

Reducing Risks to Pollinators from Insect and Plant Pest Control:

Using Integrated Pest Management for Yards and Gardens

What is a pollinator?

Pollinators are animals that help flowering plants reproduce by moving pollen from the male part of the plant (anther) to the female part (stigma) of the same species. Pollinators include many bees and butterflies, some moths, beetles, flies, and birds and a few bats.



Monarch butterfly on a New England aster.
Photo: USFWS

Why are pollinators important?

Many plants cannot reproduce without the help of pollinators. The plants they pollinate provide food for humans and wildlife, such as migratory birds. Successful pollination produces seeds and fruits. Examples include sunflowers, almonds, blueberries, pumpkins, and apples. Pollinators are a key component of natural ecosystems and agriculture.

What do pollinators need?

Pollinators need habitat with a diversity of native flowering plants and a sequence of flowers that bloom from early spring through fall. Pollinators such as bumble bees and butterflies need pollen and/or nectar from a variety of flowering plants including native flowers, shrubs, trees, garden plants.

What is a pest?

A pest is any plant or animal that:

- Interferes with site management goals such as native habitat restoration, healthy backyard gardens and lawns.
- Causes damage to plants in gardens and in wildlife habitats.
- Jeopardizes human health or safety.

What can be done about pests?

- Pests are best controlled by an Integrated Pest Management approach.

What is Integrated Pest Management (IPM)?

IPM is a method that integrates pest biology, environmental information, consensus building, and technology to prevent unacceptable levels of pest damage. IPM considers site management goals and strives to minimize risk to people, property, and the environment, including pollinators.

How does Integrated Pest Management benefit people and pollinators? IPM can:

- Decrease pesticide use and reduce risk to pollinators, the environment, and people.
- Save time and money using a sustainable approach to manage pests.
- Decrease pest resistance from repetitive pesticide use.

When implementing IPM, it's helpful to:

- Describe your pest problem: How is the pest impacting your plants?
- Monitor the pest: How many are there? What is the destruction? How are they getting to your plants?
- Know your yard/garden: For example, soil types, habitat type. Ensure your plants are healthy by growing them in the best location. Consider sunlight, wind and soil and give them the right amount of nutrients and water. For lawns, mowing higher will allow the grass to develop deeper and more pest resilient roots.
- Know your pests and their natural enemies (predators and competitors). Understand the biological and physical conditions (water, food, shelter, temperature, and light) that support natural enemies, and how to make conditions more attractive to beneficial insects.
- Determine if plant damage is at an unacceptable level. Establish "Action Thresholds": An Action Threshold is the level of damage or number of pests at which a management strategy will be implemented to reduce the pest population.
- Decide what methods you will use to control the pest and implement the lowest risk, most effective methods and tools.



Rusty patched bumble bee on leadplant.
Photo: Sarah Warner/USFWS



Monitoring for pests.
Photo: John Kucharski/USDA

■ Keep records of your actions, the pest numbers, level of damage, and evaluate your results. Determine if objectives have been achieved and if not, modify the strategy.

■ Consult the services of local experts to help implement an IPM program. Master Gardeners are available through many local extension offices to answer questions.

What IPM methods can you use?

■ Take no action (expect and accept some pest damage).

■ Physical Control Example: Hand remove pest-infested plants, or plant/insect pests using garden gloves.

■ Mechanical Control Example: Machine tilling, aerating, cutting, digging.

■ Cultural Control Example: Use clean weed- and insect-free mulch, provide nutrients, create beneficial insect habitat, rotate your garden crops, and water the garden based on need rather than on a schedule, choose plants that have not been treated with pesticides and ask if the plants you are purchasing are pesticide-free.

■ Biological Control Example: Encourage native predators with a diverse garden habitat, for example mantids will feed on many pest insects.

■ Pesticide Control Example: Treat with pesticides such as insecticides, herbicides, fungicides, and nematicides.

If pesticide treatment is needed:

■ Always read the label. The label has information for safe usage, application rate and methods, and hazards to pollinators. The label is the law and must be followed.

■ Minimize the use of pesticides in and around pollinator nesting and forage sites. Nesting sites can be pithy stems, twigs, leaf duff, trees, shrubs, forbs, well-drained bare ground and crevices. Insecticides and fungicides can directly harm bees and other pollinators if they are exposed. Herbicides can harm the plants pollinators need for food and shelter.

■ Avoid the use of pesticides, especially insecticides, when and where there are flowers blooming.

■ Consider products such as fatty acids or insecticidal soaps for soft bodied insect-pests such as aphids, mealy bugs, mites, and for powdery mildew. You can also make your own diluted dish-detergent or a vegetable oil/water/dish-detergent solution for use on these pests. Pheromone bait traps and attractants may be used for some pests such as Japanese beetles.

■ Consult with your local extension agents and lawn-care professionals.



*Native flower garden at the U.S. Fish and Wildlife Service Headquarters' building.
Photo: Rachel Sullivan/USFWS*



Native flower garden. Photo: Courtney Celley/USFWS

Where can you find more information?

US Fish and Wildlife Service Pollinator Web Portal:
<https://www.fws.gov/initiative/pollinators>

Municipal and county governments, universities, especially those with county extension offices.



*Ruby-throated hummingbird collecting nectar.
Photo: Bill Buchanan/USFWS <https://www.fws.gov/initiative/pollinators>*

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