Protection from Pesticides

Read on for tips on pollinator-friendly pest management!

Protection from pesticides

As habitat kit recipients, you are doing amazing work helping to provide habitat for bees and other pollinators. An important component of healthy pollinator habitat is protection from pesticides.

Pesticides are a leading cause of insect declines, and pesticide contamination is found frequently in soils, water, and plants in both residential and agricultural landscapes. A study that Xerces performed looking at pesticide residue on milkweeds in California's Central Valley in multiple different landscapes found an average of 12 pesticide compounds per plant, with up to 25 compounds on one plant! Insecticides are a major concern because they are designed to kill insects (including butterflies and bees), but herbicides and fungicides can also impact pollinators. There is risk even at low levels of contamination; levels that might not kill individual pollinators can have subtle yet harmful effects, like decreased reproduction or ability to gather food for their offspring.

What can you do to protect your pollinator habitat from pesticides? As habitat kit recipients, you have agreed to not use pesticides in and around your pollinator plantings. In your pollinator plantings, we encourage you to accept cosmetic damage and recognize that insects feeding on your plants can be a good thing! This means they are being used as a resource by wildlife. Just because an insect is an herbivore does not mean it's a pest – herbivores are an important part of food webs, and help support the predators and parasitoids that help keep pest populations in-check. Many of them are pollinators themselves, like butterfly caterpillars and leaf cutter bees.

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How to prevent pests

Because pesticides can move to areas beyond where they are applied, , we also encourage you to reduce pesticide use in the landscape around your habitat. If it isn't already a part of your routine, take steps to prevent pest outbreaks by addressing their underlying causes. This includes promoting plant health, since healthy plants are much more capable of fighting off infestation and infection.

- "Right plant, right place" – put plants in locations they will thrive.
- Correct watering for the plant species. Use soaker hoses or drip irrigation to promote deep root growth, so that plants can better handle drought stress in the summer. Avoid overhead watering during the dry season, as this can lead to diseases.
- Space out plants so they receive good airflow, minimizing the potential for fungal diseases like powdery mildew.
- Test soil to determine whether nutrient and pH levels are appropriate.
- Reduce competition, which can cause stress, by weeding your habitat area regularly.

What if I have a pest?

Most healthy plants can handle a good amount of feeding by insects. Here are some general recommendations for dealing with plant pests and pathogens:

- Sanitation, or cutting the infected tissue and moving it off-site.
- Knock pests off plants with blasts of water, or hand pick larger insects like caterpillars.
- Physical barriers, like mesh netting or row covers can block many pests from reaching your plants.
- Remove weeds before they go to seed. There are all softs of new ergonomic tools that make weeding much easier than simply pulling by hand.
- Continue adding plant diversity to your landscape. This helps boost the populations of natural enemies that help control pests by enhancing or creating habitat in your landscape.

If you want more targeted advice, it's important to first identify the pest and then check with local resources (like university extension or master gardener hotlines), you can find all sorts of non-chemical management methods.

A note on organic pesticides: while many insecticides used in organic agriculture are generally less toxic and less long-lived than conventional insecticides, don't assume they are safe for pollinators and

other beneficial insects. This is why we encourage you to first use non-chemical methods rather than simply switching to a different type of pesticide.

Thanks again for creating or enriching existing pollinator habitat with our kits. You are likely to see bees and other pollinators arrive soon! As you maintain the area in and around your habitat we hope you can build in some of the concepts we mention here. By limiting pesticide use you are supporting a diverse insect community in your habitat kit plantings. Enjoy!

To learn more, check out the Xerces resources below:

Smarter Pest Management at Home
Guidance to Protect Habitat from Pesticide Contamination
Smarter Pest Management: Pollinator Protection for Cities and Campuses
Fungicide Impacts on Pollinators
Protecting Pollinators from Herbicides

Integrated Pest Management Plan Resources:

Part I: Developing Your Integrated Pest Management (IPM) Plan
Part II: IPM Plan Checklist
Part III: Case Studies

Learn more about Xerces California Monarch and Pollinator Habitat Kits

***Questions?* Contact us at centralvalleypollinators@xerces.org**

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