Threats and Challenges

60+ minutes

Content Areas
Environmental Education

Learning Objectives

Students will:

- Understand the different habitat needs of pollinators
- Understand why natural habitats are in decline and potential effects on pollinators and other wildlife

Method

Through roleplay, students learn about degradation and decline of habitats and its effect on pollinators

Materials

- Pencils
- Sticky notes
- Art objects to represent pollinators or their environment
- Yellow balls

Glossary Words

Habitat, monoculture, invasive plants, pesticide, herbicides, climate change, degradation, fragmentation

Background

Many of Canada's pollinators are challenged by human activity that is removing and polluting natural spaces that are habitat – or home - for these animals. In particular, habitat is frequently lost with development for commercial buildings, large scale agriculture and parking lots as well as residential spaces. While some trees and flowers can and are later planted on these properties, they are typically both minimal and often not anywhere near as beneficial as the plants that were removed. As a result of these factors, natural habitats have been degraded (weakened, less useful to pollinators), lost, or fragmented (breaking apart large areas of natural habitat that would otherwise be there).

In addition to affecting the food supply, removing this habitat often creates a lack of shelter for avoiding predators and harsh weather, for nesting sites, places to spy their next meal and for over wintering. This is often in the form of trees and shrubs, including dead or dying trees (snags) which are critical for our cavity nesting birds such as woodpeckers but can also be helpful to some pollinator species. Other forms of shelter pollinators need include fallen logs, leaf litter, old hollow plant stems and dense plantings of herbaceous vegetation. While we can have attractive formal gardens, we need to find ways to include elements that in the past might have been considered untidy but can instead be subtly and naturally woven into our spaces.

Invasive plants are another challenge that can affect pollinators. These are plants that have come from another place and are able to spread quickly. In doing so they outcompete with our native plants, ones in which our local wildlife have coevolved. This pushes out native plants and with it, a food source for many animals. Some of these plants have arrived by accident but others, like the Norway Maple, are planted on purpose.

Another threat to pollinators is the use of pesticides and herbicides, by both ourselves and the horticultural industry. These kill or seriously harm insects directly and in doing so, affects the food source of those that eat them like songbirds but also other pollinators like hummingbirds which need protein from spiders and insects. When buying plants ensure they haven't been treated with neonicotinoids, an especially dangerous group of pesticides that can stay with the plant from when it is a seed to its own seed produced. In your own garden, avoid any products that kill insects, using instead gentler means of repelling or dealing with insect challenges.

Climate change, in particular global warming, has disrupted the migration patterns and blooming seasons of plants. Flowering plants are moving to cooler temperatures and leaving pollinators behind as they are not adapting to the cooler temperature at the same pace as flowering plants. Flowers are also blooming earlier than their seasons due to warmer temperatures and consequentially pollinating windows are altered.

Activity

Students go outside for a habitat loss game. As you recall, the four basic habitat needs for pollinators and other wildlife species are food, water, shelter and a safe space.

1. Divide students into two groups
    a. Group A are pollinators with a few students in the group
    b. Group B are threats and challenges with more students
2. Each student wears a visible badge
    a. Group A, each student has a badge with the name of their favorite pollinator — bee, beetle butterfly, hummingbird, moth, fly, wasp
    b. Group B, wears a badge with any of the threats and challenges - climate change, pesticide, invasive species, habitat loss, degradation, and fragmentation
3. Group A will identify elements that represents a natural home or habitat to pollinators – leaves, snags, water, dry grass, mud, trees, shrubs, flowers, small yellow balls (as pollen) and another relevant item. They take these items to a safe and favorite spot they consider home (habitat), settle in, and make them selves comfortable
4. Group B act as threats and predators, invades the home of Group A — pollinators, and takes away most of the habitat elements.

Extensions

- Students go to their garden and identify threats and challenges to pollinators and how they could address them
- Exploratory walk — students and teachers walk two blocks from their schoolyard to examine the impact of human actions on habitat and discuss how we could protect the environment.

In Advance

- Find a site for the habitat loss game
- Prepare sticky notes for the badges
- Look for sample images or items that represents specific needs of pollinators for the habitat loss game

Discussions

- Reflecting on this activity, how did you feel acting as a threat or a pollinator?
- How can we protect pollinators and ensure they have sustainable and beneficial habitats?