

INVASIVE SPECIES OF PEI

Bittersweet Nightshade, *Solanum dulcamara*



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What are invasive species?

Invasive species are species that may be invasive when introduced to an area outside of their native range. They can be introduced intentionally or unintentionally.

Why are invasive species a problem?

Once they establish, invasive plants can reproduce quickly because they have no natural predators or pathogens to keep them in check, and they often become the dominant species in an ecosystem. This can have devastating effects on the environment. Invasive species can displace native plants by monopolizing space, light, water and other resources needed for growth. They can completely alter native plant communities and drastically lower biodiversity. Invasive species can also adversely affect the economy and human health, and interfere with recreational activities.

HISTORY

Bittersweet nightshade is native to Europe and Asia. It was introduced to North America for ornamental and medicinal purposes and became widespread by the late 1800s. It is now considered an invasive weed in most US states and Canadian provinces.

IDENTIFICATION

Bittersweet nightshade is a perennial, climbing vine. It grows in a wide range of habitats from full sun to medium shade. It can be found growing along hedgerows, forest edges, riparian zones and in forest understories. Its stems and berries have been used in herbalism to treat skin conditions such as herpes and eczema. However, the berries are toxic when eaten by humans.

Bittersweet nightshade may be confused with Asiatic bittersweet, *Celastrus orbiculatus*, another invasive species found in PEI. Here are some distinguishing features of bittersweet nightshade that may help you positively identify it:

- Stem is woody and can grow to 10 ft.
- Leaves are heart-shaped and arranged alternately.
- When leaves are crushed they emit an unpleasant smell.
- Clusters of flowers extend from the stem.
- Flowers are blue-violet, star-shaped, with protruding yellow anthers.
- Flowers bloom May to September.
- Forms clusters of green, ovaloid berries that are red when ripe.
- Spread by birds who eat the berries, and by pieces of stem or root that are moved by soil or water.
- Prefers wet areas.



CONCERN

Bittersweet nightshade's toxicity makes it an exceptionally unwelcome invader of local ecosystems. The compounds which cause this toxicity (solanine and dulcamarine) are toxic to humans and pets. Unripe berries and leaves have the highest toxicity. If an organism comes into close contact with or ingests Bittersweet Nightshade, it risks gastroenteritis, dermatitis, phytophotosensitivity, and in some cases death.

Bittersweet nightshade can spread quickly when birds eat its berries. Each berry contains around 30 seeds. It often grows in dense, fast-spreading clumps, preventing native plant growth. Bittersweet nightshade grows well in wet environments and has the potential to choke out small, slow-flowing waterways. It is a climbing plant and can cover or shade out low trees, shrubs, bushes, and other plants. It can wreak havoc in orchards, damaging fruit crops. Bittersweet nightshade may also present itself as an alternate host to some common potato pests, such as the Colorado Potato Beetle.



HABITAT

Bittersweet nightshade invades diverse habitats such as slow-flowing waterways, hedgerows, wetlands, and orchards. It frequently colonizes disturbed areas and sensitive woodland habitats. Bittersweet nightshade prefers full sun but can also tolerate partial shade. It can grow in a wide range of soil pH levels, and prefers well-drained, moist soils.

PREVENTION AND CONTROL

Before selecting a control method, consider the size of the infestation, your available resources, and the amount of effort you are willing to expend. Often, multiple control methods are used simultaneously. Consider also the local ecosystem and what other organisms or ecological processes may be affected by management.

Management of Bittersweet nightshade should be done early in the season to ensure berries are not dispersed by wildlife or management activities. Be sure to use appropriate PPE when managing toxic plants. Thick gloves and eye protection are recommended, as well as boots, a long-sleeve shirt, and pants. Hand-pulling the whole plant (including as much of the roots as possible) or digging up the whole plant can be effective for small to medium-sized patches. Following removal, cover the area with a thick, black tarp to prevent any new growth from gaining access to sunlight. It may also get hot under the tarp, potentially baking dormant seeds that could germinate after management. This process is called "solarization". Additionally, the tarp can be covered with 8" soil and then replanted with native species.

Mowing will prevent seed production but has been found to be ineffective in the long-term management of the plant. Mowing may agitate the plants, causing increased aggressive growth. Mowing can also spread around plant parts which can take root and regrow.

The PEIISC does not provide advice for chemical treatment options at this time. If using chemical controls, it is imperative that all local legislation and manufacturer's instructions be followed during application. Chemical Control should never be used when close to a waterbody or watercourse. When managing invasive species nearby (within 15m of) a watercourse, you are required to obtain a Watercourse, Wetland and Buffer Zone Activity permit. The permit should be applied for six weeks before beginning work.

It is essential to remove and properly dispose of all plant parts. Entire new plants can regrow from left-behind root fragments or from sections of stems that reroot at the node. Clean all equipment before leaving the site to prevent spread or contact with toxins. Repeated visits to the site after initial control efforts will be necessary to ensure management was effective.

GARDEN ALTERNATIVES

Tomatoes, *Solanum lycopersicum*



Halberd-leaved Tearthumb
Persicaria arifolia



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DISPOSAL

- Place invasive plants in a clear plastic bag and secure.
- Write plant name (or "invasive plant") on the bag. Place in waste cart (you can also have up to 2 excess bags beside your cart) OR bring them to any Waste Watch Drop-Off Center and pay applicable waste disposal fee.
- For information on plants that are considered invasive, visit the PEI Invasive Species Council website at <https://peiinvasives.com/invasive-species/>.
- Businesses and residents disposing of the loads greater than what would fit in a half-tonne truck require a permit from the Department of Environment (1-866-368-5044). After receiving the permit, businesses and residents will be directed to an appropriate final disposal facility. Please note that only loads for which permits have been issued will be accepted at these facilities.
- Please check the IWMC sorting guide www.iwmc.pe.ca/sort (type Invasive Species in the search window) to ensure these instructions are up to date.

How to report:

Record any invasive species sightings at <https://www.eddmaps.org/> OR <https://www.inaturalist.org> OR contact peiinvasives@gmail.com

