



Fall Garden Management for Pollinators

By Jenna Stanek, LANL Wildlife Biologist

Do you ever wonder where pollinators and other invertebrates go in the winter? Most of our native bees are ground nesting, or nesting under leaf litter, and they spend the winter sleeping, or much less active, in the same area where they lived all summer. If you've provided a habitat with diversity of native plants for invertebrates and pollinators during the growing season, helping those invertebrates in the winter is pretty simple: Leave those habitats intact for the winter.

Clean Up Selectively and Carefully

In general, consider leaving most perennials uncut through the winter. Stems hollow out when plants die back, providing cavities in which pollinators can make a home or nest. Native bee species, including small carpenter, mason, and leaf-cutter bees, will nest in hollow stems. Many butterflies will pupate and spend the winter on these plants as well. We can preserve these pollinating insects by leaving this type of plant material in the landscape for next year. There's no real need to cut back until early spring, when new growth begins to push through. If you crave tidiness, you can always leave just one area uncut. Additionally, many perennials such as coneflowers and sunflowers can be an important food source for seed eating birds like goldfinches during the winter.

Also, never rush to cut things down; hold off until after several hard frosts. Even if the flowers or leaves are dead, the roots reclaim energy from the dying plant for healthy growth in the spring.

Some exceptions for fall trimming: Always cut back any infected or diseased plants. Badly damaged or infested foliage should be cut back and removed from infected plants. Some plants such as Bearded Iris should be cut back in the fall. The iris borers' eggs overwinter on the leaves and stems of the plant; by cutting the leaves back you can help reduce or even eliminate borers from your garden. Wait until after the first frost because the iris borer moth remains active until then.

Leave Areas of Your Yard for Brush Piles and Bare Dirt

Consider leaving some unkept areas in the spaces you manage, such as newly fallen leaves, branches and logs, and loose dirt. Or designate a spot for these unkept areas in a less visited section of your yard such as a back corner area. Brush piles and trees can provide winter habitat for our pollinators. Dead trees and hollowed branches are also useful overwintering spaces for our pollinators. For example, these elements benefit overwintering queens that need insulation (leaves), and materials to build their overwintering sites (rotting logs and loose dirt).

Leave Some Leaves

Leave a few out-of-the-way leaf piles in the corners of your yard and allow leaves to remain under shrubs and trees as a natural insulator. If you do this, you will be providing safe harbors for overwintering pollinators. Leaves and other organic litter are essential shelter for hibernating bumblebee queens and the larvae of numerous butterfly and moth species. Many of these species will happily tuck themselves into a leaf or mulch pile for insulation. Butterflies will overwinter in a chrysalis



Burrowing Bee

Photo Credit: Steven Severinghaus / Flickr Creative Commons 2.0

hanging from a dead plant, native bees will overwinter in the hollow stem of a perennial plant, birds will feed on the seeds of spent sunflowers, and caterpillars will secure themselves into the empty seedpod of a plant.

Visit Xerces.org for more information. <https://xerces.org/leave-the-leaves>; <https://xerces.org/blog/5-ways-to-increase-nesting-habitat-for-bees>, <https://xerces.org/blog/where-do-pollinators-go-in-winter>. 🌱

Book Review: The Age of Deer

By Stephanie Nakhleh, Local Resident and Writer

In her poetic and scientific exploration *The Age of Deer*, Erika Howsare delves into the complex relationship between humans and one of the few remaining large wild animal species we routinely interact with. Through a combination of lyrical prose and factual research, Howsare examines the history, biology, and symbolism of deer, and what they reveal about our own wildness and disconnection from nature. One of the more difficult aspects of the book is its unflinching look at the many ways deer suffer and die at the hands of humans and also just nature.

Howsare details gruesome injuries from car collisions, hunting, accidents (a deer falling into a cavern — that one survived), and the perils of misguided domestication attempts by people who think they are helping by feeding wild deer. These passages can be heartbreaking to read, laying bare the tragic consequences of human encroachment on deer habitat and our failure to coexist harmoniously with them. I cried a few times.

But the book is not unrelentingly bleak. Howsare also marvels at the resilience of deer, who have rebounded from near extinction in the early 20th century to abundance today. She shares fascinating biological and historical

information, like the little-known fact that deer were almost wiped out a hundred years ago. Now, their numbers have recovered to the point that many consider them pests. However, she raises the alarming research showing that Chronic Wasting Disease (CWD) has become so widespread that it could potentially lead to the species' extinction if left unchecked. In our community, it feels like only a matter of time until CWD is found in our crowded population.

Howsare has mixed feelings about deer hunting. She is repulsed by the idea of killing these magnificent and innocent creatures, acknowledging their endearing cuteness. At the same time, she recognizes that hunting, if done responsibly, is arguably a more ethical alternative to the inhumane conditions of industrial animal agriculture. It's a nuanced take on a highly charged issue.

Throughout the book, Howsare reflects on how deer are intricately connected to the land itself, as much a natural product of forests and fields as wild berries or mushrooms. They occupy a unique place between wildness and a world shaped by human civilization. Our interactions with deer, whether through hunting, feeding, or simply observing, can either widen that gap between humans and nature or help bridge it.

The Age of Deer is a reminder of how much we have to learn from other species about how to live in greater harmony with the natural world. Deer are a symbol of the wildness we have lost in ourselves, but also the potential for recovering a more balanced relationship with the environment. However beautifully written, wide-ranging meditation brings a fresh and thought-provoking perspective to our enduring fascination with these captivating, crepuscular creatures. It's a poignant call to reexamine how we treat deer (don't feed them!) and what they can teach us about our place in the order of living things. 🌱

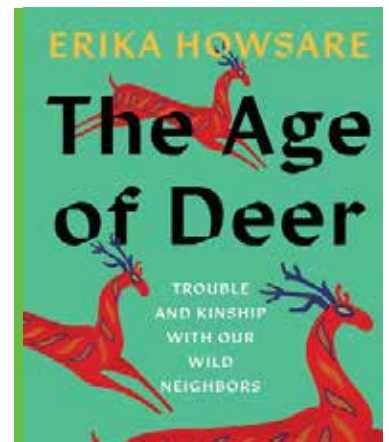


Photo Credit: catapult.co



Join us for PEECnic

Saturday, October 12 | 1 – 3 PM
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For more information visit peecnature.org/events



“As a PEEC member, I like knowing that the money from my membership fee supports my favorite programs. Last year, we had a fantastic bat program as part of the Summer Family Evening series featuring the Mexican free-tailed and pallid bat. As the speaker walked around with baby bats in hand, he shared fun facts and spread awareness of how to help threatened species (i.e., white-nose syndrome). As a wildlife enthusiast, I was so happy to be part of and share this experience with the community. Looking around, everyone was in awe to see these wonderful creatures of the night up close and personal. Without support from members, programs such as this one might not be possible and that’s not something I want to see disappear. I’m proud to be a PEEC member and hope others will support this excellent education center as well.” -Bonnie Klamm, PEEC Member

Why Pesticides Are Such A Bad Idea

By Dana Ecelberger, Bee City Los Alamos Coordinator

At Bee City Los Alamos, we often talk about how pesticides are one of the most significant threats to pollinators. By pesticides, we mean any chemical applied in our gardens and landscapes to kill something, be it an insect, a fungus, a weed, etc. Many people who are aware of pollinators as an emerging environmental concern also recognize that pesticides pose a serious problem. But why are pesticides such an issue?

Many of us love butterflies, birds, and honeybees and are overjoyed to see them in our gardens. As a

gardener working with different people and gardens, I find that, while we cherish certain wildlife, we are often unaware of the impact of the sprays we use to kill aphids, caterpillars, and other unwanted creatures. One of my favorite garden friends, during a recent clean-up day, proudly opened a cupboard to offer me a staggering array of poisons to eliminate the caterpillars chewing his zinnia leaves. I gently explained that these poisons would also kill the butterflies he loves, since caterpillars are butterflies at a different life stage. Additionally, the poison could harm the birds that rely on insects for food. Birds need mosquitoes, aphids, ants, and other insects for their survival and that of their young. My friend was shocked, having no idea that the products he had purchased could harm so many



Hummingbird on Sunflower
Photo Credit: Selvi Viswanathan

creatures. Many people are unaware of the broader impacts of these chemicals.

Similarly, many people buy rat and mouse poisons, not realizing that these can also harm owls and hawks that rely on rodents. This is just the beginning. We often unknowingly disrupt the balance of our ecosystem by killing insects and creatures we find unpleasant, like spiders, ants, mice, wasps, and rats. Yet, all of these animals play crucial roles in the ecosystem. For example, spiders help control fly and mosquito populations.

Nature generally keeps things in balance if we stay out of the way. Once this balance is disrupted, we should reconsider using poisons and opt for more benign options like live trapping or reducing food sources near the house. It is often our actions that upset the balance. In my opinion, using chemical poisons is rarely the best option. Skilled herbicide applicators, for example, are trained to use these chemicals only when absolutely necessary to protect important ecosystems. But for the average homeowner, there are often better solutions.

At the Bee City booth during Los Alamos MainStreet's ScienceFest event, I spoke with someone who loves pollinators and is planting flowers and shrubs to attract butterflies and bees. She was concerned about aphids and insects nibbling the plants and assured me she "never used pesticides," but was using Dawn dish soap to get rid of aphids and caterpillars. I have been an organic gardener for over 35 years and remember using homemade "non-toxic" sprays for aphids until I realized how these sprays work. Many insects are soft-bodied and breathe through their skin. Dish soap coats

their skin and suffocates them, affecting many desirable caterpillars and other pollinators. The soap can also harm birds and remove the protective coating on plant leaves. Instead, washing aphids off with plain water or removing them by hand is often effective and less harmful.


We tend to think that if something is homemade and seems harmless, it must be safe. However, homemade solutions can sometimes be more dangerous to our soils, plants, and wildlife than store-bought formulations. For example, a popular homemade weed killer made from salt and white vinegar can be deadly to soil organisms essential for nutrient cycling. Similarly, using bleach to kill moss and weeds can harm soil, animals, and people.

What I am trying to communicate is that there are no easy fixes, and sometimes no fix is needed at all. Insect populations are declining worldwide, and without insects, the entire food web begins to unravel. Fish, birds, and small mammals all rely on insects for food. Over 85% of all flowering plants depend on insects for pollination. When we plant pollinator plants and then use chemicals to kill insects, we may unintentionally do more harm than good.

Let's start to be creative and observe our gardens before taking action. Are those aphids really harming our plants, or are they feeding baby hummingbirds that need insect protein? Can we manage pests by knocking them off plants with water or our fingers? What about making a game out of hunting down squash bugs? You could look up caterpillars on iNaturalist and join our Citizen Science project to log local pollinators. You might discover Swallowtail caterpillars or even Monarchs!

Pause before you spray. Consider the broader impact of that seemingly small gesture. While you may not love every insect or mammal, they all have roles to play in our ecosystem. For example, flies help break down waste, and mosquitoes are a primary food source for many birds and fish. Everything has a purpose. This month, and throughout the year, let's learn more about the creatures around us and how they contribute to our planet's beauty and richness. Thank you!

Please sign up for our Bee City Los Alamos newsletter to stay in touch with all of the great work we are doing for our pollinators. You can find the sign-up form at the bottom of our home page at: beecitylosalamos.org

To learn more about pollinators and how you can help save them, visit xerces.org. 

Dear PEEC Community,

Did you know that next year, PEEC will celebrate its 25th anniversary? We're gearing up for a series of festivities, culminating in our annual Earth Day Festival in April, and we invite you to join us! Over the past quarter-century, we have been privileged to share the beauty and importance of the natural world with countless visitors and program participants. From awe-inspiring planetarium shows, to hands-on educational programs, our work has always been to foster a deep connection between people and the environment.

As we celebrate this milestone, we look to the future with excitement and a renewed commitment to our mission of *enriching people's lives by strengthening their connections to our canyons, mesas, mountains, and skies*. Your support has been instrumental in our success thus far, and as we embark on the next 25 years, we invite you to play an even greater role in shaping the future of PEEC.

To continue providing exceptional programs and protecting our natural world, we're launching a special fundraising campaign this fall. Your support will help us enhance educational experiences and connect more people to the natural world. Every donation, big or small, makes a difference!

Join us in ensuring a legacy of nature's wonder and learning for generations to come. Here's to many more years of discovery, learning, and connection with nature!

Thank you for your unwavering support and dedication.

Jillian Rubio
Executive Director
PEEC

Thank you for
YOUR support.



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Our PEEC Herbarium

By Chick Keller, PEEC Herbarium Curator

Our nature center has a working herbarium that is doing good things.

What is a herbarium? It's a "library" of pressed plants. Many people are interested in what flowers are growing in our area. Some of us have set ourselves the goal of identifying all of them. Since PEEC started, we have found nearly 400 plants previously unknown in Los Alamos County! That makes nearly 1,050 species in our county alone and over 1,700 in the Jemez Mountain area down to the Rio Grande.

How can we keep track of all of these? We collect them, press and dry them, mount them on special herbarium sheets, database them, and store them at Los Alamos Nature Center. We have concentrated on the Jemez area and have some 3,000 sheets in our little place beside the observation room, thus our name "Jemez Mountain Herbarium."

What's a herbarium useful for? Plants have very small structures that are sometimes necessary to tell them apart and so we have a binocular microscope to view them and lots of books that we use to identify them. Often we have found rather rare plants or ones that are hard to identify. Because we have stored them,



PEEC's Herbarium at Los Alamos Nature Center
Photo Credit: Chick Keller

experts can check on the accuracy of our identifications. We also have found plants no one else has found and so we have published lists of these in botanical journals. We recently published a list of 160 species unknown previously, including nearly 10 never before found in New Mexico! (Since that publication a few years ago we have found nearly 50 more!)

The herbarium is also helpful to those writing identification books. Terry Foxx and Craig Martin used it when they were writing their wonderful books identifying nearly all species in our area.

In addition to our local database keeping track of these numerous collections, we have entered our collection into the huge Southwest Environmental Itinerary Network (SEINet) database for all of New Mexico and Arizona. It has contributions from some 40 herbaria around the country. Many use databases to study the number and extent of species. To aid in seeing our collections, we have photographed all the herbarium sheets and entered them on SEINet. Finally, we have sent a fair number of specimens to the University of New Mexico Herbarium in Albuquerque.

This has resulted in several botanists requesting we send them selected plants for their study. Recently, we have sent sheets to two groups. One group is studying a sedge that has never before been found in New Mexico; it is far from any other location where it grows. Another group at the University of California has requested we send them our collections of a (rather rare for this area) species to use in their study of its distribution.

Finally, I noticed that there seemed to be a new species of yellow daisy-like plants called *Packera*. Our herbarium now has some 80 collections from 7 different areas in Northern New Mexico showing how several known species have integrated with this new one, confusing many botanists. To be certain these represented a new species separate

from two other ones, I was able to interest two other researchers who study the DNA of plants. Their work has shown my new species to indeed be separate from the others ending the previous confusion about separating them. A publication has been submitted for review.

So our herbarium keeps contributing to knowing the plants in our area, and many visit it with identification questions. Indeed several have found plants that we have put into our herbarium because some of them were not previously known in this area. Imagine that people like yourselves who are interested, but not expert on plants, finding and contributing new ones! Many of you might do the same. When you come across a plant that you haven't seen before, collect some (if there are enough), photograph them from different angles, note the location and date (most iPhone photographs include the location as well as elevation), and bring them in to show us. Many people being interested in our plants help complete our herbarium and further our increasing knowledge of what's growing in the Jemez Mountains. Only two days ago we found a species in Los Alamos Canyon never before known for this area. So there are still new ones out there and you might come across them, helping make our herbarium more useful. 🌱

Of A Feather

By John Gustavson, PEEC Docent

*Wings spread wide,
tipping side to side,
they carom against currents
of air on the rise.
Effortlessly aloft
with only a thought,
I marry their tracery,
the skywritten path.
The world expands, no
Minimus: a birdseye view.
Revelation fledged in
the infinite blue. 🌱*

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Questions? Contact PEEC Visitor Services Manager Ryan at ryan@peecnature.org or scan the QR code below.



Jolanta Tuzel, PEEC Volunteer, leading a birding adventure
Photo Credit: Jillian Rubio

Our Mission: Enriching people's lives by strengthening their connections to our canyons, mesas, mountains, and skies.

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"I need to find a way to move into the nature viewing room and library without staff noticing.... Until then, this is one of the best places in Los Alamos to spend an hour."

— Los Alamos Nature Center Visitor

Nature Center hours:

Monday: 10 – 4
Tuesday: Closed
Wednesday: 10 – 4
Thursday: 10 – 4
Friday: 10 – 4
Saturday: 10 – 4
Sunday: Closed

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Child Playing With Chalk. PEECnic 2022
Photo Credit: Teianna Mitchell

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UPCOMING EVENTS

PEECnic **OCTOBER 12**

PEEC-A-BOO **OCTOBER 25**

Wolves in New Mexico **NOVEMBER 12**

Small Business Saturday **NOVEMBER 30**

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