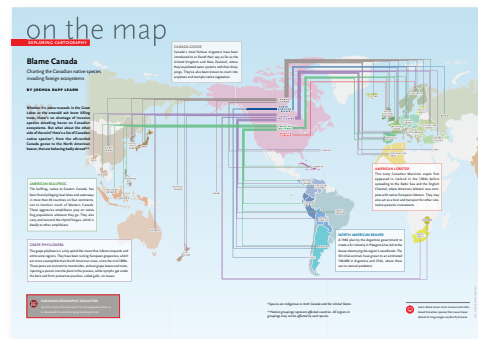


CANADIAN GEOGRAPHIC IN THE CLASSROOM

Article Blame Canada: Charting the Canadian native species invading foreign ecosystems

Issue December 2015

Check out an interactive version of this map [here](#).



Canadian Geographic's “Blame Canada” article and map introduces twelve Canadian species that have become invasive in other parts of the world. Some of alien species arrive on shores accidentally, while others are intentionally introduced. It is more common to hear about the **invasive** species that disrupt and harm our native ecosystems, but some invasive species, such as Kentucky bluegrass, potatoes, corn, wheat and house cats, are usually viewed favourably by Canadians.

The concept of **diffusion** is important to geography. Geographers are interested in identifying patterns and explaining why each pattern developed. Inevitably, the explanation involves how the item spread, or diffused, from its point of origin to another location. The examination of invasive species provides a great opportunity for teachers to introduce the concept of diffusion in their class.

Introducing the diffusion of invasive species in your geography classroom:

Below are lesson ideas and guiding questions related to the diffusion of species and how you can use this article and map in your classroom.

1. Using geographic thinking concepts

- Encourage students to think like a geographer by analysing the map and determining:
- Spatial Significance: Ask students to determine the importance of a place or a region by exploring the connections between geographical locations and the physical characteristics of each site
- Patterns and Trends: Ask students to highlight characteristics that are similar and repeat
- Interrelationships: Ask students to make connections within and between the human and natural environment
- Geographic Perspective: Ask students to apply environmental, economic, cultural and/or social lenses to analyse the map(s)

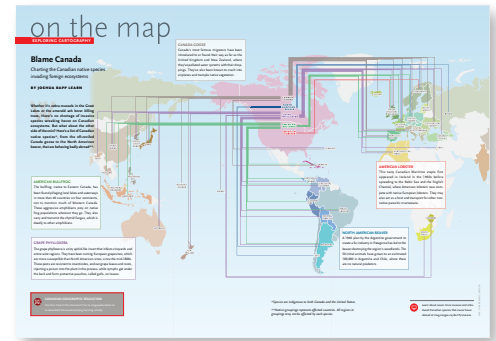
2. Examining natural and human-made barriers

Some species naturally migrate to new areas, some are relocated intentionally and others spread accidentally. There are natural barriers that can prevent or at least slow down the diffusion process, and there are also human-made barriers that are created in attempts to prevent the spread of invasive species. Global warming can also influence the diffusion of species. Over the past few decades, the ranges of various Canadian species have been changing as a result of global warming. Discuss the following with your students using the map as a starting point.

- What are some examples of intentionally introduced species? Why were they introduced to new regions?
- What are some of the common methods of accidental diffusion of species?
- What are some methods that are being used to try to prevent accidental diffusion of species?
- What are some natural barriers that exist within Canada to either slow or prevent the spread of certain species?
- What could make a natural barrier less effective over time?
- How can global warming lead to natural relocation of species?
- What are some examples of species that have migrated due to changing environmental conditions?

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3. Connecting the diffusion of species to other topics

In addition to animals, birds, and other organisms, ask students to consider other things that diffuse or spread throughout a country or throughout the world (people, disease, innovations, fashion, food, dances, religions, languages, sports, political philosophies, music, pop culture, etc.). Below are some additional ideas related to diffusion that you can use to help students extend their geographical thinking

Health or Medical Geography

- What are some measures that governments employ in trying to prevent the spread of a disease into their countries? Are they effective?
- Explore the diffusion of HIV/AIDS throughout the world, why did it spread the way it did?
- Look at a recent example, the Ebola outbreak in Africa, to have students look at current news stories and materials.

Cultural Geography

- How do languages and religions spread?
- Why is English one of the most widespread languages in the world?
- Do ethnic and universalizing religions diffuse similarly?
- What type of diffusion is usually responsible for the spread of language and religion? (hierarchical, stimulus, relocation, contagious) Can your students come up with examples of each type of diffusion?

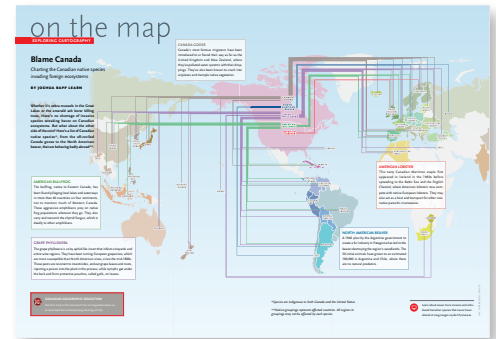
Music

- What are some instruments that have diffused worldwide and what are some that have remained very regional?
- Why have some remained very local while others have spread widely?
- Find examples of instruments that have diffused to different parts of the world, yet they are played noticeably differently in the different regions.
- Consider different types of 'popular' North American music and create maps showing the regions of greatest acceptance of the music.
- Is the area where hip hop is appreciated the same as where country and western is enjoyed?

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Other *Canadian Geographic* articles related to the diffusion of species:

Exporting trouble: Invasive species	November/December 2004
Razing with grazing	May/June 2007
Biodiversity: Invasive Species - Alien Species to the Rescue?	June 2010
Bullfrogs threaten B.C. ecosystems	April 2013
Saskatchewan's wild boars: Why wild boars are becoming a serious problem in Saskatchewan	December 2013
Green giant (Giant Hogweed)	July/August 2004
Pine plague: The mountain pine beetle rampage has crossed the Rockies and is now threatening to devastate Canada's entire boreal forest	January/February 2007