



Sustainable Solutions for Pollinator Stewardship in New Mexico

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**Presentation to the New Mexico Legislature,
Water and Natural Resources Interim Committee**

September 27, 2024

Photo: Kaitlin Haase



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The Xerces Society for Invertebrate Conservation

Protecting the Life that Sustains Us



Photo: Xerces blue; Xerces Society / Larry Orsak

Our Work

Protecting the natural world
through the conservation
of invertebrates and their habitats



Pollinator
Conservation
Program



Endangered
Species
Conservation



Reducing Pesticide
Use & Impacts

Northern N.M. youth sow pollinator-friendly plants along Chimayó acequia

By Margaret O'Hara mohara@sfnewmexican.com Aug 26, 2024 Updated Aug 27, 2024  2



Photo: Gabriela Campos / The New Mexican

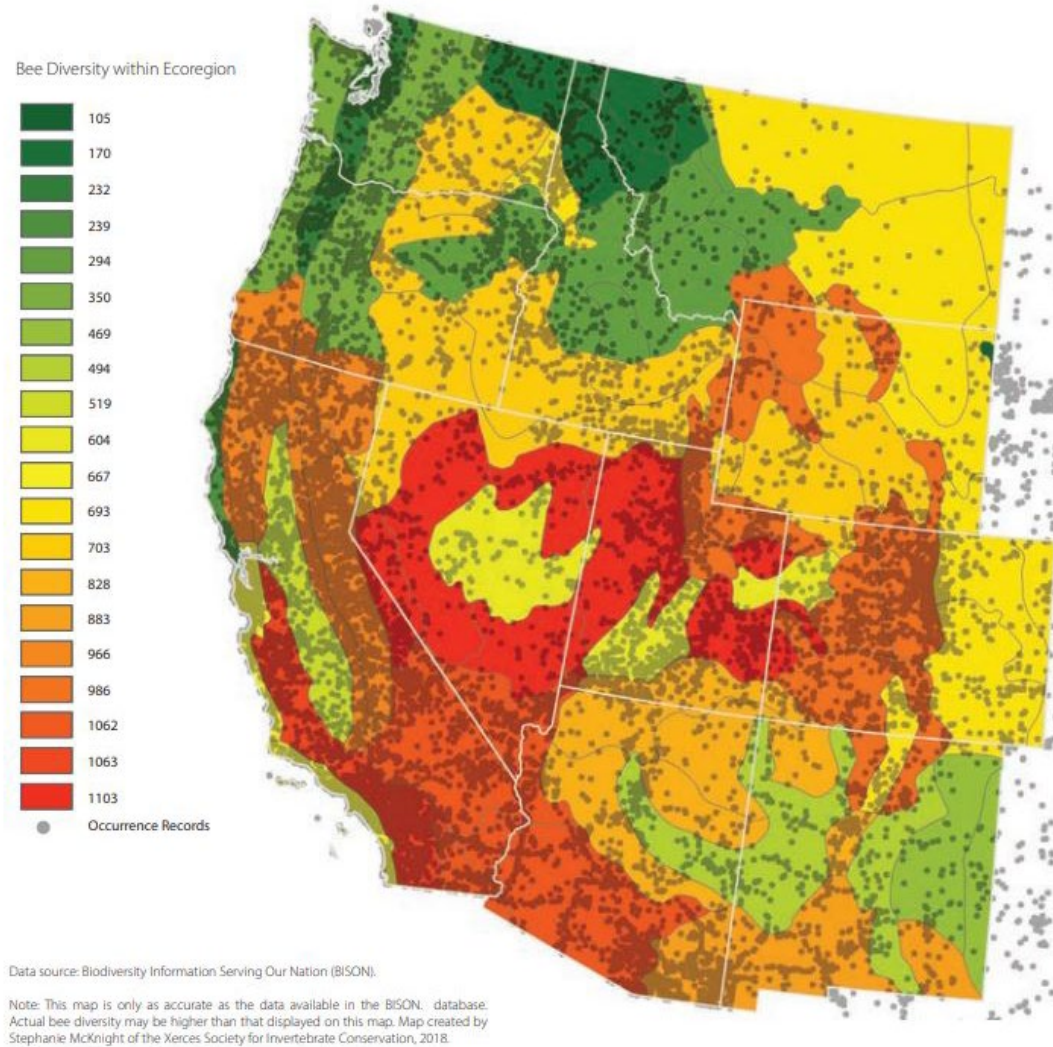
Xerces is actively helping New Mexico communities support and sustain native pollinators, building both habitat and community ties.

New Mexico Allies in Conservation



- Santa Ana Native Plant Nursery
- Bueno Para Todos Farm
- Northern Youth Project
- CASA First
- New Mexico Acequia Association's Sembrando Semillas program
- ¡Sostenga! @ Northern New Mexico College
- Viva Vida
- Tierra Milagro Orchard and Farm
- Habitat Farms Collective, LLC @ Albuquerque Open Space Visitor's Center
- Los Luceros Historic Site
- Taos County Economic Development Corporation (TCEDC)
- Railyard Park Conservancy
- Santa Fe Botanical Garden
- Santa Fe Extension Master Gardeners
- Randall Davey Audubon Center
- La Farge Library
- Poeh Cultural Museum.
- Bosque Cottage
- Flowering Tree Permaculture Institute
- Dixon Elementary
- Las Vegas National Wildlife Refuge
- Rio Embudo Farm
- Chimayó Cultural Preservation Association
- Family Farm
- Poeh Povi: The Flower Path & Zia Queenbees Farm & Field Institute
- New Mexico Wild
- The Sierra Club Rio Grande Chapter
- New Mexico Climate Justice
- Rio Grande Restoration
- One Pea Pod Farm
- Southwest Native Cultures
- Center for Biological Diversity
- Think Like a Bee
- Western Watersheds Project
- Western Environmental Law Center
- Amigos Bravos
- Wild Earth Guardians
- Defenders of Wildlife
- University of New Mexico

The Southwest: a National Hotspot for Native Pollinator Diversity



New Mexico is home to:

~1100 species native bees (>25% of US total)

> 347 species resident butterflies- (~50% of US total)



Photo: Yucca plant, Martin LaBar via Flickr, CC BY-NC 2.0 DEED

Bee diversity estimate: Olivia Carril, Ph.D, author "Bees in Your Backyard"

Butterfly diversity estimate: BAMONA



Consider the Value of Wild Insects

Wild insects supply at least \$70 billion annually to the US economy

Dung Burial



Pest Control



Pollination



Wildlife
Nutrition



Photos: Dung beetle - Flickr/ Christina Butlet; Hoverfly – Wikimedia /Sandy Rae, CC BY-SA 3.0 /Western bumble bee -Xerces Society,/Rich Hatfield ; American kestrel – Flickr/Robin Gwen Agarwal, CC BY-NC 2.0 DEED

Estimate of wild insect value based on an analysis by Losey and Vaughan (2006), updated in 2020 dollars.

Planned Federal Aerial Grasshopper Spray Near Rio Chama, 2023



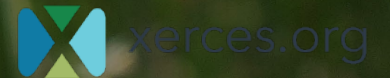
OVERVIEW:

- Carbaryl spray planned over 39 square miles of mostly public lands within the Rio Chama watershed, a designated Wild and Scenic River
- Carbaryl is highly toxic to bees and other insects, and a potential human carcinogen
- Timing: late June, when monsoons were imminent
- Purpose: to kill grasshoppers on leased public lands to protect livestock forage
- The spray area included portions of a Wilderness Study Area and a federal Area of Critical Environmental Concern

So Many Questions



Photo: Xerces Society / Kaitlin Haase



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Why Were Local Communities Not Notified?

Pueblo and Tribal Communities



River Users, including Drinking Water Managers



Downstream Farmers



Hikers and Nature Lovers



Photos: (L-R) Larry Lamsa via Flickr CC BY 2.0; Theirl via Flickr, CC BY-SA 2.0; KrisNM via Flickr, CC BY-NC-ND 2.0; BLM/Bob Wick

Why was a Spray Planned with a Pesticide that is Not Allowed over Blooming Plants?

It was June, blooming wildflowers were widespread in the area, and the pesticide is highly toxic to bees

GREEN SWEAT BEE ON PRICKLY PEAR



FAIRY BEE ON MARIPOSA LILY



YELLOW BUMBLE BEE (*B. fervidus*)
ON NATIVE THISTLE



BEE CAUTION: This product is highly toxic to honeybees and other bees exposed to direct treatment or residual bloom. This product may show residual toxicity to honeybees, especially in humid climates and under slow drying. Notifying beekeepers within 1 mile of treatment area at least 48 hours before product is applied will allow them to protect their bees. Limiting application to times when bees are least active, e.g., within 2 hours of sunrise or sunset, will protect bees.

For crops in bloom (except soybean and corn): Do not apply this product to target crops or weeds in bloom.

Were Proper and Reasonable Procedures Followed?

US Fish and Wildlife Service endangered and threatened species review was based on a different chemical – not carbaryl.

Most grasshoppers are not “pest” species so it’s important to figure out what species are present. APHIS delivered samples to the State entomologist for identification six days **after** the spray was advertised to contractors. A non-damaging species was the dominant species in the last sample.

No buffers were designated to protect arroyos and other seasonally dry watercourses, even though monsoons were imminent and the area supplies drinking water for Santa Fe and Albuquerque.

The land management agencies approved a spray months prior to surveys, without adequate public involvement.

Is There a Better Way?

For decades I have walked and ridden the entire area where APHIS proposed to spray. Overgrazing is rampant in the area and is a cause for grasshopper infestations and is detrimental to all plant and wildlife of the area. To compound the overgrazing with pesticide spray is continuing a downward spiral.

I consider myself a river keeper. The Rio Chama watershed is source water for 600,000 water users. I live and own property in the Wild River section of the Rio Chama directly west of Navajo Peak. I have spoken before the Water Board, the NM Legislature and the Water Quality Control Commission regarding dangers to our water. We are too slowly becoming aware that there is a danger to all life from the indiscriminant use of pesticides. Toxic pesticide treatments would have been far more harmful than beneficial to life. Better management of the BLM lands where APHIS proposed to spray would be the best practice and better use of public funds.

Mike Neas, Resident of Chama Canyon, Rio Arriba County

As the Commissioner of Public Lands, I share your concern regarding this proposed aerial treatment and the State Land Office's participation. The State Land Office takes its responsibility to sustainably manage our lands seriously, and this pesticide treatment just raised too many issues.

We absolutely agree that a more comprehensive and formalized process to assess where and when sprays may be needed is in order. With the checkerboard nature of land management status throughout the state, we should be conversing more formally with our fellow management agencies on decision-making for pesticide treatment. It stands to reason that even if the land office or any other manager opts out of the spray, it is difficult to prevent some extent of inadvertent application on our land.

Additionally, specialist staff at the State Land Office have proposed ways to work with our lessees in adopting rangeland practices that may reduce grasshopper counts. We appreciate your work on this matter and look forward to continued conversations on how to improve this process and commit to a more data-driven outcome.

Sincerely,



Stephanie Garcia Richard
Commissioner of Public Lands



State of New Mexico
Commissioner of Public Lands

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Birds Are Important Predators on Grasshoppers



When birds were not excluded, they reduced grasshoppers by:

Arizona	North Dakota	Nebraska	Montana
39-55% (adults) 52-67% (nymphs)	26% (1988) 37% (1989) (all age classes)	27% (all age classes)	Up to 80% (medium sized grasshoppers)
Bock et al. 1992	Fowler et al. 1991	Joern 1986	Branson 2005

What Can the New Mexico Legislature Do? (Public Lands)

New Mexico Citizens Want Sustainable Solutions: Help the NM State Lands Office develop and implement management practices that help rangelands be resilient to grasshopper populations.

Protect Watersheds: Most of New Mexico's waters no longer fall under the protection of the Clean Water Act. State-required protective buffers along permanent waters and seasonal arroyos and washes would help protect water from pesticide contamination.

Uphold Right to Know Principles: Require advance public notification of any pesticide applications on state public lands.

Citizens are Wary of Broad Aerial Sprays over Public Lands: State agencies should independently vet and publicly share data used in considering potential pesticide applications, including survey data and economic justifications.

Recognize Conservation Values on Public Lands: Some places harbor high biodiversity and should be protected from sprays.

Some New Mexico Crops that Rely on Bees for Pollination



Photos: (L-R) Alfalfa – Gail via Flickr, CC BY-NC-ND 2.0; Chile peppers – Holly Ladd via Flickr, CC BY-NC-ND 2.0; Cotton – Captroscha via Flickr, CC BY-NC-ND 2.0; Squash – Alasam via Flickr, CC BY-NC-ND 2.0

New Mexico Bumble Bees under Review for Federal Endangered Species Listing



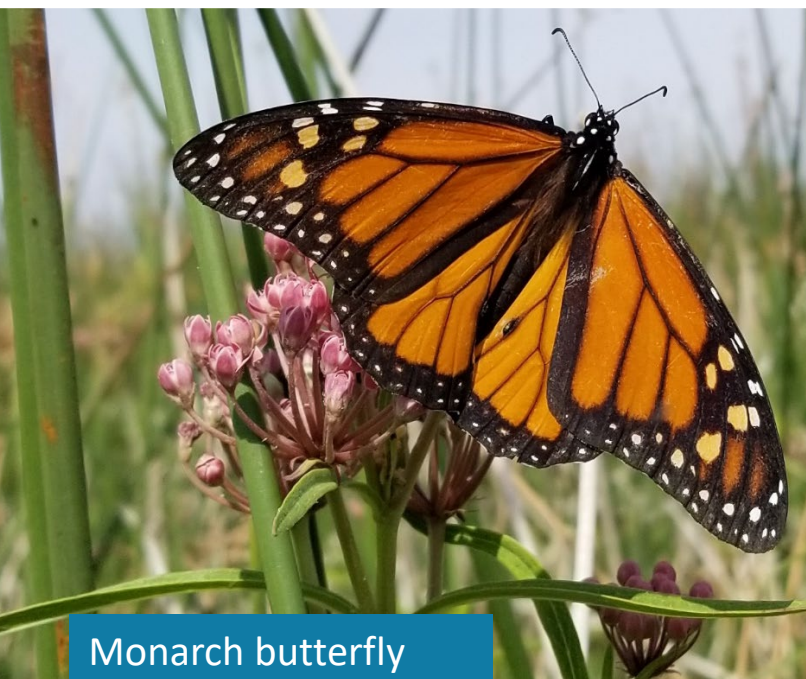
Threats include

- ✓ Pesticides
- ✓ Loss of Habitat
- ✓ Disease and Non-natives

Photos: (L-R) *B. morrisoni* (Morrison bumble bee)– Xerces Society / Leif Richardson; *B. fraternus* (Southern plains bumble bee) Xerces Society / Katie Lamke; *B. pensylvanicus* (American bumble bee) – Ray Moranz

Some Butterfly Populations are also Shrinking

Up to 80% (roughly 120) of the most widespread butterfly species in the western United States appear to be in some state of decline



Monarch butterfly



Large marble butterfly



West Coast Lady

Photos: Monarch- Xerces Society /Stephanie McKnight; Large marble butterfly- Cynthia Scholl; West coast lady – Mike Anderson via iNaturalist
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Findings from: Forister, Matthew L., Eliza M. Grames, Christopher A. Halsch, Kevin J. Burls, Cas F. Carroll, Katherine L. Bell, Joshua P. Jahner, et al. 2023. "Assessing Risk for Butterflies in the Context of Climate Change, Demographic Uncertainty, and Heterogenous Data Sources." *Ecological Monographs* e1584. <https://doi.org/10.1002/ecm.1584>.

Tackling Bad Actors: Action is Needed



Photo: Xerces Society / Emily May

A single corn kernel coated with a standard neonicotinoid treatment contains insecticide sufficient to kill more than 80,000 honey bees

Many principal crops in New Mexico have neonic seed treatments registered:

Peppers

Squash

Beans

Corn

Potatoes

Onion

Cotton

Peanut

Wheat

Alfalfa

State-Level Legislation to Improve Stewardship of Pollinators— Common Themes

Make pollinator-harmful pesticides restricted use

MD, NJ, ME, MA, NY, RI, VT, CO, NV, CA, CT, and WA

Prohibit neonics outdoors in non-agricultural settings

NJ, MD, ME, NV, NY

Eliminate treated seed applications

NY, VT

Local control / overturning preemption

MN - limited local control over bee-harmful pesticides.

Protecting public lands

MN- banned use of neonics and chlorpyrifos on DNR lands

**CA – Finalized rule to block the use of neonics in state wildlife refuges
and land managed by the Dept. of Fish and Game**

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