

Addressing Pesticide Contamination on Pollinator Plants

Helping Butterfly Conservation Take Flight in Albuquerque

Albuquerque's gardens, parks, and natural spaces provide valuable habitat for butterflies and other insect wildlife. That value is diminished when an area is contaminated with pesticides. In the summer of 2022, researchers measured pesticide contamination on plants used by pollinators in parks and private gardens in Albuquerque. The findings strengthen conservation efforts and reduce pesticide risks.

Pesticides Pose a Risk for Butterflies

- ⇒ Atrazine, the most commonly found pesticide, harms diverse species protected under the Endangered Species Act. The US Environmental Protection Agency determined that this compound harms about a third of protected land invertebrates, like butterflies. The highest levels of atrazine were found in Mariposa Basin Park, Albuquerque Riverside Drain, and Tingley Beach.
- ⇒ Eight plants had residues of chlorantraniliprole at levels that exceeded those known to kill 10% of a monarch caterpillar population (LC10). Chlorantraniliprole residues were detected in five plants at Tingley Beach, one plant at Albuquerque Riverside Drain, one at Mariposa Basin Park, and one in a private garden.

Risk is Likely Underestimated

- ⇒ Laboratory testing methods could not screen for all pesticides. For example, testing did not include glyphosate (herbicide) or pyrethroids (insecticides).
- ⇒ The toxicity to butterflies and moths remains unknown for the majority of detected pesticides.
- ⇒ We could not analyze chemical mixtures; chemical mixtures can increase risk to butterflies and other beneficial insects.

How You Can Strengthen Conservation Efforts

City leaders, land managers, and private residents are taking steps to make Albuquerque safe for butterflies. Conservation efforts are strengthened by expanding pollinator habitat, and reducing pesticide use to protect that habitat from contamination.

Pesticide Contamination in Albuquerque

- ⇒ 92% of plants sampled were contaminated with pesticides
- ⇒ 31 different pesticide compounds detected
- ⇒ Up to 11 pesticide compounds detected per plant, with an average of 2.6
- ⇒ Levels of contamination were similar between parks and private gardens

Most common compounds:

- ⇒ Atrazine (herbicide) — found in 70% of plants
- ⇒ Prometon (herbicide) — found in 28% of plants
- ⇒ Azoxystrobin (fungicide) — found in 26% of plants
- ⇒ Diuron (herbicide) — found in 20% of plants

Pesticides weren't necessarily used where they were detected, as they could have been transported by wind or water. For example, managers of private gardens indicated that they do not use pesticides on their plants.



Figure 1. Juniper hairstreak (*Callophrys gryneus*) on horsetail milkweed (*Asclepias subverticillata*). (Photo: Xerces Society / Kaitlin Haase.)

Prioritize non-chemical methods for managing pests

Move away from chemical pesticides and towards non-chemical methods that prevent plant diseases, weeds, and problematic insects. Pests are attracted to stressed plants, so choose natives that thrive in local conditions. Diversify plantings to draw in insects that will eat pests. If pests occur, remove them or exclude them manually before reaching for pesticides.

Establish pesticide-free zones in sensitive places

You can make your community healthier by designating “pesticide-free zones,” parts of the landscape that will be managed entirely without the use of chemical pesticides. Great places to start include pollinator plantings, sensitive habitat, and playgrounds and other areas frequently used by children or pets.

Reduce or eliminate cosmetic pesticide use

Much urban pesticide use is cosmetic, used solely because of how an area looks. A highly manicured aesthetic can be harmful if it means using herbicides, fungicides, and insecticides in the area. Instead, identify areas for less intense management where a more natural beauty can be cultivated, such as by allowing minor plant damage and the presence of non-invasive “weedy” plants.

Increase pollinator-friendly plantings

One important step in protecting butterflies, bees, and other pollinators is to increase the native flowering plants available to these species. Each year, the Xerces Society’s Habitat Kit Program provides climate-smart native plants to community partners who are willing to provide the time, labor, and land to develop pollinator habitats. Projects on public and conservation lands in Albuquerque as well as public and residential lands in Santa Fe are eligible. Learn more and apply for a habitat kit using the link below.

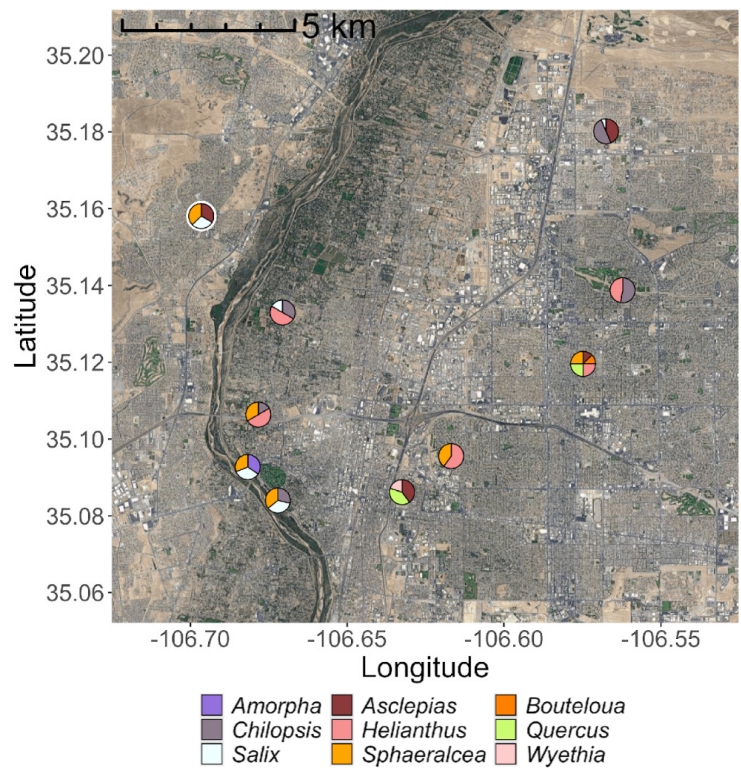


Figure 2. Plants were sampled across ten sites in Albuquerque, including five privately owned gardens and five public parks: Albuquerque Riverside Drain, Arroyo del Oso Park, Mariposa Basin Park, North Domingo Baca Park, and Tingley Beach.



Figure 3. Natural spaces like the Bosque provide valuable habitat for butterflies and other insect wildlife. (Photo: US ACE.)

Learn More

- ⇒ Information: New Mexico Habitat Kits, <https://xerces.org/pollinator-conservation/habitat-kits/new-mexico>
- ⇒ Information: Toolkit—Integrated Pest Management Plan, beecityusa.org/ipm-plan/
- ⇒ Conservation guidelines: *Pollinator Friendly Parks*, xerces.org/publications/guidelines/pollinator-friendly-parks
- ⇒ Fact sheet: *Smarter Pest Management: Protecting Pollinators at Home*, xerces.org/publications/fact-sheets/smarter-pest-management-protecting-pollinators-at-home
- ⇒ Plant list: Native Plants for Pollinators and Beneficial Insects: Southwest Plateaus Region, xerces.org/publications/plant-lists/native-plants-for-pollinators-and-beneficial-insects-southwest

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