QUILLS
Queen's University Indigenous Land-Based Learning STEM
Queen's University Biological Station

Tracking Invasives

Organization:

Title: Tracking Invasives
Summary: Students learn about the locally pervasive invasive species, garlic mustard, and use a website developed by local scientist, Rob Colautti, to track its presence. As an extension students identify other flowers and plants found nearby and both identify whether they are native, naturalized or invasive and question the implications of this.
Inquiry Question: Inquiry Question 3. What are some threats to the plant species used to construct these tools and technologies?
Duration: 1 class period
Learning Environment: online, outdoor
Season: Summer, Spring, Fall
Materials:

- Garlic Mustard Study.ppt
- Segment from the ten-minute video accompanying this Learning Bundle of QUBS scientist Rob Colautti discussing the impact of garlic mustard locally
- Website: http://garlicmustard.org/

Curriculum Links:
Grade 7 Science and Technology: A1.1, A1.4, A1.5, A3.2, B2.1, B2.2, B2.3, B2.5, B2.7
Grade 9 Science: A1.1, A1.5, A2.3, A2.4, B2.4, B2.7

Meta Data:

Content Type: Activity, community action project
Bundle: Tools
Theme: Invasive Species
Subject Area: Biology, Environmental Education, Geography, Outdoor Education, Science, Social Studies
Curriculum Focus: 7, 9

Garlic Mustard: A Threat to Locally Harvested Plants:

- Students learn about a locally pervasive invasive species, garlic mustard, by reviewing the following STEM studies found in **Garlic Mustard Study.ppt**.

Colautti, R., Franks, S., Hufbauer, R., Kotanen, P., Torchin, M., Byers, J., Pysek, P., Bossdorf, O. (2014) The Global Garlic Mustard Field Survey (GGMFS): challenges and opportunities of a unique, large-scale collaboration for invasion biology. NeoBiota 21:29-47. doi: 10. 3897/neobiota.21.5242

Colautti, R., Barrett, S. (2013) Rapid adaptation to climate facilitates range expansion of an invasive plant. Science 342:6156 364-366. doi: 10.1126/science. 1242121

- STEM studies show how as a result of climate change garlic mustard may become even more pervasive.
- Teacher shows students a segment from the ten-minute video accompanying this Learning Bundle of QUBS scientist Rob Colautti discussing the impact of garlic mustard locally.

Invasive Species Tracking:

- Class engages in invasive species tracking activity outlined in the **Garlic Mustard Study.ppt.**
- Class begins by visiting: http://garlicmustard.org/ (website created by QUBS Researcher Rob Colautti).
- Next, students walk trails at ELEEC or their own neighborhood to try to find naturalized/invasive species.
- Students ID plants to determine if they are native, naturalized or invasive. If there is no garlic mustard around school students can visit the local Belle Island (that has a high presence of Garlic Mustard) and use the "Identification Tips" on the website, as well as the Seek app, to identify garlic mustard and report their sightings on garlicmustard.org. Students can also use Seek (Kids version of iNaturalist) to track prevalence.
- Discussion: Teacher can link this activity to the concept of "dark diversity". This is the phenomenon in which native plants leave areas and are replaced by non-native plants.

Extension:

- Teachers can also ask students to ID plants and flowers in their garden or in gardens around their school. Students will find that most plants we plant (or that are found in garden centers) are non-native. This raises the question of how our everyday decisions (and the neoliberal capitalist system dependent on trade and the free market) impact the landscape. Students will be asked to consider if and how we should reconsider our decisions regarding what we plant.