



Factors Enabling Invasive Species to Establish and to Thrive

Organization:

Title: Factors Enabling Invasive Species to Establish and to Thrive

Summary: Students learn about transportation methods that transmit and those that can be utilized to reduce the spread of invasive species. Students also discuss the factors that enable species to thrive when introduced into a new area and, therefore, to become invasive as opposed to native or naturalized.

Inquiry Question: Inquiry Question 4. What can be done to protect these plant species?

Duration: 30-40 minutes

Learning Environment: Classroom, outdoor

Season: All

Materials:

- Invasive Species Transportation Management Study.pdf
- Species Survival-Invasives.pdf

Curriculum Links:

Grade 7 Science and Technology: A3.2, A3.3, B1.1, B1.2, B1.3, B2.1, B2.5, B2.8

Grade 9 Science: A2.3, A2.4, A2.5, B1.1, B1.2, B1.3, B2.4, B2.5

Grade 9 Academic Geography: B1.4

Meta Data:

Content Type: Activity

Bundle: Tools

Theme: Invasive Species

Subject Area: Biology, Environmental Education, Geography, Outdoor Education, Science, Social Studies

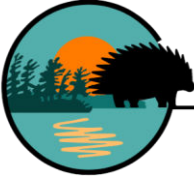
Curriculum Focus: 7, 9

Western STEM Connection:

- Students become familiar with the following STEM study by reviewing the infographic titled **Invasive Species Transportation Management Study.pdf**.

Sinclair, J. S., Lockwood, J. L., Hasnain, S., Cassey, P. & Arnott, S. E. (2020) A framework for predicting which non-native individuals and species will enter, survive, and exit human-mediated transport. *Biological Invasions*, 22(2), 217-231.

- With teachers, students discuss why it is important to look for ways to control the entry of invasive species into new ecosystems. The STEM study looks at how invasive species management traditionally focuses on post-introduction, meaning when the species has



already entered a new environment. Human activities, movement, and trade both intentionally and unintentionally transport species outside of their usual ranges, and thus there are many factors that can prevent the spread of species even before the species enters a new place. In fact, research focusing on pre-introduction management strategies, in order to prepare for the impact of invasive species before they even arrive and become invasive, is becoming increasingly popular.

- After reviewing the study, in discussion, students generate a list of transportation management strategies that can also be implemented to control the introduction and spread of invasive species.
- Next, students review the infographic **Species Survival – Invasives.pdf** which summarizes the following STEM study:

Sinclair, J. S., & Arnott, S.E. (2017). Relative importance of colonist quantity, quality, and arrival frequency to the extinction of two zooplankton species. Oecologia, 184, 441-452.

- Study introduces the factors that enable species to thrive when introduced into a new area and, therefore, to become invasive as opposed to native or naturalized. The study also touches on management strategies that can be used to control invasives.

Discussion:

- Teachers ask students about strategies they are aware of to control the spread of invasive species ie: stopping introduction vs. eradication etc. Students share invasive species control methods they are aware of.