

Periwinkle

(*Vinca minor*, *V. major*)

Best Management Practices in Ontario



Foreword

This Best Management Practices (BMP) document provides guidance for managing invasive lesser periwinkle (*Vinca minor*) and greater periwinkle (*V. major*) or in French, petite pervenche and grand pervenche, respectively, in Ontario. Funding and leadership to produce this document was provided by the City of Toronto. This BMP was developed by the Ontario Invasive Plant Council (OIPC) and its partners to facilitate invasive plant control initiatives by individuals and organizations concerned with the protection of biodiversity, wildlife habitat, agricultural lands, infrastructure, crops and species at risk in Ontario. This document also supports and advances the management of invasive species identified as a priority by the City of Toronto's Ravine Strategy and Biodiversity Strategy.

The intent of this document is to relay specific information relating to invasive plant control practices that leading professionals across Ontario have recommended. This document contains the most up-to-date, effective, and environmentally safe control practices known from research, experience, and literature available at this time. It complies with current provincial and federal legislation regarding pesticide usage, habitat disturbance, and species at risk protection. It is subject to change as legislation is updated, or new research findings emerge. The information provided in this BMP is not to be considered legal advice. Interested parties are advised to refer to the applicable legislation to address specific circumstances.

Check the website of the OIPC (www.ontarioinvasiveplants.ca) for updates.

Mitchell, Emily and Simkovic, Vicki. 2025. Periwinkle (*Vinca minor*, *V. major*): Best Management Practices in Ontario. Ontario Invasive Plant Council, ON.

Edition 1.0 - October 2025

Support for the production and publication of this document was provided by: The City of Toronto.

Inquiries regarding this document can be directed to the **Ontario Invasive Plant Council (OIPC)**

Email: info@oninvasives.ca

The City of Toronto provided support for the production and publication of this document.

Inquiries regarding this document can be directed to the:

Email: info@oninvasives.ca

For more information on invasive plants in Ontario, please visit the following websites:

www.ontarioinvasiveplants.ca, www.ontario.ca/page/invasive-species-ontario, www.invadingspecies.com,
or www.invasivespeciescentre.ca



Periwinkle.

Photo courtesy of: Karen MacDonald, Toronto and Region Conservation Authority.

Table of Contents

Foreword.....	i
Introduction.....	1
Description.....	3
Lookalikes.....	5
Biology and Life Cycle.....	8
Habitat.....	10
Impacts.....	12
Applicable Legislation.....	14
Invasive Management Planning	17
Management Considerations	17
Mapping.....	17
Setting Priorities.....	18
Long-term Management and Monitoring	20
Control Measures	21
Manual	22
Mechanical	23
Cultural	23
Chemical.....	24
Biological	26
Disposal.....	27
Restoration	28
Preventing the Spread	29
Tracking the Spread (Outreach, Monitoring, Mapping).....	30
Additional Resources	31
Best Management Practices Document Series	31
Technical Bulletin Series from the OIPC.....	31
Additional Publications from the Ontario Invasive Plant Council	32
References.....	33



Periwinkle growing in the forest understory.

Photo courtesy of: Karen MacDonald, Toronto and Region Conservation Authority.

Introduction

Note: In this document, “periwinkles” or “periwinkle” refers collectively to the two species of periwinkle found in Ontario.

Periwinkles (*Vinca* spp.) are perennial, evergreen, herbaceous plants in the dogbane (Apocynaceae) family. In Ontario, there are two recognized species: lesser periwinkle (*V. minor*) and greater periwinkle (*V. major*). Petite pervenche and grand pervenche, respectively, are the two French common names. Since lesser periwinkle is the more common species found, it will be the focus of this document. However, much of the information and recommended control measures will apply to both species. The genus name “*Vinca*” is derived from the Latin word “*vincire*” which means to bind or wind around (Missouri Botanical Garden n.d.). Lesser periwinkle (*V. minor*) is also known as common periwinkle or running myrtle. The word “minor” means small, referring to the size of its leaves and flowers in relation to greater periwinkle or big-leaved periwinkle (*V. major*) (Stone 2009; DiTomaso et al. 2013).

Periwinkles are native to Eurasia, the Mediterranean and northern Africa. They were introduced to North America in the 1700s as fast-growing, ornamental groundcovers (Wells and Brown 2000; Darcy and Burkart 2002; DiTomaso et al. 2013). There are numerous cultivars of periwinkle (both *V. minor* and *V. major*) available that differ in flower and leaf colour or resistance to disease (Landon and Banko 2005; Niemiera 2018). Periwinkles are among the most commonly grown groundcover plants in the United States, with significant wholesale value in the horticultural industry (Burlakoti and Poudyal 2024; Perdue 2020). Their popularity among gardeners is attributed to their low maintenance requirements, fast growth rate and tolerance to a wide range of environmental conditions. Periwinkles are favored by landscapers as they are able to grow in urban landscapes where nothing else will grow, and as they can prevent soil erosion on steep slopes (Beaulieu 2022; Burlakoti and Poudyal 2024). Since their original introduction to North America, periwinkles have spread to natural environments from both intentional planting in gardens and improper disposal of garden waste into natural areas (Stone 2009). Lesser periwinkle is widely distributed throughout the United States, occurring in almost every state, and is found in six Canadian provinces (British Columbia, Ontario, New Brunswick, Quebec, Nova Scotia and Prince Edward Island).

Periwinkles have several traits that contribute to their success as invaders. They form very dense and persistent mats of vegetation, thrive in a wide range of habitat types and alter soil chemistry (Darcy and Burkhart 2002; Stone 2009; Derickx and Antunes 2013). They spread from belowground and aboveground runners that can root at the node (where the leaf attaches) and form new plants (Stone 2009; Cushman and Gaffney 2010). This vegetative growth habit allows periwinkle to produce twining shoots in all directions, contributing to the formation of dense mats (Derickx and Antunes 2013). Periwinkles have high shade tolerance, the ability to thrive in many soil types, and have a longer growing season compared to native plants. They can spread into closed canopy forests and outcompete native understory plants (Stone 2009). Periwinkle infestations have been linked with lower plant biodiversity (Darcy and Burkhart 2002; Cushman and Gaffney 2010), fluctuations in soil calcium and sulphur concentrations (Kahri 2004), and changes to the physical structure of litter and the soil microhabitat (Bultman and DeWitt 2008). There is also some evidence that periwinkles displace native plants through allelopathy (Darcy and Burkhart 2002; Panasenko and Anishchenko 2018). In addition, periwinkles are secondary hosts to several agricultural pests and diseases including black root rot (*Berkeleyomyces basicola*), crown gall (*Rhizobium radiobacter*) and gall (*R. rhizogenes*) (CABI 2019).

Despite the negative impacts of these invasive plants, there is currently no ban on the sale of periwinkle in Canada. This document was developed to help guide the effective and consistent management of invasive periwinkle populations across Ontario.

Description

Size and Stem:

Periwinkles are low-growing, evergreen, herbaceous plants that can grow between 7 – 15 cm tall. Mats of periwinkle vary widely in size and individual stems are typically up to 2 m long. They creep along the ground through above and belowground runners (also called stolons). They have very slender stems that are hairless and can become somewhat woody with age. They release milky sap when broken.



Lesser periwinkle (A) and greater periwinkle (B). Both species are low-growing, evergreen herbaceous plants.

Photo courtesy of: A) Flora von Deutschland, iNaturalist, Available: <https://www.inaturalist.org/observations/153918287>, licensed under CC-BY-NC B) Andrea Kreuzhage, iNaturalist, <https://www.inaturalist.org/observations/40083172>, licensed under CC-BY-NC.

Leaves:

Periwinkle leaves are dark green (sometimes variegated), evergreen, and leathery. The upper surface is glossy, and the lower surface is pale green or silvery. The leaves have a light green or faint, white mid-vein. They occur opposite along the stem and are attached with slender petioles (leaf stalks).

The leaves of lesser periwinkle are oval-shaped, narrow, with a blunt tip and smooth leaf margins (non-ciliate). They measure 1.25 – 5 cm long and 0.5 – 2.5 cm wide. The leaves of greater periwinkle are heart-shaped to triangular, broad, with a blunt tip and margins that are slightly rolled under and are ciliate (covered in small hairs). They are larger, measuring 4 – 6 long and 2.5 – 4 cm wide.



A) The leaves of lesser periwinkle are oval-shaped, narrow with a blunt tip and smooth margins, B) The leaves of greater periwinkle are heart-shaped to triangular, broad with a blunt tip and leaf margins with small ciliate hairs.

Photo courtesy of: A) Lindsey G., iNaturalist, <https://www.inaturalist.org/observations/92927838>, licensed under CC-BY-NC B) Reiner Richter, iNaturalist, Available: <https://www.inaturalist.org/observations/24430967>, licensed under CC-BY-NC.

Flowers:

The flowers of periwinkle are blue to purple (sometimes white or pink) and borne singly from the leaf axils in lesser periwinkle and up to 4 flowers per leaf axil in greater periwinkle. They have 5 notched and slightly asymmetrical petals, giving the flower a pinwheel appearance. The inside of the flower is white along the edges and shaped like a 5-angled star. Flowers bloom in late spring.

Lesser periwinkle has smaller flowers (< 2.5 cm across) with sepals that are hairless compared to the flowers of greater periwinkle (1 – 4 cm across) which have sepals with fine hairs.



A) Both periwinkles have blue to purple flowers that have a pinwheel appearance, B) The sepals of lesser periwinkle are hairless, C) The sepals of greater periwinkle have fine hairs.

Photos courtesy of: A) Chuck Cantley, iNaturalist, Available: <https://www.inaturalist.org/observations/110033173>, licensed under CC-BY-NC, B) Barbara L. Wilson, iNaturalist, Available: <https://www.inaturalist.org/observations/72753715>, licensed under CC-BY-NC, C) Barbara L. Wilson, iNaturalist, Available: <https://www.inaturalist.org/observations/72753714>, licensed under CC-BY-NC.

Fruits:

The fruit of periwinkle is a slender bean-like pod that measures 2 – 2.5 cm long which contains 3 – 5 seeds. Fruits are rarely produced because it spreads predominantly via vegetative growth.



Fruit is a slender bean-like pod.

Photo courtesy of: Jacob Martin, iNaturalist, Available: <https://www.inaturalist.org/observations/134822948>, licensed under CC-BY-NC.

Roots:

Periwinkle has an extensive network of above and belowground runners. At each leaf node, rootlets are formed which gives rise to new plants.



At each leaf node, rootlets are formed which give rise to new plants.

Photo Courtesy of: Iola Price.

Lookalikes

Vinca is a small genus of flowering plants that is composed of 7 accepted species, all of which are native to Eurasia, and for some species northern Africa (Kew Royal Botanic Gardens n.d.; Trees and Shrubs Online n.d.). All plants in this genus are low-growing, trailing plants or subshrubs that are popular ornamental species. This genus is readily identified by their dark green, glossy leaves and the production of small, pin-wheel shaped flowers that are purple, blue, white or pink.

Lesser periwinkle resembles greater periwinkle (*V. major*), however, it has smaller leaves and flowers. Greater periwinkle is also less common in Ontario. Periwinkle species may also be mistaken for another invasive plant, wintercreeper (*Euonymus fortunei*). However, the latter is woody, has leaves with toothed margins and prominent light veins, small greenish flowers and berry-like fruit. Periwinkles might also be mistaken for two native species, wintergreen (*Gaultheria procumbens*) and bearberry (*Arctostaphylos uva-ursi*). Unlike periwinkle, wintergreen has alternate leaves with toothed margins that give off a minty odour when crushed and has white, urn-shaped flowers. Bearberry can be differentiated from periwinkle by its alternate leaves that are paddle-shaped with edges that roll under and white, urn-shaped flowers.

Table 1: Key I.D. features that distinguish lesser periwinkle (*V. minor*) and greater periwinkle (*V. major*) from each other or from other species are in **bold**.

	Lesser Periwinkle (<i>Vinca minor</i>)  Photo courtesy of: iNaturalist, Available: https://www.inaturalist.org/observations/272034293, Licensed under CC-BY-NC INVASIVE	Greater Periwinkle (<i>Vinca major</i>)  Photo courtesy of: iNaturalist, Available: https://www.inaturalist.org/observations/22694570, Licensed under CC-BY-NC INVASIVE	Wintercreeper (<i>Euonymus fortunei</i>)  Photo courtesy of: Capt Bill.Powell, iNaturalist, Available: https://www.inaturalist.org/observations/129428853, Licensed under CC-BY-NC INVASIVE	Wintergreen (<i>Gaultheria procumbens</i>)  Photo courtesy of: Sophia Spurduto, iNaturalist, https://www.inaturalist.org/observations/176961226, Licensed under CC-BY-NC NATIVE	Bearberry (<i>Arctostaphylos uva-ursi</i>)  Photo courtesy of: iNaturalist, Available: https://www.inaturalist.org/observations/122581570, Licensed under CC-BY-NC NATIVE
Alternative Common Names	Common periwinkle, running myrtle	Big-leaved periwinkle, large periwinkle	Climbing euonymus, Fortune’s euonymus	Eastern teaberry, checkerberry, creeping wintergreen, eastern wintergreen, spring wintergreen	Barren myrtle, bear’s whortleberry, mountain box
Accepted French Name	Petite pervenche	Grande pervenche	Fusain de fortune	Thé des bois	Faisin d’ours orou busserole
Ojibwe Name				Wiinisiibag	Saga’kominagunj’
Native Range	Eurasia, Mediterranean and northern Africa	Eurasia, Mediterranean and northern Africa	China, Japan, Korea	Eastern North America	North America
Habitat	Gardens, deciduous woodlands, woodland edges, roadsides	Gardens, deciduous woodlands, woodland edges, roadsides	Gardens, deciduous woodlands, floodplains, disturbed areas	Coniferous forests, hardwood forests, woodlands	Forests, mountainous region, prairies
Size & Stem	- Low-growing, vine-like, trailing stems - Slender stems, hairless - Bases become woody with age 7 cm – 15 cm tall, up to 2 m long	- Low-growing, vine-like, trailing stems - Slender stems, hairless - Bases become woody with age 7 cm – 15 cm tall, up to 2 m long	- Low growing, vine or small shrub, trailing stems, woody Smooth bark when young, rough bark when mature 15 cm – 60 cm tall, 0.9 m – 1.2 m long	- Low growing, no trailing stems 10 cm – 15 cm tall, < 1 m long	- Low growing, sprawling, woody, no trailing stems - Slender stems, hairy 10 cm – 20 cm tall, < 1 m long

Lesser Periwinkle

(*Vinca minor*)



Photo courtesy of: iNaturalist,
Available: [https://www.inaturalist.org/
observations/272034293](https://www.inaturalist.org/observations/272034293), Licensed under
CC-BY-NC

INVASIVE

Greater Periwinkle

(*Vinca major*)



Photo courtesy of: iNaturalist,
Available: [https://www.inaturalist.org/
observations/22694570](https://www.inaturalist.org/observations/22694570), Licensed under
CC-BY-NC

INVASIVE

Wintercreeper

(*Euonymus fortunei*)



Photo courtesy of: Capt Bill.Powell,
iNaturalist, Available: <https://www.inaturalist.org/observations/129428853>,
Licensed under CC-BY-NC

INVASIVE

Wintergreen

(*Gaultheria procumbens*)



Photo courtesy of: Sophia Sperduto,
iNaturalist, [https://www.inaturalist.org/
observations/176961226](https://www.inaturalist.org/observations/176961226), Licensed under
CC-BY-NC

NATIVE

Bearberry

(*Arctostaphylos uva-ursi*)



Photo courtesy of: iNaturalist,
Available: [https://www.inaturalist.org/
observations/122581570](https://www.inaturalist.org/observations/122581570), Licensed under
CC-BY-NC

NATIVE

Leaves

- Opposite
- Dark green, glossy
- **Oval-shaped, narrow**
- **Smooth margins (non-ciliate)**
- Light coloured veins
- 1.25 cm – 5 cm long

Flowers

- Blue to purple, **borne singly at leaf axils**
- 5 petals, notched, pinwheel appearance
- Inside is white along the edges and shaped like a 5-angled star
- **Hairless sepals**
- < 2.5 cm across

Fruits

- Rarely produced
- Slender bean-like pod
- Green
- 2 cm – 2.5 cm long

Roots

- Above and belowground runners
- Rootlets at each node can give rise to new plants; dense mats

- Opposite
- Dark green, glossy
- **Heart-shaped to triangular, broad**
- **Margins covered in small hairs (ciliate)**
- Light coloured veins
- 4 cm – 6 cm long

- Blue to purple, **up to 4 flowers in a cluster at leaf axils**
- 5 petals, notched, pinwheel appearance
- Inside is white along the edges and shaped like a 5-angled star
- **Sepals with fine hairs**
- 1 cm – 4 cm across

- Rarely produced
- Slender bean-like pod
- Green
- 2 cm – 2.5 cm long

- Above and belowground runners
- Rootlets at each node can give rise to new plants; dense mats

- Opposite
- Dark green, glossy
- Oval-shaped
- **Toothed margins**
- Light coloured veins
- 2.5 cm – 6.4 cm long

- **Small, greenish**, borne singly on long-branched stalks
- 5 petals, **star-shaped**
- < 1.5 cm across

- Round capsule
- Pink to red
- Split open to expose red-orange arils (fleshy coatings covering the seeds)
- < 1.5 cm diameter

- Above and below ground runners
- Aerial roots

- **Alternate**
- Dark green, glossy
- Round to oblong, **tapering at base**
- **Toothed margins, fine spine-like hair at the tip of a tooth**
- **Minty odour when crushed**
- 2 cm – 4.5 cm long

- **White**, borne singly at leaf axils
- **Bell-shaped or urn-shaped**
- 0.85 cm – 2.5 cm across

- Round drupe
- Bright red to purplish
- < 1 cm diameter

- Rhizomes

- **Alternate**
- Light green in spring, dark green in summer, glossy
- **Paddle-shaped, taper at the base**
- **Edges are rolled under**
- 1 cm – 2.5 cm long

- White or pink, tips of petals are pink, borne on racemes
- Bell-shaped or urn-shaped
- < 1 cm across

- Round drupe
- Bright red
- 0.5 cm – 1.25 cm diameter

- **Fibrous root system**



Periwinkles grow as dense mats of vegetation by sending out twining stems in all directions.

Photo courtesy of: Stela Beatrice, iNaturalist, Available: <https://www.inaturalist.org/observations/116269544>, Licensed under CC-BY-NC.

Biology and Life Cycle

Periwinkles have numerous adaptations that contribute to their success as invaders (Bean and Russo 1986; Stone 2009). They reproduce primarily vegetatively through aboveground runners that root at the node (where leaves attach) which creates a new plant (Darcy and Burkart 2002; Stone 2009; Cushman and Gaffney 2010). They also have an extensive network of belowground runners (Stone 2009). This growth habit allows periwinkle to quickly colonize an area by sending out twining stems in all directions (Derickx and Antunes 2013). Stems fragments can generate new plants and in riparian areas, they can be carried downstream by water currents which can root if dispersed to a suitable location (DiTomaso *et al.* 2013). When soil temperatures and moisture conditions are favorable, periwinkle can grow at any time of the year (Stone 2009). Leaves will often remain green underneath snow. Flowers are typically observed in April and May (Antunes 2013). They are pollinated by butterflies, bees, flies and beetles (Katoch and Thakur 2022). However, periwinkle rarely produces fruits or seeds outside its natural range (Bean and Russo 1986; Darcy and Burkart 2002). Seeds are generally regarded as infertile as they either do not germinate or if they do, the plants rarely grow to maturity (Bean and Russo 1986; Stone 2009).

Periwinkles are generally considered shade-tolerant which allows them to invade high-quality ecological areas such as old growth forests, and they can often be found in patches around the bases of trees (Bean and Russo 1986; Stone 2009). They are also considered somewhat drought and cold tolerant and if foliage is killed from frost or drought, they can quickly recover through resprouting (Bean and Russo 1986). However, some cultivars exhibit significant water stress in drought conditions (Liao *et al.* 2013).

Periwinkles exhibit allelopathic properties which prevent the growth of other plants (Darcy and Burkhart 2002; Panasenکو and Anishchenko 2018). They have also been documented to change soil chemistry through increasing calcium and sulphur (Karhi 2024). Both these adaptations allow periwinkle to displace native plants and cause changes in plant diversity and community composition. Periwinkle leaves are unpalatable to grazing wildlife and are toxic to some animals (Stone 2009).

Seasonality for Lesser Periwinkle and Greater Periwinkle in Ontario (based on iNaturalist sightings throughout Ontario):

Both periwinkle species stay green (photosynthetically active) year-round. Flowers primarily bloom in early spring (April and May) and into midsummer, with occasional flowers produced in the fall, and some flowers remaining on the plant into winter. Plants rarely produce fruit or seed.



The leaves of periwinkle often remain green under the snow.

Photo courtesy of: Aleksander Levon, iNaturalist, Available: <https://www.inaturalist.org/observations/65831002>, licensed under CC-BY-NC.



Periwinkle infestation in a woodland.

Photo courtesy of: Dayna Laxton, York Region.

Habitat

In its native range, lesser periwinkle can be found growing in mixed and coniferous forests with beech (*Fagus* spp.), oak (*Quercus* spp.), and hornbeam (*Carpinus* spp.) (Panasenکو and Anishchenko 2018). In its introduced range, it is commonly planted as a fast-growing groundcover in gardens. From intentional plantings and improper disposal of yard waste, it can escape into disturbed habitats such as along roadsides or trails and into urban forests and natural areas such as closed canopy forests (Karhi 2024; Stone 2009). It spreads gradually via runners that root at stem nodes, forming dense mats of vegetation that lower native species diversity and alter species composition (Karhi 2024).

While periwinkles can tolerate a wide range of environmental conditions, they tend to prefer shaded or partially shaded areas and moist soils with good drainage such as along the edges of forests, mixed conifer-deciduous forests, and riparian areas (Karhi 2024; Panasenکو and Anishchenko 2018). They are also able to tolerate areas of full sun (Stone 2009).

Pathways of Spread and Distribution

Periwinkles are native to Eurasia, the Mediterranean and northern Africa, originally brought to North America in the 1700s as ornamental plants, marketed as tough, fast-growing groundcovers (Wells and Brown 2000; Ditomaso et al. 2013). They spread predominantly by vegetative reproduction through belowground and aboveground runners that root at the node and create new plants (Darcy and Burkart 2002; Stone 2009; Cushman and Gaffney 2010). However, humans are the primary dispersal pathway for these invasive groundcovers. Many infestations originate from the intentional planting of periwinkle in gardens and/or improper disposal of garden waste, which can then spread it to natural areas such as woodland edges and closed canopy forests (Stone 2009). Despite their negative ecological impacts, there is no ban on the sale of periwinkles in Canada, and they are still commonly available in plant nurseries.

Lesser periwinkle (*V. minor*) is the most abundant of the two species in North America and is found in 44 states with the exception of Montana, North Dakota, South Dakota, Wyoming, Nevada and Oklahoma (EDDMapS 2025a; iNaturalist 2025a). In Canada, lesser periwinkle is found in British Columbia, Ontario, Quebec, Nova Scotia, New Brunswick and Prince Edward Island. In Ontario, lesser periwinkle is more common in southern Ontario with populations extending from the eastern and western boundaries of the province. It can be found as far north as Timmins.

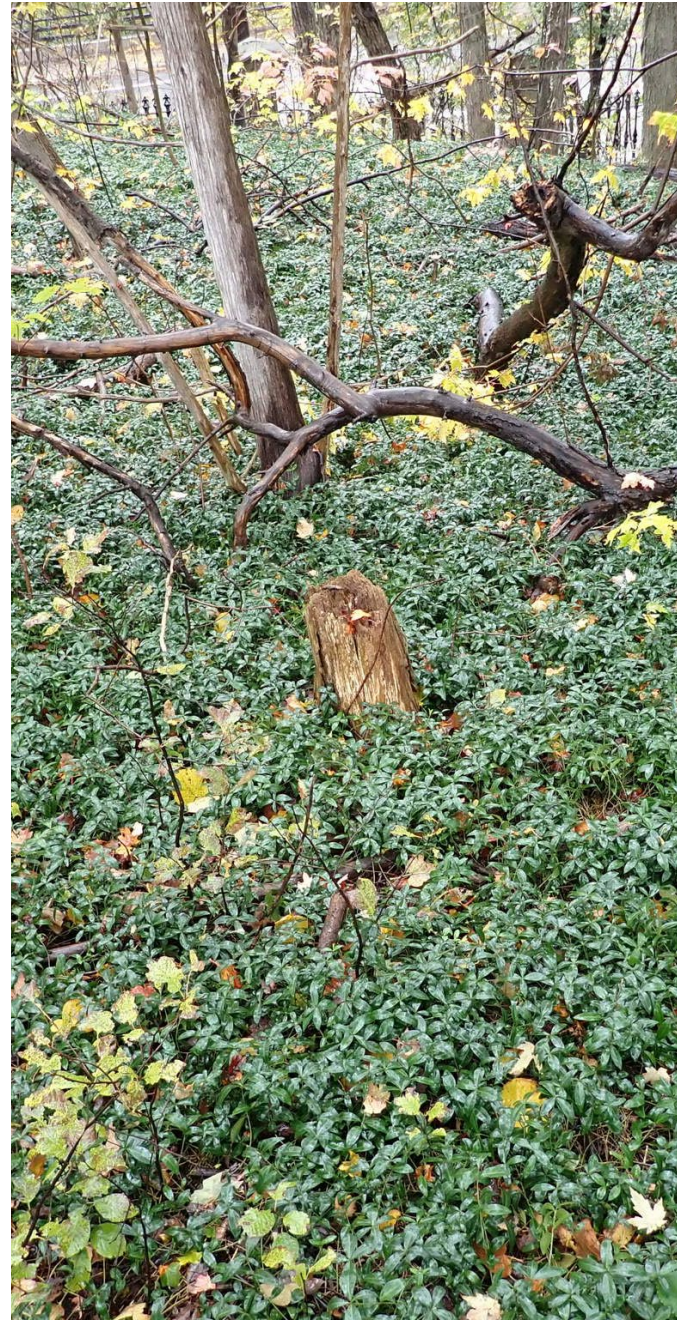
Greater periwinkle (*V. major*) is also common across the USA, being found in 40 states with the exception of Nevada, Montana, Wyoming, Colorado, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, and Iowa (EDDMapS 2025b; iNaturalist 2025b). However, compared to lesser periwinkle, greater periwinkle has a more restricted distribution in Canada. It is found in isolated populations in British Columbia (in Vancouver), a

few records in Quebec and in isolated populations in southern Ontario.

For up-to-date distribution information, visit:

EDDMapS (<https://www.eddmaps.org/>) or

iNaturalist (<https://www.inaturalist.org/>).



From intentional planting, periwinkle can invade natural areas.

Photo courtesy of: Owen Clarkin, iNaturalist, Available: <https://www.inaturalist.org/observations/103437155>, Licensed under CC-BY-NC.



Dense mats of periwinkle outcompete native understory species.

Photo courtesy of: Sergey Mayorov, iNaturalist, Available: <https://www.inaturalist.org/observations/57636168>, Licensed under CC-BY-NC.

Impacts

The dense growth form of periwinkles, their ability to thrive in poor soils, and shade-tolerance allow them to spread rapidly, even under forest canopies (Stone 2009; CABI 2019). They form dense mats on the forest floor which displace native species and allow them to dominate the vegetation in forests and riparian areas (Global Invasive Species Database 2005; DiTomaso et al. 2013). For example, in a riparian corridor near the Russian River in California, USA, plots with *V. major* were associated with significant reduction in seedling abundance and plant species richness (Cushman and Gaffney 2010). Since periwinkles are free-rooting plants, even small stem fragments can grow into dense mats, which suppresses light and smothers native groundcover (Darcy and Burkhart 2002; Derickx and Antunes 2013). While periwinkles have been used to prevent streambank erosion near riparian areas, they also prevent the regeneration of trees and shrubs, which can contribute to streambank erosion over time (Global Invasive Species Database 2005).

Several studies have indicated that periwinkles are allelopathic and they have been noted to suppress the growth of other plants. In a deciduous forest in western Michigan, *V. minor* was found to inhibit tree-seedling recruitment by reducing root growth (Darcy and Burkhart 2002). Plots with dense *V. minor* abundance had significantly lower tree seedling density. This study also found that extracts from periwinkle decreased root growth of radish (*Raphanus sativus*) and corn (*Zea mays*). Panasenکو and Anishchenko (2018) found that soil extracts from communities where *V. minor* was present demonstrated high allelopathic activity by reducing seed germination of wild radish (*Raphanus raphanistrum*) by more than 50%.

Periwinkles are able to impact soil nutrient cycling. Kahri (2024) found that *V. minor* increased calcium and sulphur levels in the soil, which was linked to reductions in plant diversity and changes in plant community composition. It can also impact the physical structure of litter and the soil microhabitat, including the abundance and diversity of forest floor spider assemblages. *V. minor* reduced the abundance of spiders by approximately 49% and changed species composition in a southwestern Michigan forest (Bultman and DeWitt 2008).

Economic:

Periwinkles are hosts for several pathogens that have agricultural significance such as black root rot (*Berkeleyomyces basicola*), crown gall (*Rhizobium radiobacter*) and gall (*R. rhizogenes*) (CABI 2019) that can affect crop yields.

Once periwinkle establishes, it can become costly to remove. In Vancouver, Diamond Head Consulting (2011) estimated that manual control of periwinkle (*V. minor*) across 0.7 hectares would cost over \$41,000 CAD at a manual labour cost of \$5.90/m². However, periwinkles have high economic value in the horticulture industry and are still sold as fast-growing, low maintenance groundcovers. Periwinkle (*V. minor*) and creeping jenny (*Lysimachia nummularia*) are the most

commonly grown groundcover plants in the US (Burlakoti and Poudyal 2024). Periwinkles are attractive choices for growers as they can be easily propagated by single-node cutting and grown in a nursery for only 1-3 months before selling (Landon and Banko 2005). Their low maintenance is favored by landscapers for preventing soil erosion on steep slopes, or in urban landscapes where nothing else will grow (Beaulieu 2022; Burlakoti and Poudyal 2024).

The indole alkaloids present in both *Vinca major* and *V. minor* have important medicinal and economic value. These biologically active alkaloids have been studied for their potential therapeutic use in the treatment of cancer, neurological disorders, and cardiovascular support (Vrabec et al., 2025; Khanavi et al., 2010). The alkaloid vincamine is isolated from *V. minor*, which is used to synthesize vinpocetine, a substance that has been used clinically in many countries for the treatment of cerebrovascular disorders such as stroke and dementia (Zhang et al., 2018). In European folk medicine, both species have been used for circulatory issues, inflammation, digestive problems, brain health, and memory improvement (Khanavi et al., 2010).

Societal:

All parts of the plant are toxic to many animals such as dogs, cats, and horses in addition to humans. The plant contains alkaloids (vincristine and vinblastine) that can cause gastrointestinal issues, dehydration and more severe symptoms such as cardiovascular damage (Chen and Menezes 2024).

Applicable Legislation

(Last Updated – October 2025)

Regulatory Tools – Periwinkle:

Periwinkles species are not federally or provincially regulated invasive plant species.

See Table 2 for details.

Depending on the location, timing of work, and the type of management activities (e.g., mechanical/ manual or chemical), permits, approvals or authorizations may be required from municipal, provincial or federal agencies before invasive plant control can be initiated. Individuals undertaking control activities for periwinkle are responsible for ensuring that these are obtained and complying with any applicable legislation. Please note that this is only for general guidance and is not intended as legal advice.

Additionally, if protected species or habitats are present, an assessment of the potential effects of the control project and authorization could be required. Depending on the species and its location, applications should be directed to the appropriate authorities.

While not an exhaustive list of permits or rules that may apply to invasive plant species management, the following examples are provided for consideration:

Table 2: Legislation pertaining to periwinkle management.

Legislation & Regulating Body	Purpose	Application to Periwinkle Management
PROVINCIAL		
<i>Invasive Species Act, Ontario Regulation 354/16</i> Ministry of Natural Resources (MNR) Applicable to Terrestrial and Aquatic Environments	Prevent the Introduction and Spread of Invasive Species	Periwinkles are not regulated under the <i>Invasive Species Act</i>, 2015. For more information, visit: https://www.ontario.ca/page/managing-invasive-species-ontario
<i>Endangered Species Act (ESA)</i> Ministry of Environment Conservation and Parks (MECP) Applicable to Terrestrial and Aquatic Environments	Protection of Endangered and Threatened Species and their Habitat	The <i>Endangered Species Act</i> (ESA) prohibits the killing, harming, and harassing of species at risk (SAR) classified as extirpated, endangered or threatened, as well as damage and destruction of the habitat of endangered and threatened SAR. Management activities that may adversely impact protected SAR or habitat may proceed in accordance with an ESA authorization (permit or agreement) or regulatory exemption. For the full list of species at risk in Ontario and for information on permit requirements consult: http://ontario.ca/page/how-get-endangered-species-act-permit-or-authorization

Legislation & Regulating Body	Purpose	Application to Periwinkle Management
Pesticides Act & Regulation 63/09 Ministry of Environment Conservation and Parks (MECP) Applicable to Terrestrial and Aquatic Environments	Regulation of Pesticide Use in Ontario	The <i>Pesticides Act</i> and Ontario Regulation 63/09 govern the sale, use, transportation, storage and disposal of pesticides in Ontario including license and permit requirements. Most invasive species control projects will require a licensed exterminator. Only pesticides registered under the federal <i>Pest Control Products Act</i> by the PMRA can be used in Ontario. The pesticide label is a legal document that must be followed exactly. Exterminations on land are subject to the cosmetic pesticide ban. Other than certain biopesticides and low-risk pesticides on Ontario's "Allowable List", pesticides can only be used in accordance with an exception (e.g., agriculture, forestry, public health and safety, natural resources and other legislation) to the cosmetic pesticide ban. The licensed exterminator in charge can provide guidance regarding how the exceptions to the cosmetic pesticide ban apply to the specific extermination and any requirements that must be met to perform work under the exception. For more information on these exceptions and the rules with respect to pesticide use visit: https://www.ontario.ca/laws/regulation/090063
FEDERAL		
Species at Risk Act (SARA) Environment and Climate Change Canada (ECCC) Applicable to Terrestrial Environments	Protection and Recovery of Species at Risk and their Habitats	For most extirpated, endangered and threatened species, the <i>Species at Risk Act</i> (SARA) applies automatically only on federal lands. This includes national parks, national marine conservation areas, national historic sites and other protected heritage areas administered by Parks Canada. For control activities on federal lands that may affect non-aquatic species listed on Schedule 1 of SARA, or which contravene SARA's general or critical habitat prohibitions, permits may be required. For more information, consult: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/permits-agreements-exceptions/permits-agreements-information.html

Legislation & Regulating Body	Purpose	Application to Periwinkle Management
Fisheries Act and Species At Risk Act Applicable to Aquatic Environments	Protection of Fish and Fish Habitat <i>Fisheries Act:</i> Protection of Fish and Fish Habitat <i>Species At Risk Act:</i> Protection of aquatic species at risk	The <i>Fisheries Act</i> (and in some cases the <i>Species at Risk Act</i> [SARA]) applies when a proposed work, undertaking or activity in fish-bearing water results or is likely to result in: • The death of fish (by means other than fishing); • The harmful alteration, disruption or destruction of fish habitat; • The deposit of a deleterious substance (e.g., herbicides) in water frequented by fish; • Impacts to species listed as aquatic species at risk under <i>Species at Risk Act</i> (SARA) or any part of their critical habitat. If there is risk of harm to fish or their habitat, authorization from DFO is required prior to undertaking any projects to avoid and mitigate impacts. The use of herbicides may be authorized to prevent the introduction or spread of, or to control aquatic invasive plants that may cause harm to fish, fish habitat or use of fish. To remain in compliance with the <i>Fisheries Act</i> and the SARA consult the guidance found at the following websites: Projects near water - https://www.dfo-mpo.gc.ca/species-especes/sara-lep/permits-permis/index-eng.html. Permitting - http://www.dfo-mpo.gc.ca/species-especes/sara-lep/permits-permis/index-eng.html.
Migratory Birds Convention Act & Regulations Environment and Climate Change Canada (ECCC) – Canadian Wildlife Service (CWS) Applicable to Terrestrial and Aquatic Environments	Protection of Migratory Birds, and their Nests and Eggs	When undertaking your project, you should take precautions to avoid harming migratory birds, nests and eggs. This includes: • Understanding how migratory birds and their nests are legally protected • Consider species activity timelines (i.e. active nesting season) • Planning your activity ahead of time, evaluate if the activity may cause harm to migratory birds, and determine what measures can be taken to avoid causing this harm • Develop and implement preventative and mitigation measures, such as beneficial management practices. For more information please visit: https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act-regulations.html
Pest Control Products Act Pest Management Regulatory Agency (PMRA), Health Canada Applicable to Terrestrial and Aquatic Environments	Regulation of Pest Control Products in Canada	Before a pesticide can be sold or used in Ontario, it must be registered under the federal <i>Pest Control Products Act</i> (PCPA) by the Pest Management Regulatory Agency (PMRA) of Canada. The pesticide label is a legal document. Follow all label directions – and ensure you have the most current label and are aware of any re-evaluation decisions. Visit the PMRA's product label search site at https://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php

Invasive Management Planning

Management Considerations

It is important to control periwinkle before it becomes locally established. Preventing the spread of this invasive plant will reduce its impact on biodiversity, the economy and society.

It is important to use a control plan that incorporates Integrated Pest Management (IPM) principles. This entails using existing knowledge about the invasive plant (i.e., its biology and life cycle), and its surrounding environment. This often requires more than one type of control measure to be successful.

Once periwinkle has been confirmed at a location, a control plan should be developed based on infestation size, site accessibility, potential for spread and risk to the environment, economy or society. Also consider site-specific conditions such as native plant richness and diversity and wildlife usage including bird migration routes and species at risk. It is strongly recommended to conduct a detailed inventory of each site prior to starting control efforts to ensure that proper methods and timings are used to mitigate potential negative impacts on native plant species and wildlife.

Mapping

If you are planning a restoration project on your property, conducting an ecological survey is a beneficial way to document current and future distributions of invasive and weedy plants that might be present, such as periwinkle.

Conservation authorities or municipalities which manage large land areas may hire contractors or qualified volunteers to conduct ecological surveys. However, private landowners with smaller properties may be able to conduct their own surveys or hire a contractor. Survey the entire property to locate invasive plants that might be impacting your goals for restoration at a site.

For detailed information on mapping techniques consult the [Landowners Guide for Managing and Controlling Invasive Plants in Ontario](#).

Landscape-level Management

A more detailed management strategy is likely to be needed if multiple invasive plant species have been established on your site and/or there are extensive populations. A strategic, landscape-level approach to management should be undertaken to bring together partners, landowners and land managers. This approach is designed to work towards common and shared goals that consider both site-level needs in conjunction with wider landscape considerations. It makes it easier to use resources efficiently, coordinate management activities and accomplish strategic goals. Failure to consider a broader landscape context by only focusing on individual or local challenges may increase management costs, be more labour-intensive and may not produce desired results across larger areas. Effective management of periwinkle requires repeat treatments and the combination of control methods (i.e., hand pulling or digging and herbicide use). It is important to determine the land use objective and desired plant community because it is not always realistic, especially for larger populations, to eliminate the entire infestation at once. From here, develop an appropriate IPM strategy.

Setting Priorities

Establishing your highest priority locations for control prior to management will help to determine your best course of action. Therefore, when developing a management strategy, it is important to consider the following considerations to help inform control decisions:

1. **Protect:** federally, provincially, and regionally rare species and communities by removing invasive plants and ensuring rare species are not negatively impacted by control efforts. You are responsible for ensuring that your project follows provincial, federal, and municipal laws, including the provincial *Endangered Species Act*, and federal *Species at Risk Act*. For species-specific information consult: <https://www.ontario.ca/page/species-risk-ontario>
2. **Consult:** Ensure all landowners have been identified and consulted before control takes place.
3. **Contain:** If you have limited resources, try to remove the outlying populations of invasive plants first (isolated plants or satellite populations), to prevent further spread. Protect areas where invasive plants are absent or just appearing. When action is taken early it can significantly reduce the cost of control.
4. **Work inward:** If you have more resources, working from the outlying or satellite populations inward into larger, “core” populations of invasive plants and reducing the quantity of seeds can prevent spread into uninfested areas. In many cases, resource limitations may prohibit the immediate removal of entire core populations. Under these circumstances, core areas should be prioritized and addressed strategically.
5. **Consider sensitive ecological areas:** Concentrate on preventive strategies in high-priority ecological areas or areas where invasive plants could cause the most problems in terms of competition, such as the most productive or sensitive part of an ecosystem, along a creek, near species at risk, or a high-quality natural area. Reduce the spread of invasive plants and periwinkle by following the [Clean Equipment Protocol](#) and removing invasive plant material from boots, clothing, and animal fur.
6. **Logistics and costs:** Review the different control options and costs with consideration to surrounding water, habitat, time of year, and type of land use (i.e., high-traffic recreational areas, agriculture, etc.).
7. **Timing:** Consider dedicating a certain time each year to control efforts and make it a joint effort with neighbouring landowners and/or land managers.
8. **Regeneration or restoration:** Begin to assess whether regeneration or restoration is appropriate, and if seeding or planting of native plants is needed to help jump-start natural succession and increase biodiversity in the area.
9. **Monitor:** Follow-up monitoring is crucial to remove new invasive plants or address resprouts that may emerge after initial control efforts.

Prioritizing within a Control Area

(This section is modified from *The Landowners Guide to Managing and Controlling Invasive Plants*, published by Credit Valley Conservation).

1. Focus on large blocks of un-invaded areas and keep them free of invaders.
2. Control small, younger, outlier (satellite) populations first.
3. Reverse the invasion, expand the cleared area outward and ensure that un-invaded areas are kept free of invasive plants (with regular monitoring).

This flow chart can help land managers choose where to first focus control efforts if controlling satellite populations due to limited resources:

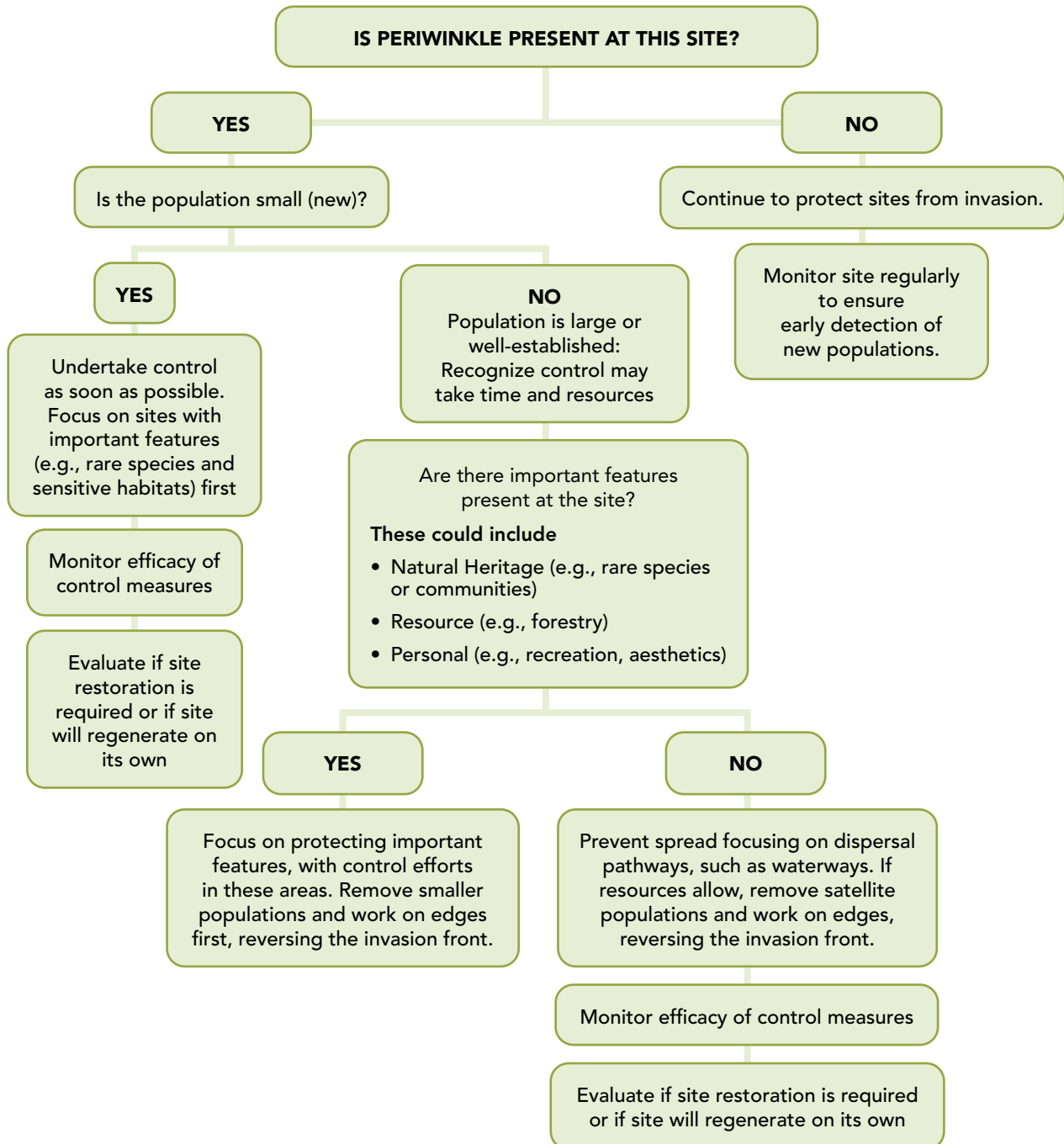


Figure 1: How to prioritize periwinkle sites for effective control.

Long-term Management and Monitoring

A long-term management and monitoring plan should be developed prior to control efforts to help prevent the re-establishment of invasive plants or weedy species. By monitoring after the initial control measures, this will enable the assessment of effectiveness and determine if follow-up treatments are needed. Ongoing management is essential to the success of a control project because after removal a site is at risk of reinvasion from nearby populations or other invasive plants.

Monitoring can be simple or complex ranging from taking photos or performing visual assessments to conducting extensive vegetation surveys. In general, annual control of periwinkle is needed and should focus on removing individual plants or small, isolated populations as they appear. This will help ensure that the invasive plant population remains under control while allowing for the regeneration of desirable native plant species.

For detailed information on monitoring consult the [Landowners Guide for Managing and Controlling Invasive Plants in Ontario](#).

After Management: Assessing Regeneration vs. Restoration

Consider the following factors:

1. **Level of disturbance at the site:**
 - a) Was this a heavily invaded site (e.g., was much disturbance caused during control measures)?
 - b) Will it continue to be disturbed (e.g., through urban management activities or recreational use)?
2. **Biology of the invasive species removed:**
 - a) Is there a seed bank to consider?
 - b) Are there seed banks from other invasive plants in the area?
3. **Re-invasion risk:**
 - a) Are there invasive species nearby that could re-invade the site from nearby trails, watercourses or other pathways of introduction?
4. **Existing native vegetation:**
 - a) Will any native vegetation that still exists on the site regenerate quickly?
 - b) Can the existing native vegetation regenerate without help? Species with specific habitat requirements or reproductive strategies resulting in low fecundity, including species at risk, may require re-introduction. The majority of plant species should be able to recover naturally, especially if healthy populations exist adjacent to the controlled area.

If you answered **Yes** to most of the questions under 1 to 3, it is most likely that (a) the site will be re-invaded before it has a chance to regenerate on its own or (b) that invasive plants will continue to invade and be present among the native species so that annual control may be required. Restoration will be needed to reduce the risk of re-invasion. If you answered **Yes** to the questions under 4, your site may have a lower risk of invasion but could still require some restoration measures to help re-establish native vegetation.



Once established and widespread, periwinkle becomes increasingly harder to control.

Photo courtesy of: John Waidner, iNaturalist, Available: <https://www.inaturalist.org/observations/60890045>, Licensed under CC-BY-NC.

Control Measures

Practice Prevention:

The best method to control and prevent the spread of periwinkle is to stop planting it close to natural areas. There are a variety of non-invasive and/or native alternatives to consider in residential gardens that provide groundcover and are low maintenance. They provide the added benefit of attracting birds, butterflies, and other pollinators. Some alternatives to consider include:

- Canada anemone (*Anemonastrum canadense*)
- Canada wild ginger (*Asarum canadense*)
- Golden alexanders (*Zizia aurea*)
- Heart-leaved foamflower (*Tiarella cordifolia*)
- Large-leaved aster (*Eurybia macrophylla*)
- May-apple (*Podophyllum peltatum*)
- Ostrich fern (*Matteuccia struthiopteris*)
- Pearly everlasting (*Anaphalis margaritacea*)
- Running strawberry-bush (*Euonymus obovatus*)
- Virginia waterleaf (*Hydrophyllum virginianum*)
- Wild strawberry (*Fragaria virginiana*)
- Zigzag goldenrod (*Solidago flexicaulis*)

See Ontario Invasive Plant Council's [Grow Me Instead Guide](#) for more information on native or non-native alternatives.

Control strategies:

Periwinkle is difficult to control once it becomes well established. It forms dense mats of vegetation, with runners that can become intertwined with native vegetation, and the thick, waxy cuticle on the leaves make herbicide absorption difficult. The entire root must be removed for successful control; however, roots can penetrate to one meter in depth and any intact root or stem fragment can generate a new plant.

It can be successfully controlled with a combination of methods, both manual and chemical. Small patches can be removed through careful and persistent hand pulling and digging, ensuring all root fragments are removed. Hand pulling is the most recommended method and is easiest and most effective when the soil is moist and loose. However, this method is labour-intensive and periwinkle often grows in compacted soils where it is difficult to remove the entire root system. For this reason, it is generally best to combine hand pulling with digging, being sure to remove as much of the root system as possible. Periwinkle can also be cut or mowed repeatedly which will eventually weaken the plant but is generally best when followed up with another method such as solarization or herbicide application. Both cutting/mowing and herbicide application are usually applied to large, dense infestations. Generally foliar spray is applied to intact leaves or cut stems using a systemic herbicide that can translocate through the plant and into the roots. However, the thick waxy cuticle of periwinkle can limit herbicide absorption and effectiveness.

In selecting the most suitable control techniques, it is essential to minimize adverse impacts on native vegetation and waterways and to encourage restoration of native vegetation. It is important to continue to regularly monitor the site and continue with follow-up treatments, which may be required multiple times within a season and over several years for effective control.

Manual



Periwinkles have an extensive network of aboveground and belowground stolons and root at the node (where the leaf attaches) which makes manual control difficult.

Photo courtesy of: Rebekah D. Wallace, University of Georgia, bugwood.org.

Hand Pulling and Digging:

Small patches of periwinkle can be successfully removed through a combination of careful and persistent hand pulling and digging. Take care to remove all stems, runners, and root nodes as any leftover fragments can regenerate. Any areas where runners have rooted to the ground also need to be pulled. Larger patches can be removed in stages beginning from the outer edges and working inwards. Hand pulling and digging can be undertaken anytime during the growing season, but it is best to begin as soon as new growth appears in the early spring, and repeat as necessary throughout the season. Since periwinkle rarely produces fruit or seeds outside its non-native range, seed spread through manual removal is not an issue. Consider using landscape fabric or cardboard to tarp small areas after control for at least two growing seasons to help reduce regrowth. All plant material should

be disposed of carefully to prevent any spreading from root or stem fragments (see [Disposal](#) section).

For hand pulling, grab the plant at the base of the stem and pull the entire plant from the soil, ensuring as much of the root system is removed as possible. Consider using a rake to help raise and loosen the runners and roots or a hand tiller to loosen the roots and soil. Hand pulling and digging are best when the soil is moist. However, since the roots may grow up to 1 meter underground, deeper digging is often necessary. Digging may also be necessary for well established, dense stands, or in compacted soils. For best results, dig down to a depth of at least 60 cm and then sift the soil through a screen to remove all the roots and rhizomes.

Hand pulling and digging are the most widely recommended control methods for periwinkle. However, these techniques are labour-intensive, only practical for small invasions or outlying satellite populations, and too difficult to apply to larger sites. Further, care must be taken to minimize soil disturbance. The site should be monitored throughout the growing season and for several years. For any new growth, hand pull or dig the plants immediately to prevent re-establishment.

Mechanical

Cutting or Mowing:

Repeat mowing or cutting of small to large patches close to the ground may help to slow spread but will not eradicate periwinkle, as the stems and roots will remain intact. Mowing or cutting multiple times per season may eventually weaken root reserves but is not effective as a stand-alone method. This method is more effective when combined with a follow up treatment, such as tarping or herbicide application.

Using a weed cutter or mower, cut the stem as close to the ground as possible, ideally under 2.5 cm. For best results, begin to mow in early spring (mid-April) and then several times throughout the growing

season for at least 3 – 5 years, or alternatively follow up with another control technique.

Since mowing is non-selective, care should be taken to reduce the impacts on the surrounding native species. Mowing is not appropriate in environmentally sensitive areas or where species at risk are present.

Cultural

Solarization (Tarping):

Periwinkle infestations can be covered with landscape fabric, black plastic tarps, sheeting or cardboard, as long as the material is completely opaque, and no sunlight is able to penetrate (the darker the colouring of the tarp, the more effective solarization efforts will be). This method works by preventing photosynthesis and depleting the plant of its carbohydrate reserves. As an evergreen groundcover, tarping of periwinkle can be done any time of year, but fall or early spring is best, when the plant is less actively growing and tarping can more successfully prevent regrowth. Tarping is also best in areas of full sun, smooth, flat areas, and areas where the tarp will not be disturbed if left in place for at least two growing seasons. It is best to manually remove plants (hand pulling, digging, cutting, mowing) prior to covering the area with a tarp. The tarp should cover an area larger than the infestation (at least 2 m beyond the patch boundaries) and the edges should be secured to the ground with sandbags, bricks, or landscape staples. The area surrounding the tarp should be monitored and checked regularly to see if the periwinkle has escaped beyond the tarp. The tarp needs to be left in place for two or more years to deprive the plant of sunlight and is ideal for small areas or to prevent the spread of localized populations. Without sunlight, the plants will be unable to carry out photosynthesis, causing them to weaken and die.

Tarping is a non-selective control method and care needs to be taken not to suppress native plant populations. In addition, site selection should also take into consideration that tarping may damage soil microbial activity and potentially alter soil nutrient cycling.

Mulching:

Similar to tarping, mulching acts by depriving periwinkle of sunlight and preventing it from carrying out photosynthesis. At least 10 cm of mulch is recommended to effectively shade out periwinkle, however the thicker the layer the more effective it will be at blocking sunlight. Ideally use shredded bark mulch or similar material to completely cut off light. For mulch to be effective, it is best to mow/cut or dig the plants first and then cover the site with mulch (similar to tarping). Alternatively, placing cardboard over the patch before covering it with mulch has yielded positive results. Revisit the site frequently throughout the growing season to ensure the mulch is still at an adequate depth. Recover the site with mulch as required.

***Note:** *this method is most applicable for small patches in a homeowners garden. It is not recommended for restoration in a natural area.*

Chemical

The management of pesticides is a joint responsibility of the federal and provincial governments. The federal government, through the Pest Management Regulatory Agency (PMRA), is responsible for approving the registration of pesticides across Canada under the *Pest Control Products Act*. Ontario regulates the sale, use, storage, transportation and disposal of pesticides including issuing licenses and permits under the *Pesticides Act* and Ontario Regulation 63/09. Federally registered pesticide products are assigned one of four product class designations (i.e., Manufacturing, Restricted, Commercial or Domestic). The class of pesticides determines who

can sell or use the pesticides products as well as what restrictions are placed on its use (e.g., requires a license and/or permit).

Most invasive species control programs using a pesticide will require an appropriately licensed exterminator. The use of pesticides on land is subject to the cosmetic pesticide ban. Other than certain biopesticides and low-risk pesticides on Ontario's "Allowable List", pesticides can only be used if the use is permitted under an exception to the ban. Depending on the specifics of the extermination, invasive plant control may be permitted in accordance with exceptions for forestry, agriculture, public health and safety (e.g., plants poisonous to humans by touch and plants that affect public works and other buildings and structures) and compliance with other legislation (e.g., control of noxious weeds where required by the *Weed Control Act*). There is also an exception for the management, protection, establishment or restoration of a natural resource that may be considered if other exceptions do not apply. The requirements that must be met for pesticide use under each exception are set out in Ontario Regulation 63/09 and may include conditions such as certification in integrated pest management, a letter from the relevant Ministry (MNR or MECP) and/or others. The appropriately licensed exterminator in charge can provide guidance on requirements that apply to the specific extermination under consideration.

Herbicide Selection and Application

Pesticide applications can be an effective method for periwinkle management when used as part of an integrated pest management program and in consideration of the species biology and site-specific information. Pesticides must be applied in accordance with the federal *Pest Control Products Act*, the *Ontario Pesticides Act*, Ontario Regulation 63/09 and all label directions. Most invasive species control programs using a pesticide will require an appropriately licensed exterminator.

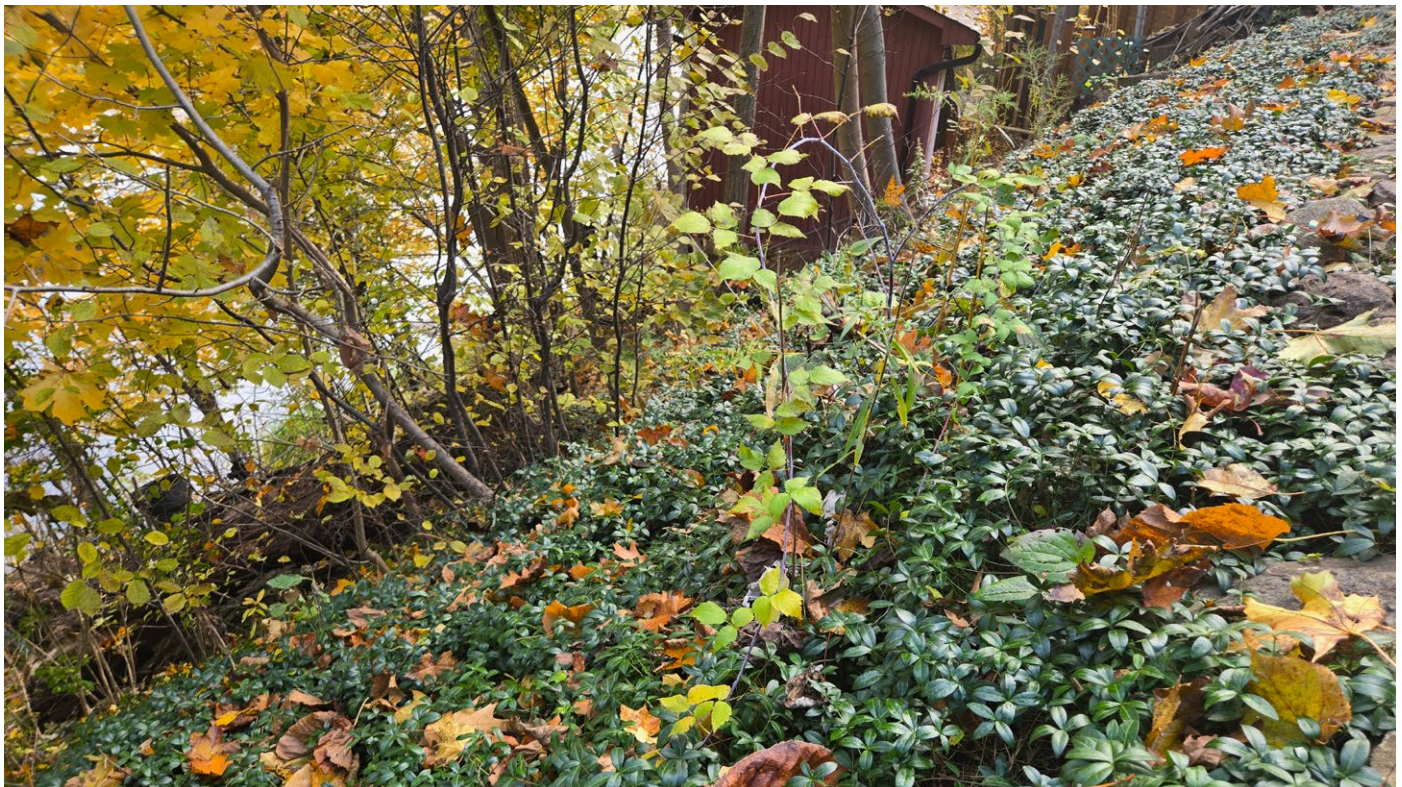
The availability of pesticides to control periwinkle may change over time, as may the label directions on how to use the pesticide.

Before using any pesticide, ensure you have the most current label. Always read and follow all directions on the label. The label is a legal document that must be followed exactly, including any applicable buffer zones. Using a pesticide to treat a species not listed on the label, or in a manner other than specified on the label violates the *Pest Control Products Act* and may incur penalties.

Chemical Control and Periwinkle

Systemic herbicides that are translocated to the roots and kill the entire plant are a suitable control method for periwinkle, particularly for larger infestations and dense groundcover. This method is most effective with a product containing the active ingredient glyphosate or triclopyr (typically glyphosate is used). However, periwinkle leaves have a thick waxy cuticle, which do not readily absorb herbicides, particularly water-based applications. Some practitioners have added a surfactant (i.e., Methylated Seed Oil spray adjuvant) with glyphosate to break down the cuticle and increase herbicide absorption. Be sure to follow all label instructions. Alternatively, breaking down the leaves using a cut-and-spray method can also increase herbicide absorption.

Herbicides must be applied in accordance with the federal *Pest Control Products Act*, the *Ontario Pesticides Act*, Ontario Regulation 63/09 and in accordance with all label directions. The easiest way to find a chemical label is by using the Pesticide Management Regulatory Agency (PMRA) label search tool which can be found here: <https://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php>. Consult this tool to ensure you have the most current label and are aware of any re-evaluation decisions.



Periwinkle planted along a ravine property.

Photo courtesy of: Vicki Simkovic.

Table 3: Herbicides effective at controlling periwinkle.

Herbicide	Application/Timing	Herbicide Class	Benefits	Cautions
Glyphosate	• Apply as a foliar spray to leaves or cut stems in early spring to late fall. • Apply with a backpack or canister sprayer.	• Commercial. • <i>Only licensed professionals may apply this herbicide.</i>	• Low rate of persistence in the environment, low toxicity.	• Observe required buffer zones. Non-selective, avoid contact with non-target plants. • Visual effects may take longer (7 to 10 days). • Avoid application if heavy rain is forecasted.
Triclopyr	• Apply as a foliar spray to leaves or cut stems from early spring to late fall. Most effective in early spring. • Apply with a backpack or canister sprayer.	• Commercial. • <i>Only licensed professionals may apply this herbicide.</i>	• Fast acting (3-5 days). Little to no impact on grasses.	• Observe required buffer zones. Non-selective herbicide, avoid contact with non-target broadleaf weeds and woody plants. • Avoid application if heavy rain is forecasted.

Foliar Spray:

Chemical application may be done using a foliar spray method. Since the waxy cuticle on periwinkle leaves limits herbicide absorption, a cut-and-spray method (or even stepping on the leaves to bruise them) may be used to increase the chance of absorption through damaged plant tissue. The stems are first cut with a weed whipper or mowed, and herbicide (with either the active ingredient glyphosate or triclopyr) is applied immediately after. Damaged stems will readily absorb the herbicide and increase the chances of success. Follow up with spot spraying of stems and seedlings about 6 - 12 months after initial treatment. Note that it may take several months for leaves to show signs of damage.

Foliar application of herbicides are most effective when they are applied to actively growing plants beginning in early spring to late fall. O'Driscoll (2009) found that periwinkle was best controlled when foliar sprayed with glyphosate during the fall, while triclopyr was more effective when applied during the spring. Many herbicides will need repeat treatments because new growth may appear from the stems and roots. Spray the leaves until wet but not to the point where the herbicide drips off the leaves. A subsequent application that targets missed or emerging plants may be necessary. Refer to the herbicide label to determine appropriate timelines for follow up treatment.

Systemic herbicides such as glyphosate and triclopyr are non-selective and can damage or kill desirable native plants that may be accidentally sprayed during treatment. Exercise caution if periwinkle is interspersed with desirable native species. These herbicides are not for use near water. Consult the herbicide label and carrier agent/surfactant labels for information on how the herbicide can legally and safely be used.

Biological

There are no biological agents approved or being studied for use on periwinkle in North America.

Disposal



Lesser periwinkle growing at the base of a tree.

Photo courtesy of: Karen MacDonald, Toronto and Region Conservation Authority.

After control

Following control, plant material can be removed from the site to prevent re-rooting or re-establishment. Place all material in a black garbage bag and dispose of it in a landfill. Ensure you are disposing of all rhizomes. If any stems, runners, or root nodes are left behind, they can re-root and sprout new plants. Alternatively, plant material can be left in piles on site, being sure to return to the site regularly to monitor removal efforts and control any regrowth from the pile.

Do not backyard compost

Home composters do not reach the temperature necessary to kill the stems, runners, and root nodes. Do not compost viable plant material.

Municipal compost

Large-scale municipal composting facilities where the compost pile reaches temperatures high enough to kill living plant material can be used to dispose of viable plant material. Ontario composting facilities are required to routinely monitor the compost process and meet strict, provincially regulated time-temperature parameters for pathogen kill. Consult your local municipality to determine if this is an appropriate course of action.

Solarize

Viable plant material (i.e., stems, runners, and root nodes) can be placed in black plastic bags. Seal the bags tightly and leave them in direct sunlight for 2 – 3 weeks to cook or kill the viable plant material. Tarps can also be used if there is a large amount of biomass to solarize. Place the tarp below and above the plant material, ensuring all plant material is in the center of the tarp and is not in contact with the soil. Secure the edges to the ground with sandbags, bricks, or landscape staples, and leave in place for 2 – 3 weeks. The rotten material can then be composted or disposed of in a landfill.

Restoration



Periwinkle growing in a forest site.

Photo courtesy of: Cassidy Mowbray, City of Mississauga.

Following control measures, consider restoring the site to encourage the re-establishment of native plant species. Consider the following two restoration practices:

Seeding:

Seeding the site with native plant species immediately after management activities may be most suitable to less urbanized sites where wildlife species have more food sources available. Otherwise, seeds may be quickly eaten by wildlife. Seeding may be useful to prevent the establishment of new invasive species. This can give desirable native species the chance to establish themselves. Seeding should only be done after management activities are completed to prevent new native plants from being damaged or killed. It is best to spread seeds from local native plants into the area.

Planting:

Once periwinkle has been removed, consider restoring the site by re-planting with site-appropriate native species that can help outcompete invasive seedlings. This is especially important if there are nearby invasive plants that can colonize the area. If management activities will be conducted in subsequent years, wait until all management is completed prior to planting to avoid damaging or killing newly planted stock. Native plants should be appropriate for the area being replanted; consider site characteristics such as space and light availability. Generally, a selection of fast and slow growing species is ideal, with a diverse mix of native groundcover, shrubs, and trees that are well-suited to the growing conditions on site.

See the “[Long-Term Management and Monitoring](#)” section.

Preventing the Spread

Prevention and early detection are the most effective tool for controlling the spread of periwinkle and everyone can help. Follow these tips:

Report it

If you think you see periwinkle, take a picture, record the location, and report it using the following tools: contact the Invading Species Hotline at **1-800-563-7711** or report online at <https://www.eddmaps.org/> or <https://www.inaturalist.org/>. For more information, call the Invading Species Hotline at **1-800-563-7711** or visit www.invadingspecies.com or contact the Ontario Invasive Plant Council at info@oninvasives.ca.

Watch for it

Learn to recognize periwinkle and then monitor property boundaries, forested areas, fence lines, and trails. Early detection can make it easier and less expensive to remove or control populations.

Stay on trails

Avoid traveling off-trail and in areas known to have periwinkle or other invasive species.

Stop the spread

Inspect, clean, and remove mud, seeds and plant parts from clothing, pets (including horses), vehicles (including bicycles, trucks, ATVs, etc.) and equipment such as mowers and tools. Clean vehicles and equipment in an area away from natural areas where plant seeds or parts are not likely to spread (e.g., wash vehicles in a driveway or at a car wash) before travelling to a new area. See the [Clean Equipment Protocol](#) for more details.

Keep it natural

Avoid disturbing soil and never remove native plants from natural areas. This leaves the soil bare and vulnerable to invasive species.

Use native species

Use local native species in your garden. Encourage local garden centres and nurseries to sell non-invasive or native plants. The *Grow Me Instead* guide lists alternative species to plant instead of periwinkle and other invasive groundcovers. For more information on alternative species to plant instead of invasive species, consult the *Grow Me Instead* guide at <https://www.ontarioinvasiveplants.ca/resources/grow-me-instead/>.

Tracking the Spread (Outreach, Monitoring, Mapping)

Several reporting tools have been developed to assist the public and resource professionals to report periwinkle sightings, track the spread, detect it early and respond to it quickly. These include:

1. **EDDMapS Ontario:** an online reporting tool and **FREE** mobile application (iPhone and Android) where users can report sightings, review distribution maps, and explore educational resources of invasive plants and other invasive species. This tool is free to use at <https://www.eddmaps.org/>, and can be downloaded from your app store.
2. **The Invading Species Hotline:** a toll-free telephone number (**1-800-563-7711**) operated by the Invading Species Awareness Program where individuals can report sightings verbally.
3. **iNaturalist:** an online citizen science reporting tool where users can report sightings and review distribution maps. This tool is free to use at <http://www.iNaturalist.org> and can be downloaded from your app store. If you suspect you have encountered periwinkle or other invasive species, please take detailed photographs (e.g., entire plant, leaves, stem, flowers, or other identifying features), mark your location, and report it using one of the above methods.

Additional Resources

Best Management Practices for Common Periwinkle in the Metro Vancouver Region

<https://metrovancover.org/services/regional-planning/Documents/common-periwinkle-best-practices-management.pdf>

How to Remove Periwinkle. Sea to Sky Invasive Species Council. [Video]

<https://www.youtube.com/watch?v=11fg6VtyZD4>

Best Management Practices Document Series

Autumn Olive	Garlic Mustard	Oriental Bittersweet
Black Locust	Giant Hogweed	Purple Loosestrife
Buckthorn	Goutweed	Reed Canary Grass
Burdock	Invasive Honeysuckles	Scots Pine
Dog-strangling Vine	Invasive Phragmites	Spotted Knapweed
Erect Hedge-parsley	Japanese Barberry	Tree-of-Heaven
Eurasian Water-milfoil	Japanese Knotweed	White Mulberry
European Black Alder	Manitoba Maple	White Sweet Clover
European Frog-bit	Multiflora Rose	Wild Parsnip
Flowering Rush	Norway Maple	Yellow Iris

Technical Bulletin Series from the OIPC

Black Locust	Invasive Phragmites
Buckthorn	Japanese Knotweed
Dog-strangling Vine	Purple Loosestrife
European Black Alder	Reed Canary Grass
Garlic Mustard	White Mulberry
Giant Hogweed	White Sweet Clover
Himalayan Balsam	Wild Parsnip
Invasive Honeysuckles	

Additional Publications from the Ontario Invasive Plant Council

A Landowner's Guide to Managing and Controlling Invasive Plants in Ontario

A Quick Reference Guide to Invasive Plant Species

Clean Equipment Protocol for Industry

Creating an Invasive Plant Management Strategy: A Framework for Ontario Municipalities

Grow Me Instead! Beautiful Non-Invasive Plants for Your Garden, a Guide for Southern Ontario, Edition 3, 2020 (EN)

Grow Me Instead! Beautiful Non-Invasive Plants for Your Garden, a Guide for Northern Ontario

Invasive Aquatic Plant Species: A Quick Reference Guide

Invasive Terrestrial Plant Species: A Quick Reference Guide

The Landowners Guide to Controlling Invasive Woodland Plants

References

- Bean C and Russo M. 1986. Element Stewardship Abstract for *Vinca major*. The Nature Conservancy. Available from: <https://www.invasive.org/gist/esadocs/documnts/vincmaj.pdf> [Accessed 2025 February 14].
- Beaulieu D. 2022. How to grow and care for *Vinca minor* (Periwinkle). The spruce gardening: groundcovers and vines. Available from: <https://www.thespruce.com/vinca-minor-vines> [Accessed October 20, 2025].
- Bultman T and DeWitt D. 2008. Effect of an Invasive Ground Cover Plant on the Abundance and Diversity of a Forest Floor Spider Assemblage. *Biological Invasions*. 10: 749 – 756.
- Burlakoti S and Poudyal S. 2024. Optimizing phosphorus fertilization for two commonly grown ground covers: creeping jenny and periwinkle. *Journal of Plant Nutrition*. 47: 2406-2418.
- CABI. 2019. *Vinca major* (Big periwinkle). CABI Compendium. Available from: <https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.56402> [Accessed 2025 February 25].
- Chen R and Menezes R. 2024. *Vinca* Alkaloid Toxicity. National Library of Medicine. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK557842/> [Accessed 2025 February 24].
- Cushman J and Gaffney K. 2010. Community-level Consequences of Invasion: Impacts of Exotic Clonal Plants on Riparian Vegetation. *Biological Invasions*. 12: 2765 – 2776.
- Darcy A and Burkart M. 2002. Allelopathic Potential of *Vinca minor*, an Invasive Exotic Plant in West Michigan Forest. *BIOS*. 73: 127 – 132.
- Derickx L and Antunes P. 2013. Periwinkle (*Vinca minor*). In *A Guide to the Identification and Control of Exotic Invasive Species in Ontario's Hardwood Forests*. Algoma University. pp. 143-154. Available from: https://www.researchgate.net/publication/258633371_A_Guide_to_the_Identification_and_Control_of_Exotic_Invasive_Species_in_Ontario's_Hardwood_Forests.
- Diamond Head Consulting. 2011. City of North Vancouver Invasive Plant Inventory and Restoration Plan. Available from: <https://www.cnv.org/-/media/City-of-North-Vancouver/Documents/Invasive-Plants/Invasive-Plant-Inventory-Report.pdf> [Accessed 2025 March 18].
- DiTomaso J, Kyser G et al. 2013. A Weed Report – *Vinca major* L. (Big periwinkle). Available from: https://wric.ucdavis.edu/information/crop/natural%20areas/wr_V/Vinca.pdf [Accessed 2025 February 14].
- EDDMapS. 2025a. Common periwinkle (*Vinca minor* L.). Available from: <https://www.eddmaps.org/distribution/usstate.cfm?sub=3081> [Accessed 2025 February 25].
- EDDMapS. 2025b. Big periwinkle (*Vinca major* L.). Available from: <https://www.eddmaps.org/distribution/usstate.cfm?sub=4528> [Accessed 2025 February 25].
- Global Invasive Species Database. 2005. Species Profile – Greater Periwinkle (*Vinca major*). Available from: <https://www.iucngisd.org/gisd/species.php?sc=487> [Accessed 2025 February 24].

- iNaturalist. 2025a. Lesser periwinkle (*Vinca minor*). Available from: https://www.inaturalist.org/observations?place_id=6712&subview=map&taxon_id=55844 [Accessed 2025 February 25].
- iNaturalist. 2025b. Greater periwinkle (*Vinca major*). Available from: https://www.inaturalist.org/observations?place_id=6712&subview=map&taxon_id=53326 [Accessed 2025 February 25].
- Kahri K. 2024. The Role of Leaf Out Timing and *Vinca minor* Invasion on a Deciduous Understory Plant Community [Master's thesis, The University of Guelph].
- Katoch A and Thakur M. 2022. Studies on Insect Pollinators of *Vinca major* (L.) in Shimla Hills, Western Himalaya, India. International Journal of Entomology and Nematology Research. 6: 29 – 46.
- Kew Royal Botanic Gardens. n.d. Plants of the World Online - *Vinca*. Available from: <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:2619-1> [Accessed 2025 February 21].
- Khanavi M, Pourmoslemi S, Farahanikia B, Hadjiakhoondi A, Ostad SN. 2010. Cytotoxicity of *Vinca minor*. Pharmaceutical Biology 48: 96-100.
- Landon A and Banko T. 2005. Propagation of *Vinca minor* by Single-node Cuttings. Journal of Environmental Horticulture. 23: 1 – 3.
- Liao F, Xie Y and Jiang H. 2013. The Effect of Water Stress on the Physiology of *Vinca major* 'Variegata'. Applied Mechanics and Materials. 409 – 410: 782 – 787.
- Missouri Botanical Gardens. n.d. *Vinca minor*. Available from: <https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=276078> [Accessed 2025 February 21].
- Niemiera A. 2018. Selecting landscape plants: groundcovers. Virginia Cooperative Extension. Available from: <https://vtechworks.lib.vt.edu/server/api/core/bitstreams/>. [Accessed 2025 October 20].
- O'Driscoll M. 2009. Exotic plant management at the Guilford Courthouse National Military Park, Greensboro, North Carolina, with observations on the spread and control of common periwinkle (*Vinca minor*) [Master's thesis, NC State University].
- Panasenko N and Anishchenko L. 2018. Influence of Invasive Plants *Parthenocissus vitacea* and *Vinca minor* on Biodiversity Indices of Forest Communities. Contemporary Problems of Ecology. 11: 614 – 623.
- Stone K. 2009. *Vinca major*, *V. minor*. In: Fire Effects Information System. Available from: <https://www.fs.usda.gov/database/feis/plants/vine/vinspp/all.html> [Accessed 2025 February 14].
- Trees and Shrubs Online. n.d. *Vinca*. Available from: <https://www.treesandshrubsonline.org/articles/vinca/> [Accessed 2025 February 21].
- Vrabec R, Drašar P, Opletal L, Kosturko Š, Blunden G, Cahlíková L. 2025. Alkaloids from the genus *Vinca* L.(Apocynaceae): a comprehensive biological and structural review. Phytochemistry Reviews. 1-71.
- Wells E and Brown R. 2000. An Annotated Checklist of the Vascular Plants in the Forest at Historic Mount Vernon, Virginia: A Legacy from the Past. Castanea. 65: 242–257.
- Zhang YS, Li JD, Yan C. 2018. An update on vinpocetine: new discoveries and clinical implications. European Journal of Pharmacology. 819:30-34.

Acknowledgements

Reviewers and Contributors

Ben Liang, Hamilton Conservation Authority
Brett Espensen, Colville Consulting Inc.
Bryson McEwen, Hamilton Conservation Authority
Cara Webster, City of Toronto
Cassidy Mowbray, City of Mississauga
Clara Greig, City of Toronto
Freyja Whitten, Credit Valley Conservation
Gregory Parker
Iola Price, Ontario Invasive Plant Council
Jennifer Dyson, Native Plant Solutions, Ducks Unlimited Canada
John Foster, Ontario Invasive Plant Council
Kaylyn Crawford, City of Toronto
Kristen Vincent, City of Toronto
Lesley McDonnell, Hamilton Conservation Authority
Margaret Good, City of Toronto
Stephen Smith, Urban Forest Associates

Photographs

Cassidy Mowbray, City of Mississauga
Dayna Laxton, York Region
iNaturalist (www.inaturalist.org)
Iola Price, Ontario Invasive Plant Council
Karen MacDonald, Toronto and Region Conservation Authority

Design by

Adam Connor,
www.AdamConnor.ca

