



Nature Notes

Pajarito
Environmental
Education
Center
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Your Nature Center in Los Alamos
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President's Message

by Chick Keller

This has been a momentous and crucial few months for PEEC. Three major items have consumed our thoughts and activities, failure of which could have spelled the end of PEEC or in the case of County funding blocked our ability to give our town and regions the nature center it needs.

1. Our proposal to County Council that they fund PEEC at \$25,000 or more.
2. A final lease with the LA Schools that would meet State Anti-Donation requirements (i.e., paying rent by giving service)
3. Covering the ceiling insulation to avoid fire department fines.

I'm happy to say all three seem to be working out successfully. The County will be funding PEEC, although the final amount is still being discussed. While the original lease agreement proposed by LA Schools' lawyer was totally unacceptable, by a series of amicable meetings and discussions we are now arriving at a document which accurately reflects our relationship with the Schools and will be acceptable to the State Board of Finance. Key here has been the strong and enthusiastic support of the Schools' Superintendent, Gene Schmidt, and all the School Board members, as well as concerted efforts of several PEEC Board members, especially our legal person, Felicia Orth. And, due to the continued commitment and generosity of a small team of volunteer workers over the past five weeks, the ceiling insulation is nearly covered. This too has required many discussions with fire department and code people and the forbearance of PEEC's program and office staff (as well as a generous discount from Los Alamos Home Improvement). It has been a great amount of work and expense, but PEEC is better off having the insulation sealed behind drywall whose flat, smooth surface may provide opportunities for student artists to give us some beautiful nature murals.

PEEC's other activities have been moving apace. The children's vegetable garden has been resurrected and the butterfly garden is nearly finished (again thanks to the many volunteers who made these possible), and our summer programs such as Nature Odyssey and LEAP are in full swing. Looking ahead, PEEC has received new grants for education activities from LANL and REI; these are keeping our new Program Director, Jessie Ross, and others very busy.

And so the Spring of our Discontent is turning to the Summer of Realized Dreams. Much of this success is due to your continued generous support and enthusiasm for our work. Come on down and enjoy the Center and its activities, which in the end are the result of your support.

Preschoolers Look, Touch and Learn

An interview with Jessica Ross by the editor

"Kids love to come to PEEC. There is no other place in Los Alamos like PEEC," said Jessica Ross, PEEC's interim program coordinator. We were talking about preschoolers and nature education.

"How do you know?" I asked.

Jessica happily listed several ways she knows without asking two, three and four-year-olds. For one thing, they come and stay. The toddler class Nature Playtime has grown steadily. Parents say they heard about it from friends. They become interested and stay and help; that inspires their kids. Even without an organized class, children are interested as soon as they come in the door, and they stand before the exhibits with concentration. They take time to see and watch, even if they can't read labels, so they ask questions. And they come back to look again.

"Kids can stand and look at Betty every time they come," Jessica said. Betty the huge bullfrog looks right back at them from her pool or rocky shelf.



The recent exhibit of butterflies, moths, their eggs, and cocoons kept interest high for weeks. When there is an empty

aquarium in the exhibits room the kids want to know what will be in it.

"So, this sounds like a good beginning for future stewards of the environment, as well as educated adults," I commented. "It's obvious what they will mean to our country in the future. What valuable education does PEEC offer the preschoolers themselves?"

That led to our talking about a child becoming the type of person we all hope to be. For one thing, nature engages the senses. Toddlers want

to see, hear, touch, taste, smell, and process the information. Nature leads them to become engaged in something slowly, thoroughly, outside themselves. Today they are bombarded by media that require them to accept instant gratification, often with little detail or meaning. To learn about nature, children must watch, wait, think, and use imagination.

Engagement, thinking, and imagination lead to developing a gentler, kinder person. Relating to nature carries that regard into day-to-day habits of many kinds. Moreover, children become more aware of how their actions affect others. Cruelty to animals and plants could be a result of the lack of opportunity to engage with the natural lives of living beings. "What a great way to nudge kids into caring for the environment," I said. "How can the teachers at PEEC do this? What can be done about teaching such little persons?"

Using her own daughters as examples, Jessica commented that each child is unique. Some are shy or hesitant about being outside, much less touching things. Simply pointing out scenery or things to see outside will help. Starting with toddlers, they can be led to look at something but leave it for others to see. Hidden here is a lesson about respect.

Teachers of preschoolers are very important folks. They lead, direct, provide. Kids enjoy being together at an early age. At ages three and four, interaction just begins. Discovery and play go together. By ages four, five, and six, interaction and group skills are building. Teachers fit development with learning about nature. And the learning is fun.

Jessica emphasizes being prepared. She uses resources at PEEC, the wealth of adventures in PEEC's exhibits. She then adds a story, a craft, some playtime. Even the very young like to take a hike on the trail near PEEC. Jessica sets them to little tasks: one was matching wildflowers to their picture cards, using the "What's blooming now?" resource near the herbarium. She says she learns from toddlers! What she observes becomes a guide for the next class.

These future leaders for our environment enjoy repeated trips to PEEC. **Nature Playtime for Toddlers** meets the first and third Mondays, 10:30 a.m. to 12 p.m. It's free. Donations are appreciated. Read more at our website, www.PajaritoEEC.org.

Come to PEEC and bring your little folks.



Bark Scorpion at PEEC

by Jennifer Macke



I'm probably the only person who has ever told her friends that they were looking for a scorpion. My wish was fulfilled in May, when

Michele Alther obliged me by bringing to PEEC a scorpion that she had found in her sink at home. It was brown and small, only about an inch long. I then had the challenge of determining its species and finding some information about it.

Scorpions are members of the spider family. Like all spiders, they are venomous. Their body shape is distinctive and unmistakable. They can be considered one of Earth's "living fossils," as their overall appearance has not changed since the Silurian Period, over 400 million years ago. There are about 70 species of scorpion in North America, but only a few live in the Los Alamos area. The scorpion Michele found in her sink was an Arizona Bark Scorpion, *Centruroides sculpturatus*. This is a common species in the area, and is the type of scorpion most likely to be found in buildings.

Much to my surprise, it turns out that the bark scorpions are the most venomous scorpions in the Southwest. Our little bark scorpion is reported to be able to deliver a very painful sting, similar to a bee or wasp sting. Like bee stings, a few people are sensitive or allergic, and for those people the sting of a bark scorpion can produce symptoms requiring a hospital visit.

One of the most amazing features of scorpions is the fluorescence of their skin. Under blacklight, their skin glows a strong green color. No one is quite sure why scorpions evolved this particular characteristic, but it might provide their skin with protection from the strong ultraviolet light in their desert environment. It is a trait unique to scorpions; all scorpions have fluorescent skin,

but no other animals do. Their fluorescence is a boon to humans who want to find scorpions. Armed with a blacklight, it is easy to spot them in the dark.

Why was the scorpion in Michele's sink, of all places? It is believed that bark scorpions enter houses and buildings in search of moisture and shelter. Although they are well adapted to desert life, they are attracted to sources of humidity. Since bark scorpions are good climbers, they are the species most often found inside homes.

Scorpions are predators, and their diet consists of crickets and other invertebrates. They are considered to be an important part of the food chain, consuming insects, and themselves being eaten by lizards, birds, and larger invertebrates.

What should you do if you find a scorpion in your house? First, never attempt to kill or catch it with your bare hands. Don't bother grabbing the insect spray, as scorpions are largely unaffected by it. Your best bet is to squash it with a shoe or other large, hard object. Although I thank Michele for bringing her scorpion to PEEC, I do not recommend trying to catch one. Even a glancing touch can result in a sting, as a scorpion's reflexes are faster than ours.

(Graphic by dotcomtucson.com)



Creating a Memorial Butterfly Garden

by Selvi Viswanathan

Until I left India for the USA, my mother took care of our small yard at the Berhampur home to make sure I had flowers when I went to school, college, and even when I was a teacher. To honor the hundredth anniversary of her birth on May 17, 2010, I wanted to create a memorial butterfly garden. I decided that I would make a slight change from what mother did for me and build a garden to make sure that butterflies had flowers for their nectar as food. So, with Joe, my gardener, I worked on the area on the east side of our home. We planted the two essentials for a butterfly garden – host plants for caterpillars and nectar plants for butterflies.

Caterpillars used to scare me back in Berhampur, but now I know they are part of the metamorphosis process so I respect them. I learned they come mostly at night and hide under mulch from predators. So mulching is essential not only to keep the soil moist but also for caterpillars to hide. Joe brought a big truckload of free compost (continued on next page)

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from the Los Alamos landfill and we made a big mound under the pinyon tree to give some character to the yard. Perhaps slopes give more visibility to the butterflies than flat flowerbeds. We brought some big rocks from the yard and placed them in different places. This helps butterflies to bask in the sun. Sunlight is crucial for butterflies.

I gave Joe a list of butterfly nectar plants to purchase, such as Liatris, Shasta daisy, purple coneflower, Rudbeckia, and Coreopsis. Butterflies can find flowers more easily if they are planted in masses, so I wanted three plants of each kind. I am trying to use more native plants and no pesticides.

From the Internet I found plants that butterflies like, but the flowers listed were mostly for the east or west coast. Los Alamos is at an altitude of 7,500 feet, so we have to observe and come up with our own list. This is a project we have at PEEC, and we ask the community to observe in their yards and share their lists with others. Our local Gambel oak is a good host plant for the females to lay their eggs.

One of the features to attract butterflies is “puddling,” which mostly male butterflies do. To provide nutrients like salt, it is recommended to mix a very little iodine-free salt with sand in a dish and keep it moist. So, I put out two terracotta dishes for a puddling area. Later, I saw a butterfly using it!

Butterflies need cover during the night and on windy days, and several varieties of grasses can be used as cover. Butterflies like warm weather: only from June to August do we see much activity in Los Alamos. The plants used in the garden bloom during this period. There are only a few butterflies, such as mourning cloaks, which are seen in winter. These butterflies depend more on sap for food than flowers.

It is interesting that the beautiful butterflies like cow dung and ripe fruits, almost rotted. I tried ripe fruits, but the ants came and in the night raccoons feast on them. So, I have given up that idea.

I created a butterfly shape with rocks for sunning. A light-colored rock reflects heat. Once the butterfly lands, the reflected heat warms it: the butterfly can take off more quickly to seek a mate or nectar.

Joe brought compost from the landfill and made a small mound, laying a plastic liner underneath so no weeds can grow. On the mound, I used four baskets shaped somewhat like wings and filled them with light-colored river rocks. This will be the landing pad for the butterflies to sun themselves.



Photo by Mary Carol Williams

To certify a yard with the North American Butterfly Association, only three host plants and three nectar plants are needed but I decided to do these other things that are crucial for butterflies’ welfare. My own memorial garden for mother is the first one in Los Alamos. I am happy I am able to do it, as our mother is very, very special.

Note: for an inspiring story, and to read about the garden, Selvi and her mother, see the web site: tinyurl.com/Selvi-butterflygarden ☼

Butterfly Garden at PEEC

At PEEC, 50 children and adults transformed a patch of ground with compacted soil and invasive weeds into an attractive habitat for our native butterflies. Butterflies won’t be the only benefactors of the project. It is our hope that the garden will attract human visitors too and be a place for their enjoyment and appreciation of nature.

We broke ground on the project with a ribbon-cutting ceremony during PEEC’s annual Earth Day Festival. A giant butterfly poster created by the Kinnikinnick Club kids decorated the water cistern, and a living exhibit inside the center with newly hatched painted ladies attracted many curious eyes.

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Members of the Kinnikinnick Club sold their homemade butterfly-shaped sugar cookies during the festival and raised \$126 for the garden.

The garden was funded by an \$800 grant from Keep New Mexico Beautiful, plus \$3,284.50 in-kind donations.

Garden Pollinators Like Native Plants

(Excerpts from *High Country Gardens, Waterwise Garden News*, March 2010)

For a better fruit and vegetable harvest, include flowering plants around your vegetable garden and fruit trees. You will need a lot of pollinators to make sure you'll have ample harvest. Native bees, hummingbirds, and butterflies are essential. To attract and keep these wonderful pollinators in your yard, plant a profusion of colorful, flowering perennials and shrubs. Local native plants are well suited to our environment and require little maintenance.

An important pollinator is the honeybee. Its population has dwindled to nearly 50% of what it was just 50 years ago. Just say "No" to pesticides. Don't kill beneficial bees along with pests. Use safe organic pest control solutions. **Use local native plants.**

Research suggests native plants are four times more attractive to native bees than exotic flowers.

Choose several colors of flowers. Bees have good color vision to help them find flowers and the nectar and pollen they offer. Flower colors that particularly attract bees are blue, purple, violet, white, and yellow. Mass flowers of species together. Flowers clustered into clumps of one species will attract more pollinators than individual plants scattered throughout. Where space allows, make the clumps four feet or more in diameter. Include flowers of different shapes. Providing a range of flower shapes means more bees can benefit.

Have a **diversity** of plants flowering all season. By having several plant species flowering at once, and a sequence of plants flowering through the seasons, you can support a range of bee species that fly at different times.

Plant where bees will visit. Bees favor sunny spots over shade and need some shelter from strong winds.

Even a small area planted with flowers will be beneficial for local bees, because each patch will add to the mosaic of habitat available to them.



Examples of native plants that attract bees are aster, beardtongue, beebalm, echinocereus, leadplant, goldenrod, orange butterfly weed, purple cone flower, and purple prairie clover. The web site High Country Gardens.com has photos and information of these and more.

Editor's note: Keep an eye on the **new butterfly garden at PEEC** to see which plants do well in Los Alamos. Talk with PEEC folks about the natives planted there: "Mountain Gold" alyssum, "Jupiter's Beard" red and white valerian, purple cone flower, globe thistle, bee balm, pine-leaf penstemons, and yarrow (list by Dorothy Hoard). Which will thrive best?



Grow Your Own Food: Kids Learn How
Growing your own food is both educational and fun, not to mention useful, as kids can learn at PEEC this summer.

Gardening by the young happens at PEEC every Tuesday at 9 a.m. Master gardener Marion Good has come to Los Alamos from Columbus, New Mexico, where she helped create a kids' garden at Columbus Elementary School, a mere 3 miles from the Mexican border. Now she's ready to help Los Alamos kids get down and dirty. The program is designed for kids entering 2nd through 4th grades, but other interested kids might be able to join if space permits.



In its second month, the garden has been fenced (to keep out deer and rabbits) and six raised beds have been installed. Each raised bed has its own specialty: salsa, pizza, herbs, popcorn, and flowers, with sunflowers and pumpkins also outside the fence. The young gardeners (Continued on the next page)

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had the finishing task of painting signs for the raised beds and painting the gate. Called the "Sunflower Kids," they are responsible for sections of raised beds with their names on them. In October, harvest time, the Kids and their guests will hold a cookout party at PEEC. Prizes will be given for the best jack-o-lantern and the best sunflower.

(Graphic from etc.usf.edu)



Everyone's Gardening--even Michelle Obama! Review of *A White House Garden Cookbook* by Clara Silverstein

Shortly after Inauguration Day, Michelle Obama joined the community garden movement that has taken root across the United States. Out went the grass and in went the seeds, with lots of help from local schoolchildren. Part of her inspiration was from the movement to get children to make healthier food choices--the idea was that they'd enjoy eating a vegetable if they helped plant, water, tend, harvest, and prepare it. And they'd learn patience (for waiting till harvest time) and responsibility (for tending the frail seedlings).

The White House garden continues a tradition begun by John and Abigail Adams, who wanted a kitchen garden. Thomas Jefferson was famous for his interest in agriculture, and the Obama garden has some seeds descended from his Monticello garden.

The greatest delight in this book is the kid-friendly recipes--all simple and healthy, yet imaginative and creative enough for a state dinner. PEEC's own leader of the Sunflower Kids' Garden is Marion Good (see above). Check out page 39 where the Columbus garden is described and their recipe for Arugula and Papaya Salad with lime juice, olive oil, and feta cheese will make your mouth water. Zucchini quesadillas with cheese and salsa, leafy wraps, Barack Obama's chile with lots of fresh herbs, Laura and George Bush's guacamole with shallots, Martha Washington's great cake--try them all! But be sure to use the freshest ingredients, preferably grown by yourself, your community, or your kids.



[*A White House Garden Cookbook* may be ordered from Otowi Station Bookstore for \$24.95--Rebecca Shankland]

Watch for Invasive Thistles

by Terry Foxx

Thistle flowers are often beautiful, brightly colored, and attractive to butterflies. However, only the native thistles are desirable in forests, woodlands, and gardens. In the Los Alamos area there are several invasive thistles that spread rapidly and take the niche of native plants. Several of these invasive thistles are biennial, produce large numbers of seeds, and have deep roots or rhizomes (e.g. bull thistle root can be 28 inches long). This makes them difficult to eradicate.

Biennial noxious thistles include bull thistle and musk thistle. Another invasive thistle, Canada thistle, is a perennial and spreads by rhizomes forming large patches.

Bull thistle and musk thistle spread rapidly from seed producing up to 120,000 seeds per plant. All are native to Europe or Eurasia and were introduced as seed contaminants, some as early as the 17th century. They invade roadsides, burned, newly logged areas, natural yards, gardens, and waste places. They displace native plants by outcompeting them for water, nutrients, and space. The first year the rosette of leaves appear and the second year the plant bolts and flowers.

Generally chemical control is not very successful with biennial thistles. Clipping flowering heads or mowing before the thistle sets seed has proven to be successful. However, cut flower heads can still develop viable seed so they should be bagged not left on the ground. A strong back and a sharp shovel can also help eliminate plants because these are deep rooted plants the plant should be cut off as deep as possible. Canada thistle, a perennial thistle, reproduces primarily by rhizomes but does have seed dispersal. Patches of Canada thistle may be decreased by mowing before the seedhead appears or by chemical control.



Winged spiny stem

Native thistles in the Los Alamos area include New Mexico thistle, wavyleaf thistle, and pale thistle. These can be distinguished from invasive thistles by having a smooth stem. Bull thistle and musk thistle have winged stems that are spiny. For more information and identification see a booklet about thistles by Dorothy Hoard and Terry

Foxx, found at PEEC. Also Dorothy and Terry will be talking about invasive plant species on July 28th. See the PEEC website for information.



Fossils, Calcite, and Minnows: The First Week of Nature Odyssey

by Bob Dryja

The first week of Nature Odyssey, PEEC's summer camp, found a group of twenty-six students in grades four through six on daily field trips to various locations along the Rio Grande. Nature Odyssey has two interwoven themes: environmental considerations and the cultures of New Mexico. The first week involves exploratory visits along the Rio Grande, while the second week involves visiting sites in the high country of the Jemez Mountains.

The week began with students from Santa Clara Pueblo and Los Alamos getting to know one another at the Mountain Center near Santa Fe. Later, a number of students at the end of the week said that it was making new friends that they most remembered about the week.

The Tuesday field trip was to Mesa Prieta. Geologically, Mesa Prieta is part of a lava flow that originated in the Taos area approximately thirty miles away, on the west side of the Rio Grande. It has thousands of petroglyphs carved into the black basalt rocks of the mesa. Most of the petroglyphs are abstract in design, so the students used their imaginations to explain what the designs may have meant.

On a visit to a bosque adjacent to the Rio Grande we did water chemistry testing, minnow catching, searches for dragonfly nymphs (larvae), boatmen and other macro-invertebrates. We conducted water chemistry testing in a horse-shoe pond, and caught minnows. A horse-shoe pond is formed over many centuries when bends in a river's s-shaped curve become more extreme and eventually connect.

The Wednesday field trip was to the Harding Mine, a few miles east of Dixon at the end of a dirt road. The site is managed by the University of New Mexico and is open to the public. It was begun in the early twentieth century and initially produced a mineral called lepidolite that was used in ceramics. In the 1940's and 1950's rock was

mined for its lithium and beryllium. The mine has been closed for nearly a half century but pieces of calcite can be picked up throughout the area. Calcite crystals look like small sheets of glass. The students discovered that they could look through a calcite crystal just like a piece of glass.

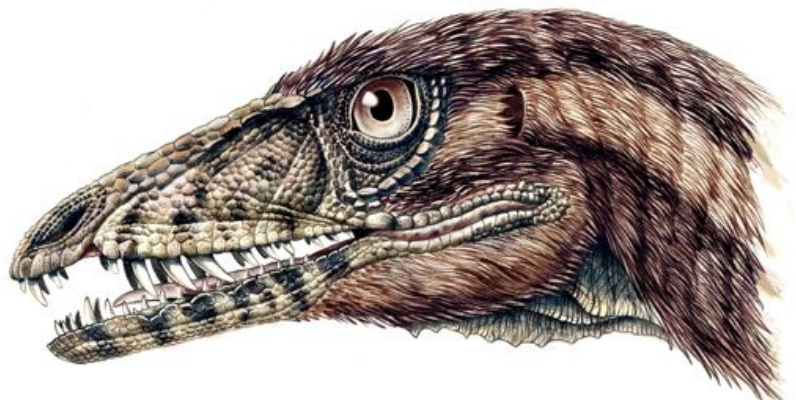
The Thursday field trip was to the Tesuque Pueblo organic farm, where students helped to remove weeds and to plant vegetables. Then they visited the Espanola Wildlife Center to see various kinds of raptors: owls, hawks and eagles. They learned how to dissect owl pellets to determine owl dietary preferences. The Los Alamos students learned of a pueblo tradition concerned with viewing owls, in which seeing an owl may be considered bad luck.

The Friday field trip was to Ghost Ranch. The high point was hiking to an actual excavation site where a thecodont fossil was being removed. Thecodonts were in the area about 214 million years ago, in what was a stream. A forest fire occurred and 214 million-year-old charcoal can be found along with the fossils.

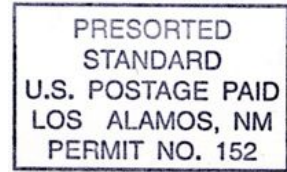
The paleontologists had found a fossil and showed the students how the rock surrounding it could be chipped away. The exposed fossil was then prepared for removal in a plaster cast. The students also saw a fossil being removed from its plaster cast at the laboratory at Ghost Ranch.

A dinosaur named Tawa Hallae recently was found at this site. A National Science Foundation web site (nsf.gov/news/special_reports/tawa/downloads.jsp)

shows the drawing below and the site where the students watched the scientists at work. Tawa Hallae may have looked like this! ✨



PEEC
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PEEC This Week
 weekly e-mail alerts about classes, events, nature and the environment. Anyone who has an e-mail account can receive them. To start, send a message to Webmaster@pajaritoeec.org. These weekly e-mail alerts always include PEEC activities and local information about nature. You also can contribute appropriate notices.

General Membership	\$35
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PEEC's Mission Statement: To provide a nature center and outdoor education programs that allow people of all ages to explore the rich natural and cultural heritage of the Pajarito Plateau and to appreciate our connection to the natural world.

Joining Is Easy!

Tear off this form, fill it out, and mail it in with your check or go to the website www.PajaritoEEC.org. Do it today! Thank you.

Name(s): _____ Address: _____
 Phone: _____ Number in Household: _____ E-mail: _____ Please contact me about volunteering.

PEEC is a non-profit 501(c)3 organization. Donations are tax-deductible.

 Mail checks to: PEEC PO Box 547 Los Alamos, NM 87544 Att: Membership
