

An Unnatural History



Learning Objectives

Students will:

- Investigate the history of intentionally introduced non-native species.
- Trace the geographical roots of non-native species found in their region.
- Recognize ecological and cultural changes caused by the introduction of non-native and invasive species.
- Explore the historical connection between Indigenous people and wildlife.



Method

Students investigate historical relationships between Indigenous groups and native wildlife, as well as intentional introductions of non-native animals and plants to North America by explorers and settlers. They trace historical and geographical origins of non-native species and share their findings.



Materials

- Internet resources and reference materials
- Lists of native and non-native species found regionally or nationally
- Maps of Canada and the world

Background

Long before the first explorers and settlers arrived in what is now Canada, this land was home to more than 80 First Nations. They inhabited seven different cultural regions: the Arctic, Subarctic, Pacific Coast, Plateau, Plains, Woodlands, and Lowlands.

They relied on a wide range of wild plants and animals - not to mention maize, beans, sunflower, squash, and other cultivated crops - to meet their material, nutritional, cultural, and spiritual needs. Their lives depended on such native species as the polar bear and crowberry in the Arctic and Subarctic; the white sturgeon and camas bulbs on the Pacific Coast; the bison and buffalo-berry on the Plains and Plateau; and the porcupine and paper-birch in the Woodlands and Lowlands.

A deep understanding of the value and interconnectivity of all living things allowed Indigenous people to act as stewards of ecosystems, like the Garry oak meadows of Vancouver Island. Their medicines included sage to heal sores and rashes, yellow wild indigo to treat colic, white pine and hemlock to cure scurvy, and countless other remedies that not only benefited Indigenous people but also saved the lives of many explorers and settlers when they arrived.

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Unfortunately, these newcomers to the continent would be less aware of the ecological riches around them. Many longed to replace the native flora and fauna with familiar plants and animals from home. To soothe their nostalgia, they introduced non-native livestock and food crops, as well as ornamental trees, flowers, fish, and game.

Some of these species, such as the grey partridge, crested myna, and European oyster, have had little ecological impact. They are considered "naturalized." Others, such as the European gypsy moth (released in Medford, Massachusetts, in an attempt to breed a better silk worm), purple loosestrife and Scotch broom (introduced from Europe to North America mainly as ornamental plants), and the European starling and house sparrow (let loose in New York City's Central Park), have invaded and devastated the landscape since the 19th century.

Put another way, past attempts to alter nature without foreseeing possible outcomes or understanding how life evolves have resulted in "an unnatural history."

Activity

1. Before starting the lesson, develop two lists:

- One of native species traditionally important to First Nations peoples in your part of Canada.
- One of non-native species intentionally introduced to your area.

For more specific information on plants and animals in your region, check out other online resources, and reference books; or contact a local naturalist group, wildflower society, fish and wildlife agency, or your ministry of natural resources.

2. Begin by asking students the following questions:

- Can you name some Indigenous groups that historically inhabited, and may still live in, our area?
- Can you name some animals and plants that were important to Indigenous people before explorers and settlers arrived in Canada?
- Were these species valued as sources of food, clothing, medicine, fuel, shelter, art, ceremonial objects or other materials?

3. Have students name cultural groups that have immigrated from overseas and settled in Canada or your specific area. Invite them to point out the places of origin of French, British, Irish, Ukrainian, Japanese, Chinese, and other immigrants on a map of the world.

- Did those people bring animals or plants from their homelands when they came to Canada? Livestock, such as cattle, sheep, and poultry, and food crops, like buckwheat, soy, and rye, are good examples.
- What needs did those animals and plants fulfill?

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Activity

4. Discuss with students:
 - Many of those introduced species not only served the needs of immigrants but also acclimatized to life in the wilds of Canada.
 - Some species were brought here with the intention of "improving on nature."
 - Share examples of successfully naturalized species, such as the brown trout, ring-necked pheasant, and honeybee.
 - Share more examples of lesser successes - or introductions gone very wrong - such as the gypsy moth, European starling, and Scotch broom.
5. Can the students name other introduced species that are now considered naturalized or invasive?
6. Divide the class into pairs or small groups to conduct a research project on one of the following topics:
 - The historical importance of native wildlife to Indigenous groups in your region or another part of Canada. The project could focus on:
 - Indigenous botany;
 - Knowledge of the medical value of plants, including cures that saved the lives of many newcomers to Canada;
 - Ceremonial and spiritual uses of sweet grass, sage, and other aromatic plants;
 - The significance of living as keepers of natural communities, including grasslands and forests;
 - The role of animals and plants in First Nations legend and lore;
 - The farming of food crops, such as maize, beans, and squash; or
 - The critical value of a single species, like the bison, bowhead whale, or western red cedar, in fulfilling people's material, spiritual, and cultural needs.
 - The intentional introduction of non-native species by explorers, settlers, or other newcomers to your area or elsewhere in Canada. The project could focus on:
 - The story behind acclimatization societies, which imported thousands of birds from abroad;
 - An account of the introduction and naturalization of helpful or harmless species, like the chukar or crested myna;
 - The farming traditions of early colonists, including the raising of crops and livestock brought by ship from overseas.

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Activity

7. Encourage the students to choose a variety of topics that touch on native and non-native species and cover a wide range of both terrestrial and aquatic species.
8. Each group should now:
 - Write down five to 10 questions to answer through the research project.
 - Launch their research using online or library resources.
 - Prepare a written or oral report.
 - Share their research findings with the class.
9. Encourage discussion on such issues as:
 - The acceptability of releasing potentially invasive species into the wild to meet human needs.
 - The role of intentionally introduced non-native species in the loss of native species and spaces.
 - Other ecological changes that have happened in Canada since European contact.
10. Work with the class to create a timeline (if possible) outlining the events reported by students, such as the beginnings of agriculture in southern Ontario in 1350, the arrival of horses on the Prairies in 1730, and the planting of Scotch broom in gardens on the West Coast in 1850.

Extensions

- Take a similar approach to exploring the history of accidentally introduced species, like the sea lamprey, zebra mussel, green crab, and spiny water flea.
- Investigate pre-Columbian introductions of non-native species to Canada by Indigenous people. Examples include maize, beans, squash, and possibly the eastern prickly pear cactus, which originated in southern climes.
- Invite Elders and other knowledgeable First Nations community members into the classroom to speak. Most communities have protocols in place to be followed when engaging with Elders and knowledge-keepers. Make contact with the local First Nations communities through workers in schools or through the local First Nations Government or Band Council. There may be a School District staff member such as an Aboriginal/Indigenous District Principal, Helping Teacher, Resource Worker or other liaison person to help with the initial contact.

For additional resources visit:

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