

Accidental Travelers



Learning Objectives

Students will:

- Discover ways in which non-native species inadvertently travel.
- Explore the means by which non-native species can spread after entering ecosystems.
- Trace the origins of non-native animals and plants.



Method

Students play a card-matching activity to learn how human activities accidentally transport invasive species into ecosystems. They then explore the introduction and spread of a specific individual animal or plant in greater depth.



Materials

- Invasive species description cards (included)
- Invasive species illustration cards (included)

Background

"Non-native," "alien," and "exotic" describe life forms living outside their natural geographic range. Most non-native species cannot last long outside their native habitats, but those that do can multiply quickly and spread through the forces of nature and with human help. Without the predators, competitors, and diseases they left behind in their home environments, they have an unfair advantage over native species, and their populations can explode as a result.

These species reach new environments in many ways. People usually play a part in their passage - sometimes accidentally, sometimes intentionally.

- **Shipping** – Species travel via ballast water that is taken on ships for stability and later dumped into harbours worldwide. Others come as stowaways in cargo ships, trains, trucks, and planes.
- **Canal construction** – Artificial waterways allow species to cross natural barriers like lakes.
- **Garbage dumping** – Floating rubbish provides mobile homes for marine life to cross the ocean.
- **Recreation** – Species often hitch rides on watercraft, bikes, ATVs, hiking boots, and fishing gear.
- **Domestic animals** – The release of unwanted pets has introduced exotic species into the wild.
- **Gardening and agriculture** – Cultivated plants from gardens and croplands escape to wetlands, grasslands, and roadsides.
- **Natural pathways** – Wind, water, and wildlife can also help spread alien plants and animals.
- **Intentional releases** – Introduction of crops, garden plants and livestock by settlers.

For additional resources visit:

CanadianWildlifeFederation.ca/Education

Activity

1. Divide the students into small groups.
2. Give each group a set of invasive species illustration and description cards.
3. Each groups should look at the cards and work cooperatively to match each picture with its corresponding description.
4. Confirm the matches as a class. The correct answers are as follows:
 - 1) Atlantic salmon
 - 2) Brown spruce longhorn beetle
 - 3) Bullfrog
 - 4) Dead man's fingers
 - 5) Domestic cat
 - 6) Green crab
 - 7) Leafy spurge
 - 8) Spiny water flea
5. Discuss ways in which invasive species are transported from one ecosystem to another and how they spread once they have arrived.
6. Ask students to research in depth the introduction and spread of another invasive animal or plant. Other examples of accidental transplants include:
 - Clubbed tunicate
 - Dutch elm disease
 - Eurasian water-milfoil
 - Flowering-rush
 - House mouse
 - Norway rat
 - Round goby
 - Rusty cray-fish
 - Sea lamprey
 - Spotted knapweed
 - Wild boar
 - Zebra mussel
7. Students should then share their research findings in a written or oral report.
8. Alternatively, ask them to draw each invader and describe (briefly and without naming the species) how it was transplanted on a separate sheet. Turn these into new sets of cards to be copied and distributed for another round of the matching activity described above.

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Invasive Species #1:

This aquatic species, native to our East Coast, regularly escapes from net cages in aquaculture facilities in British Columbia. There it competes with native populations for spawning habitat in West Coast streams and marine habitat in the Pacific Ocean. Scientists fear that *Salmo salar* could interbreed with its West Coast cousin, *Oncochynchus kisutch*, and spread diseases throughout its adopted habitat.

Invasive Species #2:

Believed to have arrived on our shores in wooden packing materials from Eastern Europe, this wood-boring pest was spotted by scientists in September 1991 in the trees of Point Pleasant Park in the city of Halifax. *Tetropium fuscum* attacks and kills spruce trees and could spread to Canada's vast boreal forest if left unchecked. Forestry officials had to cut down and burn about 5,000 infected trees in Halifax.

Invasive Species #3:

This bug-eyed alien is invading lakes and ponds throughout southern Vancouver Island. Brought to British Columbia decades ago to stock aquatic gardens and to farm for its edible limbs, this green gatecrasher isn't naturally found west of the Great Lakes. That *Rana catesbeiana* is spreading by leaps and bounds and eats anything that fits into its mouth means trouble for BC's native amphibians.

Invasive Species #4:

Codium fragile is believed to have originated in Japan. It probably came here attached to the hulls of ships or the shells of imported oysters. One of the world's most invasive seaweeds, it forms bushy meadows with appendages resembling the digits on a corpse. By clinging firmly to the rocky seabed along Nova Scotia's southern shore, it out-competes native kelp forests for space.

Invasive Species #5:

Largely to blame for the near extinction of the prothonotary warbler, this mammalian marauder kills millions of songbirds and other small animals every year. People are often unaware of the danger this predator poses to wildlife when let outdoors or allowed to form free-roaming populations in the wild. Native to Asia and Africa, *Felis catus* has never been part of the natural food chain in Canada.

Invasive Species #6:

Native to Europe, *Carcinus maenas* found its way to the East Coast in the 1800s and has since been spreading up to 100 kilometres a year. Ocean currents and ballast water (taken on ships for stability) carry its larvae around the world. Now established in the Maritimes and as far west as Vancouver Island, this aggressive crustacean has no natural enemies and feeds on clams, oysters, mussels and fish.

Invasive Species #7:

Euphorbia esula arrived on the Prairies in the late 1800s mixed up in oat seeds imported from Russia by pioneers. By 1911, it had spread to Manitoba's grasslands, and its range has been doubling every 10 years since. This herbaceous horror "eats" the prairie alive by releasing a toxin that is deadly to every plant but itself. It has already infected more than two million hectares in North America.

Invasive Species #8:

This prickly crustacean came to North America from Europe in the ballast water of ships. Its barbed tail prevents it from being eaten by small fish. Mean-while, *Bythotrephes cederstroemi* competes with small fish for a diet of zooplankton. Without enough zooplankton to eat, small fish populations could decline, also leaving larger fish without food.

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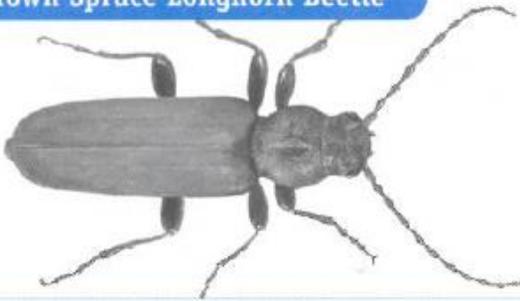
Atlantic Salmon



Domestic Cat



Brown Spruce Longhorn Beetle



Green Crab



Bullfrog



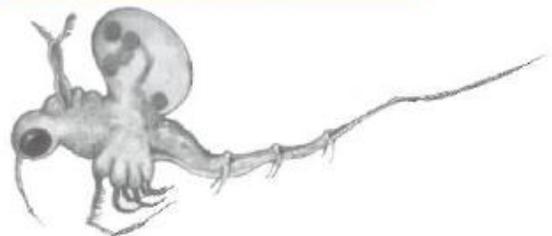
Leafy Spurge



Dead Man's Fingers



Spiny Water Flea



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