

Background on Invasive Species

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Education is the most powerful weapon which you can use to change the world.

-Nelson Mandela

Invasive species are a serious problem that impact all of us. Invasive species are also an issue that adults and children alike can tackle hands-on. Learning about and acting on invasive species makes a positive difference in the world and is an act of hope!



Students in Williams Lake make “nature paint” to learn about invasive and native plants. (Credit: ISCBC)

WHAT ARE INVASIVE SPECIES?

Invasive species are plants, animals, or other organisms that are not native to a region and whose introduction and spread harms the environment, the economy, human health and society. In contrast, a **native** species is one that has lived and evolved in a place for a long time and is part of a natural, balanced system.

NON-NATIVE BUT NON-INVASIVE

Not all introduced species are invasive! Some such as tomatoes and wheat are important food sources, while others such as tulips and peonies won't survive outside our gardens.

There are many terms used when speaking about non-native species that are important to define. Another word for a non-native species is **exotic**. Unlike invasive species, exotic species do not have negative environmental, economic, or social impacts.

A **weed** is a plant that is unwanted in a given area, such as in a vegetable garden or lawn. The term includes a value judgment: what is a weed to one person may be a desired plant to someone else or in a different location. Weeds may spread easily within an area but aren't necessarily invasive species in that they may not cause negative impacts to the environment, economy, or community. A **Noxious Weed** is a provincial designation of invasive plants that are regulated under the BC Weed Control Act.

IMPACTS OF INVASIVE SPECIES

Invasive species cause negative impacts to the environment, the economy and/or to human health and society. Invasive species affect everyone. Some examples of impacts include the following:

They harm the environment

Invasive species out-compete native species, alter ecosystems, and can create an increased fire hazard. They are the second most significant threat to biodiversity after habitat loss. Many species are at risk of extinction due to invasive species.

Examples:

- ≈ Smallmouth bass alter the food web and eat young salmon species.
- ≈ Eurasian watermilfoil alters oxygen levels in lakes.



Eurasian watermilfoil can form thick mats in lakes, making it difficult for animals—including people—to swim, and outcompeting other aquatic plants. (Credit: A Fox, University of Georgia – Athens)

- ≈ Eastern grey squirrels outcompete native squirrels and eat the eggs of native birds.
- ≈ Yellow flag iris chokes out natural vegetation and blocks turtles' paths to lay their eggs.
- ≈ Bats and small birds can be trapped and killed by burdock burrs.



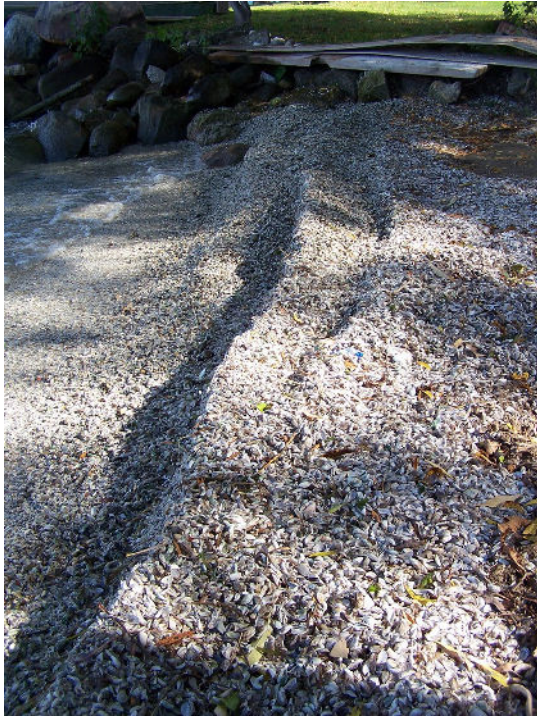
*Small animals, such as this bat, can get trapped and die in burdock's sticky, velcro-like burrs.
(Credit: G Michel)*

They harm the economy

Property and crop values drop while control costs rise from treating invasive species infestations on agricultural, range, and forested lands and in gardens, parks, and roadsides. The estimated annual cumulative lost revenue caused by just 16 invasive species in Canada is between \$13 to \$35 billion (Environment Canada).

Examples:

- ≈ Hoary alyssum ruins hay fields and poisons livestock.
- ≈ Marsh plume thistle outgrows tree seedlings and impacts newly planted cutblocks.
- ≈ Apple maggots can ruin entire fruit crops.
- ≈ Invasive Zebra and Quagga mussels (not yet in BC) clog irrigation and hydro pipes, take over lakes and rivers and change freshwater ecosystems.



Zebra mussels can take over freshwater lakes and dramatically alter aquatic ecosystems. This shoreline is covered with hundreds of thousands of sharp Zebra mussel shells, which can cause injuries to those who walk barefoot. (Credit: Megan Eplett)

They harm society and human health

Invasive species impact recreation by making trails impassable, damaging fishing streams, and puncturing bike tires. Invasive plants can impact health and safety by obstructing sightlines and road signs along transportation corridors. Some invasive plants cause skin rashes, burns, and increase allergies. Invasive species can impact traditional uses of plants and animals or damage areas culturally significant to indigenous peoples. They can impact access to harvest sites, limit forage for deer and moose, and outcompete native species that are traditional medicinal or food sources.

Examples:

- ≈ Giant hogweed causes harsh burns on skin.
- ≈ Sulphur cinquefoil chokes out Bitterroot (naqamçu in Ktunaxa), a traditional food source for Indigenous people.
- ≈ Fire ants have painful bites and cause allergic reactions to animals and people.



Fire ants on Boot (Credit: Bart Drees, Texas A&M University)



Giant Hogweed can grow up to 5 m tall and flowerheads can be 1.5 m wide. The sap in the plant is photo-toxic, meaning that if it contacts skin when in sunlight, it can cause severe and long lasting burns and rashes. (Credit: Fraser Valley Regional District)

HOW DID INVASIVE SPECIES GET HERE? HOW DO THEY SPREAD?

Invasive species are spread by people - both on purpose and by mistake. Global trade and our travels around the world can spread hidden hitchhikers in plant products, firewood, hay, and wood packaging; in food and horticultural imports; on vehicles such as trucks, airplanes, and commercial or recreational boats; released from ships' ballast waters, or even from mud on the bottom of hiking boots and bike tires. Some of the plants we choose for our gardens, such as Butterfly bush and Common periwinkle, are invasive species that can spread and cause big problems outside the garden gate. Climate change is also increasing the spread of many invasive species, allowing them to move into new regions. Some invasive animals, such as Goldfish, European rabbits, and Red-eared slider turtles, started their lives out as pets and escaped or were released into the wild when owners could no longer care for them.

Once introduced, invasive species have characteristics that allow them to rapidly spread and take over the environment where they are introduced.

Four main characteristics of invasive species

1. They can be prolific reproducers/seed producers. For example, a single Purple loosestrife plant can produce over 300,000 seeds/year, and one Zebra mussel can produce up to 1 million eggs a year! Japanese knotweed can form an entirely new plant from just a tiny stem fragment.

2. Their seeds spread easily and effectively, such as the seeds of Burdock and Hounds-tongue, which attach to animals, vehicles and clothing, or Thistle, whose parachute-like seeds disperse widely by the wind. Some plants, like Yellow flag iris, have floating seeds that can travel long distances on waterways.



This Marsh plume thistle plant produces thousands of parachute-like seeds that are spread by the wind. (Credit: J Samanek, Phytosanitary Administration, Bugwood.org)

3. Invasive plants can quickly establish and thrive on disturbed and open ground or waterways, displacing native plants. Tansy ragwort and Dalmatian toadflax will sprout from roots, root pieces and crown buds, and Eurasian watermilfoil can spread throughout aquatic ecosystems via tiny stem fragments!

4. Lacking the natural predators or diseases that control them in their homeland, invasive plants and animals can move into a habitat and completely take over. American bullfrogs will eat anything that can fit in their mouths, even baby turtles and small birds. Sulphur cinquefoil and Orange hawkweed are not palatable, so livestock or wildlife won't graze them.



Field with Orange hawkweed infestation (Credit: M Hafke)

You can see that these four characteristics create a cycle that allows invasive species populations to grow out of control! Invasive species can produce many offspring that spread easily to new areas. Once they are in the new area, they grow and become established very quickly. Nothing eats them, or keeps the population in check. This allows these newly spread invasives to produce even more offspring that in turn spread to more areas, and the cycle can continue.

Where can I find a list of invasive species in my area?

The top invasive species for your location will depend on the region of BC that you live in. Start your search by finding your local regional invasive species committee's website [here](#) and some of the common invasive plants and animals in your region on the map [here](#). Or check out the [Government of BC's invasive species listings](#).

HOW CAN I HELP?



Tatla Lake Elementary School students are “Invasive-Wise”! The whole school helps to protect their region from the spread of invasive species. (Credit: ISCBC)

Every one of us can play our part to stop the spread of invasive species and protect British Columbia. By learning about native and invasive species, we connect with community and the environment. Here are some ways you can make a difference.

Learn!

- ≈ Play some invasive species games and download some colouring pages and activity books [here](#).
- ≈ Check out our detailed lesson plans and [curriculum-based activities](#) to learn about invasive species and their impacts.
- ≈ For Educators: Join ISCBC’s [Invasive-Wise Education](#) program to connect with our

Education Facilitator who will help you plan lessons and stewardship activities and offer virtual class presentations.

Identify!

Become familiar with the invasive species found near the schools, parks, and neighbourhoods in your community. <https://bcinvasives.ca/take-action/identify/>



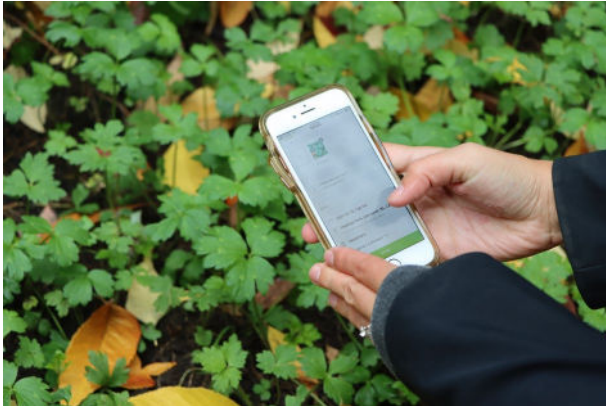
Prevent!

When it comes to invasive species, preventing their spread is key! Select plants carefully when making gardens in your schoolyard or community and practice [PlayCleanGo](#) when going on outdoor excursions with your learners. Familiarize yourself with these and other [best practices](#).



Report!

When outdoors on field trips or neighbourhood walks, keep your eyes open for invasive species. Report your observations and help prevent the spread! Take photos and submit them online or using the free phone apps **iNaturalist** (join the **I Spy and Identify** Project) or **Report Invasives BC**. They're quick and easy to use and you'll help protect BC's biodiversity! Learn more at <https://bcinvasives.ca/report/>



What kind of efforts are underway?

There are many community groups, government organizations, Indigenous and regional partners that are working to combat invasive species and restore native ecosystems across BC. Check out the Invasive Species Council of BC's [website](#) for resources, research, presentations and support, and to locate a [regional group](#) near you who can provide specific information about species and activities in your area.



May is Invasive Species Action Month!

May is [Invasive Species Action Month](#) (ISAM) in BC! It's a great time to get outside and to learn about invasive species. Check out our [curriculum-linked activities](#), [community action projects](#) and our [games and activities](#) webpages for some fun and meaningful activities to do during ISAM!



*Together, we can all play our part to protect British Columbia's
special places, plants, and animals.*
