iNaturalist (CC BY-NC); bottom right Judy Gallagher iNaturalist CC BY



Zebra swallowtail

Eurytides marcellus

Host Plant:

Pawpaw tree

This butterfly is a unique visitor to Ontario, and a rare one too. A Carolinian species associated with grasslands and savannah, two ecosystems that are now very rare in Ontario, its host plant is also an uncommon Carolinian species: the pawpaw tree. Historically, it was likely a resident breeder before its habitat was fragmented by development during the 20th century.

Pawpaw trees need pollen from a genetically different tree to set fruit. Their carrion-like flowers attract beetle and fly pollinators, instead of bees.

Hint: team up with a neighbour (or even better, two neighbours) to each plant a pawpaw tree and enjoy Ontario's most tropical fruit!

photos: zebra swallowtail butterfly - Judy Gallagher; zebra swallowtail caterpillar - tillandsiausneoides; pawpaw fruit - Anna Hesser



Black swallowtail

Papilio polyxenes

Host Plants:

Golden Alexanders, yellow pimpernel and non-native species in the carrot family such as parsley, dill, celery



Black swallowtails are a common species that can be found as far south as South America! In addition to the native flowering golden Alexanders (*Zizia aurea*) and yellow pimpernel (*Taenidia integerrima*), its caterpillars also feed on plants in the carrot family, which includes parsley, dill, celery, Queen Anne's lace, and carrots.

This species produces two generations per year.

photos: black swallowtail butterfly - Peter Chen (iNaturalist CC BY) and caterpillar - Vicki DeLoach



Giant swallowtail

Papilio cresphontes

Host Plants:

Hop tree and prickly ash

As its name suggests, the giant swallowtail is the largest butterfly in Ontario. Note how it's mostly black on top and mostly yellow underneath. At a distance and flying above you, it is easily mistaken for an eastern tiger swallowtail. This species has two or three generations per year.

In Ontario, the caterpillars rely on two Carolinian species as host plants: the common prickly ash (*Zanthoxylum americanum*) and the provincially rare hop tree (*Ptelea trifoliata*). In Florida and Mexico, where it is abundant, it feeds on citrus crops and is considered a pest.

photos: top - giant swallowtail butterfly - Lollie Dot Com; bottom - giant swallowtail - Rodney Campbell

Perhaps the most astounding aspect of this species is the caterpillar stage. At first, the caterpillar looks like bird droppings (a type of mimicry), but once it feels threatened, it reveals a part of its body called the osmeterium, which is meant to look like the forked tongue of a snake. That's two mimicries in one!



photos: top - giant swallowtail caterpillar - Elaine; bottom left - hop tree - Nicholas Turland; bottom right - prickly ash flowers - USGS Bee Inventory



Spicebush swallowtail

Papilio troilus

Host Plant:

spicebush, sassafras and tulip tree

The spicebush swallowtail, just like its host plants, is a Carolinian species. It is usually found in forest clearings and along forest edges where spicebush and sassafras shrubs are part of the understory.

Spicebush gets its name from the wonderful smell of its leaves, which can be used to make a fragrant tea. As if that weren't enough, it also blooms early in spring, produces bright red berries that attract birds and has beautiful fall foliage.

Hint: Spicebush shrubs are either male or female, so plant two or three (or team up with a neighbour) to ensure pollination!

And look at that caterpillar!



photos: spicebush swallowtail butterfly - Dianne Frost; spicebush swallowtail caterpillar - Pollination Guelph; spicebush shrub in bloom - Dan Keck



photo: CC courtesy Alvesgaspar (Wikipedia)

May 2021 Plant Kits

The four tables on the following pages list the plants made available through the Project Swallowtail May 2021 plant sale. The species were chosen for their adaptability. The moisture and soil conditions listed in the table therefore indicate either ideal conditions for that species, or their ability to tolerate certain extremes (such as deep shade or dry soil).

- full sun
- ◐ part sun/part shade
- full shade
- ☪ tolerates dry conditions
- 💧 prefers moist/wet soil



attracts bees



host plant for moth and/or butterfly



























attracts hummingbirds

SUN small kit (ground or container)

\$9 for 7 plants

Plant these directly in the ground or in a container (min. 35cm deep by 35 cm wide) in a sunny to part-sun spot. This kit contains three different herbaceous (flower) species (2 of each) and one grass. Please note we cannot confirm which of the following species your kit will contain.

		NAME	LATIN NAME	LIGHT	MOISTURE	SOIL	HEIGHT (cm)	BLOOM PERIOD	BLOOM COLOUR	SWALLOW-TAIL HOST	OTHER WILDLIFE	SPECIAL NOTES
One of these species (x2)		Prairie smoke	<i>Geum triflorum</i>	○-◐	ψ	poor	15-45	May-July	pink/purple			seed pods are ornamental feature
		Wild strawberry	<i>Fragaria virginiana</i>	○-◐	ψ	poor	15	Apr-May	white		 	delicious fruit; ground cover
+												
One of these species (x2)		Hairy beardtongue	<i>Penstemon hirsutus</i>	○	ψ	poor	45	May-June	blue, white			
		Wild columbine	<i>Aquilegia canadensis</i>	◐	ψ	average	30-90	May-June	Yellow and red			
		Harebell	<i>Campanula rotundifolia</i>	○-◐	ψ	average	15-45	June-Oct	blue			
		Swamp milkweed	<i>Asclepias incarnata</i>	○	ψ - 💧	average	100-160	July-Aug	pink, red, white		 	monarch host, fragrant
		Nodding onion	<i>Allium cernuum</i>	○	ψ - 💧	average	15-45	Jun-Aug	white, pink		 	
+												
One of these species (x2)		Grey goldenrod	<i>Solidago nemoralis</i>	○	ψ	average	15-60	Aug-Oct	yellow		 	
		New England aster	<i>Symphyotrichum novae-angliae</i>	○-◐		average	100-200	Aug-Oct	blue/purple		 	
+												
One of this species		Little bluestem	<i>Schizachyrium scoparium</i>	○	ψ	average	100-150					nesting material (grass)

SUN large kit (ground)










\$12 for 10 plants

Plant these directly in the ground in a sunny or part-sun. This kit contains four different herbaceous (flower) species (2 or 3 of each) and one grass. Please note we cannot confirm which of the following species your kit will contain.

		NAME	LATIN NAME	LIGHT	MOISTUR E	SOIL	HEIGHT (cm)	BLOOM PERIOD	BLOOM COLOUR	SWALLOW- TAIL HOST	OTHER WILDLIFE	SPECIAL NOTES
One of these species (x2)		Golden alexanders	<i>Zizia aurea</i>	○-◐		average	50-90	May-June	Yellow		 	
		Yellow pimpernel	<i>Taenidia integerrima</i>	◐	♂	poor	90-150	May-July	Yellow		 	
+												
x3		Meadow sundrops	<i>Oenothera pilosella</i>	○-◐	♂	average	15-35	May-June	Yellow		 	
+												
x2		Dense blazing star	<i>Liatris spicata</i>	○		average	60-180	July-Aug	Purple pink		 	
+												
x2		Heath aster	<i>Symphotrichum ericoides</i>	○-◐	♂	average	25-100	Aug-Oct	White		 	
+												
x1		Sideoats gramma	<i>Bouteloua curtipendula</i>	○	♂	well- drained	25-100					nesting material (grass)

SHADE small kit (ground or container)

Plant these directly in the ground or in containers (min. 35cm deep by 35 cm wide) in a part-shade spot. This kit contains four different herbaceous (flower) species.

		NAME	LATIN NAME	LIGHT	MOISTURE	SOIL	HEIGHT (cm)	BLOOM PERIOD	BLOOM COLOUR	SWALLOW -TAIL HOST	OTHER WILDLIFE	SPECIAL NOTES
x2		Wild strawberry	<i>Fragaria virginiana</i>	○-◐	☯	poor	15	Apr-May	white		 	delicious fruit; ground cover
+												
x1		Wild columbine	<i>Aquilegia canadensis</i>	◐	☯	average	30-90	May-June	yellow and red			
+												
x2		Wild bergamot	<i>Monarda fistulas</i>	◐	☯	average	50-120	June-Aug	light purple			Can be used as an aromatic herb
+												
x2		Zig-zag goldenrod	<i>Solidago flexicaulis</i>	◐-●	☯	average	30-90	July-Sep	yellow			

Legend:

○

full sun

◐

part sun/part shade

●


full shade

☯


tolerates dry conditions

☹


prefers moist/wet soil



attracts bees



host plant for moth and/or butterfly
















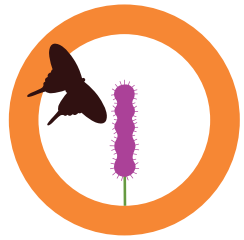
attracts hummingbirds

SHADE large kit (ground)

\$12 for 10 plants

Plant these directly in the ground in a part-shade spot in the ground. This kit contains four different herbaceous (flower) species (2 or 3 of each) and one sedge.

		NAME	LATIN NAME	LIGHT	MOISTURE	SOIL	HEIGHT (cm)	BLOOM PERIOD	BLOOM COLOUR	SWALLOW-TAIL HOST	OTHER WILDLIFE	SPECIAL NOTES
x2		Common blue violet	<i>Viola sororia</i>	☾		average	7-20	April-May	Blue or white		 	
+												
x2		Wild columbine	<i>Aquilegia canadensis</i>	☾	☪	average	30-90	May-June	Yellow and red			
+												
x2		Joe-pye weed	<i>Eupatorium maculatum</i>	☾	💧	average	120-180	July-Sept	Pink		 	
+												
x3		Large-leaved aster	<i>Eurybia macrophylla</i>	☾-●		average	25-125	July-Oct	White		 	
+												
One of these species		Plantain-leaved Sedge	<i>Carex plantaginea</i>	☾		well-drained	30-50	May-June				Birds feed on seed
		Graceful sedge	<i>Carex gracillima</i>	☾-●	💧	average	25-100	May-June				



PROJECT
SWALLOWTAIL
#SwallowtailTO

May 2021 Plant Kits

Project Swallowtail partnered with three Ontario native plant nurseries to bring you the 2021 spring plant kits.

Grow Wild!

Omeme, Ontario • www.nativeplantnursery.ca

Grow Wild Native Plant Nursery and Ecological Consulting specializes in contract growing of native plants for ecological restoration projects and for private and public native plant gardens. Owner Paul Heydon and his staff have been working for more than fifteen years on flora and fauna surveys, species at risk research, ecological restoration and ELC surveying for municipal, provincial and federal government agencies and public and private organizations. As knowledgeable and experienced presenters, Paul and his staff are available for educational presentations on biological, ecological and environmental issues.

Kayanase

Ohswegen, Ontario • www.kayanase.ca

Kayanase is an ecological restoration and native plant and seed business, dedicated to improving the health of Mother Earth using science-based approaches and Traditional Ecological Knowledge. It was established through Grand River Employment and Training Inc. (GRET), a community based non-profit organization that has been recognized by the Six Nations of the Grand River community, Six Nations Elected Council, and the Confederacy Council. They work closely with their clients to create ecologically sustainable landscapes and to foster environmental awareness. Above all is the belief that the work they do will benefit Mother Earth as a whole, enriching the lives of the people, plants, and animals that depend on Her.

Native Plants in Claremont

Pickering (Claremont), Ontario • www.nativeplants.ca

Native Plants in Claremont is a nursery devoted to increasing awareness and restoration of Ontario's native plants and their habitats, to growing a diversity of quality native plants and to providing an enhanced retail experience for their customers. Proprietor Karen Abrahams and husband Rob operate the nursery with knowledgeable employees and share the love of Ontario's natural areas and native flora with native plant gardeners across the Greater Toronto Area. NPC specializes in seed grown native perennial wildflowers, grasses and shrubs. They harvest seed locally and sustainably, work to establish their own stock based on distinct populations, and always search for new sites to prevent inadvertent selection within their plant stock. They supply plants to conservation organizations, wholesale customers such as landscapers and nurseries, and to the public for their home gardens.

In the Zone Gardens

Grow Canada's biggest wildlife garden!

Project Swallowtail in west Toronto is found within the larger Carolinian Zone of southern Ontario. This area is unique, with more species of rare plants and animals than anywhere else in Canada; not only is it home to one-third of Canada's at-risk plants and animals, but also to a quarter of our human population. Since 2017, over 5,000 gardeners have been growing over 61,000 native plants on nearly 28,000 ha of land in the Carolinian Zone through a program called In the Zone: Gardens that help native species thrive – a joint program of WWF-Canada and Carolinian Canada. Through Project Swallowtail, In the Zone invites you to make your garden and other green spaces part of the solution to restoring lost habitat and creating a healthy, resilient landscape by using native plants.

The population in the Carolinian Zone is projected to grow significantly, and this will impact nature and the health of wildlife. And since over 95 per cent of the land in this region is privately owned, homeowners and other land managers can have a significant effect on habitat

restoration. But everyone can contribute to helping grow Canada's biggest wildlife garden. In Toronto, whether your garden is in the backyard, or on a rooftop, boulevard or balcony, every plant counts towards establishing healthy habitats and green corridors for wildlife.

Join us and discover tools, resources and special events designed to help you grow valuable habitat; see how the changes you make in your garden contribute to a wider, regional effort for healthy landscapes where both wildlife and people thrive. Count yourself in!



photo: In the Zone Gardens booth at a community event in Toronto

Community Science

Add your Project Swallowtail observations to the iNaturalist app

Community science is the practice of public participation in scientific research. Community science allows the public to collect data and contribute to databases that can be used by scientists and researchers to further knowledge.

You, too, can be a citizen scientist by joining Project Swallowtail on iNaturalist. Simply download the app on your smart phone, create an account and join 'Project Swallowtail'. Upload a photo to the app as an "observation" and a species identification will be automatically suggested, which is then vetted by dedicated volunteers.

But there's a lot more to community science than identifying species!

By recording your observations of the plants and animals (butterflies included) that you observe in your garden and on your Project Swallowtail plantings, you'll be helping monitor and measure the success of the project.

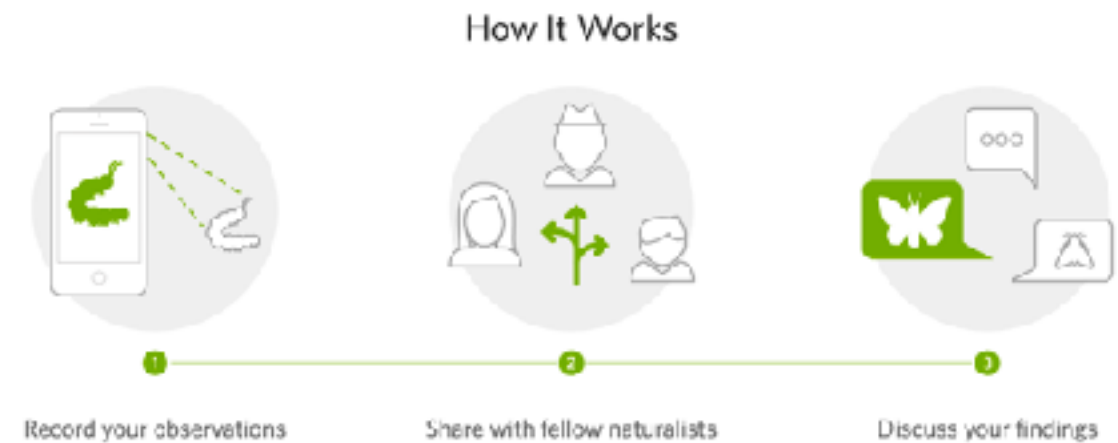
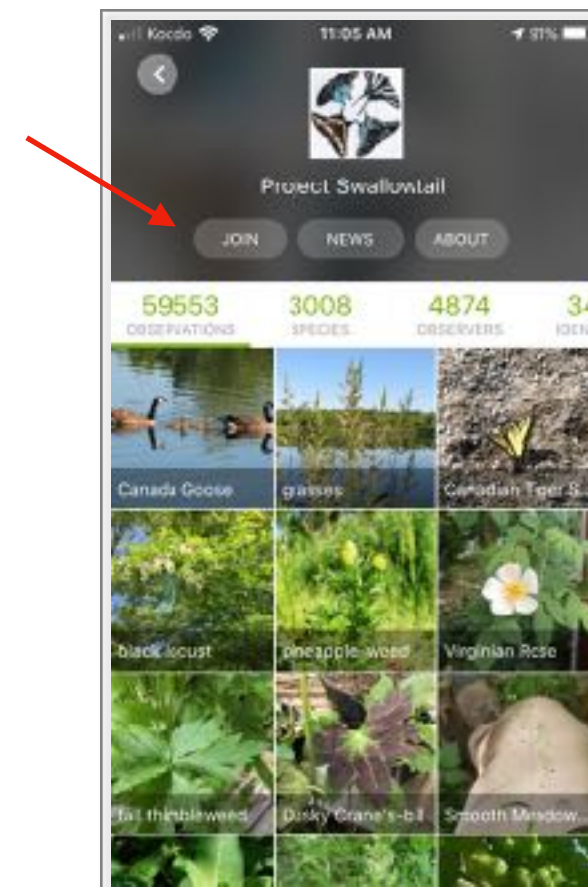
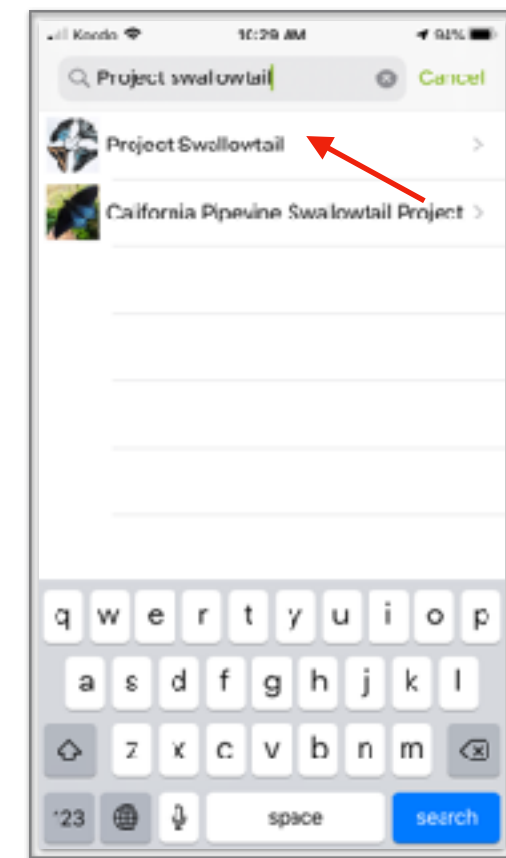
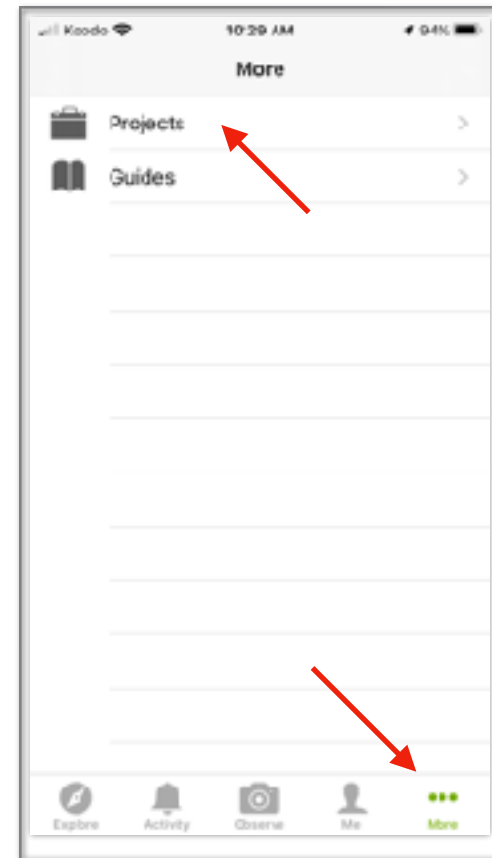


image top: iNaturalist; photo: west Toronto urban pollinator habitat - Kathleen Law.

You will be helping answer questions such as how many host plants of a given species are needed before we see an increase in their population numbers? What distance between host plants is necessary to support a given butterfly species' population increase? And many more...

Instructions

1. After downloading the app and creating an account, tap on the bottom right 'More' icon, then select 'Projects'.
2. Type in 'Project Swallowtail' and choose the top one in the image to the right (the four swallowtails image)
3. Tap 'Join' and start recording your observations!



Explore

iNaturalist gives you a map of any species' sightings. For example, we searched "pipevine swallowtail" to see all the spots where it's been observed. A sidebar shows the most recent sightings. Zooming in on Ontario, it was seen in Kitchener in August of 2019. If you search giant swallowtail, you'll see many observations. As of June 19, 2020, there were six in west Toronto - with your help, there will be 60 or 600 in a year or two.

Additional Resources

Online

Project Swallowtail website and registration

www.projectswallowtail.ca

Pollinator Partnership Canada Ecoregional Guide

Lake Erie Lowlands

<https://pollinatorpartnership.ca/assets/generalFiles/LakeErieLowlands.2017.pdf>

In the Zone Gardens

<https://inthezonegardens.ca/>

Books

Hall, Peter W. et al. (2014), ***The ROM Field Guide to Butterflies of Ontario***, The Royal Ontario Museum, Toronto

Johnson, Lorraine (2017), ***100 Easy-to-Grow Native Plants for Canadian Gardens***, Douglas & McIntyre, Toronto

Johson, Lorraine and Sheila Colla (2020), ***A Flower Patch for the Rusty-Patched Bumblebee: Creating Habitat Gardens for Native Pollinators in the Greater Toronto Area***, Friends of the Earth Canada
(available for free download at foecanada.org/bee-garden-guide)