Invasive Species & Pollinator Decline

Native pollinators—like bees, butterflies, moths, and beetles—are **essential** to healthy ecosystems. But many are disappearing. One of the biggest threats to their survival is the spread of **invasive plant species**.

What Are **Invasive Species**?

- Invasive plants are non-native species introduced—intentionally or accidentally—that spread aggressively and outcompete native plants. In Sudbury, common invasive species include oriental bittersweet, Japanese knotweed, and multiflora rose.

Why Invasives Are **Harmful**:

- They displace native wildflowers that pollinators rely on for nectar and pollen.
- They reduce plant diversity, leaving pollinators with fewer food sources.
- Many don't support insect life—native insects often can't feed or reproduce on them.
- Their thick growth can shade out native seedlings, preventing healthy regrowth.
- Some invasives, like garlic mustard, release chemicals into the soil that sabotage other plant growth—a process known as **allelopathy**

What This Means for Pollinators:

- Fewer native plants = less food and habitat for native pollinators.
- Specialized pollinators, like some bumblebee species, may starve or fail to reproduce.
- The breakdown of these relationships weakens the entire pollination system—affecting other plants, wildlife, and even people.

Invasive Species Present at Davis Farm

Buckthorn:
A tall shrub or small tree (up to 20 ft) with smooth, glossy, oval leaves and 8–9 veins radiating from the mid-vein. Leaves stay green late into fall. Spreads aggressively, forming dense thickets.

Asian Bush Honeysuckles:
Shrubs growing up to 17 feet tall with hollow stems and opposite, ovate leaves. Flowers bloom in late May–June (white to pink), followed by bright red berries in pairs. Species differ slightly in leaf and flower traits, but all form dense thickets that crowd out native plants and may release chemicals that hinder the growth of other species.

Asiatic Bittersweet:
A fast-growing, woody vine that can reach 60 feet, smothering and choking trees and plants. Yellow fruit splits to reveal red berries that persist into winter and are spread by birds and discarded decorations. It also spreads through root suckers, forming dense patch.

Multiflora Rose:
A thorny shrub with arching stems and 5–11 toothed leaflets. It blooms in May–June with clusters of fragrant white to pink flowers. Bright red fruit appear in summer and persist through winter.

Davis Farm Native Pollinator Meadow

at Davis Farm Conservation Land, North Road

Restoring Native Habitats in Sudbury, MA

Written by the Town of Sudbury Conservation Commission

275 Old Lancaster Road ~ concom@sudbury.ma.us ~ 978-440-5470

TRANSFORMING THE LANDSCAPE

Just 750 feet up the trail from the parking area you'll find a ¾-acre area has been thoughtfully transformed from an overgrown forest into a thriving open meadow through years of dedicated restoration efforts.

Timeline of Restoration

Year 1:

The land was first stripped of all first vegetation

Year 2:

Manual invasive removal with the assistance of a consultant and the introduction of native species.

Year 3:

1. Solarization with Black Tarps
   - To control invasive plants like bittersweet, large black tarps were placed over the soil in summer. The heat trapped beneath killed weed roots and seeds by "cooking" the topsoil—an effective, chemical-free method to reduce the invasive seed bank.

2. Soil Scraping & Native Seeding
   - After the tarps were removed in the fall:
     - The topsoil, full of invasive seeds, was removed to give native plants a better start. The area was then seeded with a mix of native wildflowers to support local pollinators.

3. Continued Manual Weeding
   - Despite solarization, some invasives returned. Volunteers hand-pulled sprouts to prevent regrowth and give native plants space to thrive.
   - Eagle Scout Badge Project:
     - Cameron Rogers hosted several invasive species removal events and revitalized solarization areas with many new native plantings to improve biodiversity.

Year 4 - Present:

Native wildflowers begin to dominate the meadow and pollinators arrive.

Ongoing efforts include adding more native plantings to enhance biodiversity. While regular monitoring and removal of invasive species will be necessary, the need for intervention will decrease over time. In addition, the meadow is mowed once a year to prevent the regrowth of forest species.

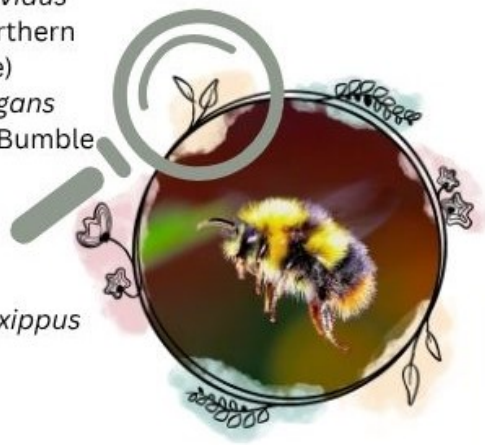
Meet the Pollinators!

Abundant:

- *Bombus impatiens* (Common Eastern Bumble Bee)
- *Macroglossum stellatarum* (Hummingbird Hawk-Moth)
- *Archilochus colubris* (Ruby-Throated Hummingbird)
- *Tetraopes tetrophthalmus* (Red Milkweed Beetle)

At-Risk:

- *Bombus fervidus* (Golden Northern Bumble Bee)
- *Bombus vagans* (Half-black Bumble bee)



Threatened:

- *Danaus plexippus* (Monarch Butterfly)

These are just a few of the many pollinators found here—including a variety of butterflies, beetles, ladybugs, and other beneficial insects!

Each species has unique preferences for flower shape and bloom time — maintaining a diverse meadow helps keep all pollinators thriving!

Butterflies & Moths: The Monarch & More

Butterflies are commonly found in healthy meadow ecosystems, where they play a vital role as pollinators and indicators of environmental health.

However, not all species are thriving—most notably, the **Monarch butterfly**, once abundant, was recently proposed to be listed as a **threatened species** under the Endangered Species Act. This decline is due to habitat loss, climate change, and the widespread use of pesticides.

Native Species

What is a Native Pollinator Meadow?

A native pollinator meadow is a space intentionally populated with native species including flowers and grasses that are indigenous to the region. These plants have co-evolved with local pollinators—like bees, butterflies, and beetles—and provide the nectar, pollen, and habitat they need to survive.

Unlike traditional meadows, native pollinator meadows:

- Use only native plants that thrive in local soil and climate
- Avoid invasive species, which can out-compete and harm native wildlife
- Support a diverse range of native insects and birds
- Most flowering plants depend on animals to transfer pollen. Pollinator meadows help restore these critical relationships between plants and pollinators—keeping ecosystems balanced and productive.

From bumblebees to butterflies, native pollinators rely on native plants. When you plant native, you protect biodiversity in your community.

Why It Matters

Native pollinators are in decline—and that's a serious problem for plants, wildlife, and people.

Over 75% of the world's flowering plants rely on animals like bees, butterflies, and beetles to move pollen from one flower to another. Without pollination, plants can't produce fruit or seeds.

Healthy pollination systems are essential for:

- Food production
- Biodiversity
- Clean air and water
- Carbon storage
- Flood control
- Disease regulation

Meadow habitats—once wide spread—are now among the most threatened ecosystems worldwide. Urban development, agriculture, and invasive species have led to their rapid decline. As open, flower-rich spaces disappear, so do the native plants and pollinators that depend on them. This large-scale habitat loss disrupts pollination systems and weakens the biodiversity and ecological health of entire landscapes.

Native pollinators and native plants have evolved together in tightly connected systems. Each supports the survival of the other.

How Can You Help?

Get Involved!

- Plant native species in your yard
  - These will thrive and require less water and care, as Sudbury is their home environment.
- Avoid harmful pesticides
  - Minimize the use of any kind of pesticides or insect control methods. Even organic oils can harm native pollinators, as they are non-selective.
- Remove invasive species in your area
- Learn more at Metrowest Conservation Alliance (https://www.svtweb.org/mca)
- Volunteer with Sudbury Conservation Commission

Contact & Resources:

concom@sudbury.ma.us

(978) 440 - 5471

Department of Public Works Building, 275 Old Lancaster Road Sudbury, MA 01776