

Assess the Mess



Learning Objectives

Students will:

- Become skilled in distinguishing between some native and non-native species.
- Survey their area for the presence of native and non-native species.
- Examine interrelationships among living things.
- Assess the positive and negative impacts of non-native species on native wildlife and habitat.
- Map the major features of their schoolyard or other survey site.



Method

Students research the presence of native and non-native species in their area, survey a local nature site and discuss the effects of non-native species on local wildlife and habitat.



Materials

- Writing materials
- Clipboards with observation sheets
- Graphing paper for mapping
- Field guides to North American species

Background

Not all non-native species are invasive, and some can have a positive impact. However, others can wipe out native animals and plants - the very fabric of the web of life. Some of the major impact of invasive species include:

- **Habitat loss and degradation** – Invasive species dominate native habits and reduce the level of diversity present, resulting in monocultures (communities dominated by a single species)
- **Competition with native species** - In the battle for food, water, shelter, and space, invasive species often out-compete native species.
- **Predation** – Some invasive animals are unwelcome additions to the food chain, preying on native species and reducing the amount of food available for native predators.
- **Loss of biodiversity** - The decline or disappearance of native species resulting from invasive species upsets the ecological balance that hold together the web of life.
- **Socio-economic impacts** - With losses to government, communities, industry, utilities, agriculture, and recreation in the billions of dollars, we continue to pay a high price for the spread of invasive species.

For additional resources visit:

CanadianWildlifeFederation.ca/Education

Every organism has its own **niche** - the perfect arrangement of habitat in which it may flourish. If a non-native species thrive, native animals or plants can dwindle in numbers and possibly lose their niche. As a result, interrelationships among the remaining species will never be quite the same.

Activity

1. Review the major impacts of invasive species on native wildlife and habitat with the class.
2. Let students know that they are going to:
 - Research the presence of native and non-native species in their area.
 - Gather data on habitat elements, including food, water, shelter, and space.
 - Explore interrelationships among native and non-native species.
3. Have students start by learning to identify some of the native and non-native species in their area. They will need access to resources such as field guides to birds, mammals, reptiles, amphibians, crustaceans, molluscs, fish, and plants.
4. Take a field trip to a nearby natural site, such as a wetland, meadow, forest, seashore, or other natural area. A park or your schoolyard will also work well.
 - If students cannot go outdoors or do not have access to a suitable site, have them take a "virtual field trip" using online tools and available data on species and spaces in your area.
5. Prior to the real or virtual field trip, prepare an observation sheet that will help students inventory a few examples of the following items:
 - **Native species:** What native animals and plants are present? Are there any rare or endangered species?
 - **Non-native species:** What invasive or naturalized life forms are present? Where are they located and how much space do they occupy?
 - **Interrelationships:** Is there evidence of interaction among species? Are there signs of predation or competition between native and non-native species?
 - **Positive impacts:** How do non-native species appear to be benefiting other animals and plants? For example, are pollinating insects drawn to non-native flowers?
 - **Negative impacts:** What are the negative effects of non-native species? Look for signs of monocultures and native animals and plants that are crowded out of their homes.
 - **Habitat elements:** Are there natural food sources? Is there a river, marsh or other source of water? Can wildlife find shelter? Is there enough space for species to grow and multiply?

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Activity

6. During the field trip, have the students work in pairs or small groups to:
 - Gather data and complete the observation sheet.
 - Sketch a map of the survey site, including borders, habitat elements, native and non-native animals and plants, evidence of positive and negative impacts, plus human components, like fences, buildings and parking lots.
7. Following the field trip, groups should:
 - Prepare a report summarizing their findings.
 - Share their observations with the rest of the class.
8. Encourage teams to compare site maps, ask questions to clarify each other's findings, and discuss any interactions between native and alien species.
 - How are alien species impacting these local habitats?
 - What can we do to help protect native species? (e.g. checking our shoes to prevent the spread of invasive plant seeds)

Extensions

- Research a single non-native species observed in your region in depth. Write a short paper on its origins, how it got here, when it arrived, and how it helps or harms native wildlife and habitat.
- Participate in an ongoing biological survey of non-native species or start your own monitoring study to track the presence and spread of invasive species in your community.

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