

# Vature Notes

Pajarito

Environmental

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Center

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Your Nature Center in Los Alamos

Winter 2011

PEEC. Mail: PO Box 547 Los Alamos, NM 87544 505-662-0460 www.PajaritoEEC.org Location 3540 Orange St.

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### President's Message: The Twelve Months of 2010

by Rebecca Shankland

This year PEEC has experienced an enormous and exhausting range of ups and downs, ending happily with the ups. Here's a summary, best enjoyed by singing – the words in bold should be sung to the tune of "The Twelve Days of Christmas."

- 12 Months of Programs: PEEC's reason for existence is the multitude of community and schools programs we offer. The long list includes Park Flight field trips, trail and forestry study with school kids; Nature Odyssey and LEAP summer adventures; the Sunflower Kids' summer garden; historic and natural history hikes; classes for adults; nature clubs for kids; talks on big horn sheep, geology, native plants, archeoastronomy, water harvesting; a fall Nature Fiesta at Bandelier; the creation of a butterfly garden under the lead of the Kinnikinnick Club.
- 11 Insulators: Chick Keller led an intrepid group of volunteers in installing insulation last year, courtesy of a grant from Lowe's. But no good deed goes unpunished and this year we were required to cover the ceiling. Please admire how the insulated ceiling allows the snow to pile up on the PEEC roof.
- 10 Years of Being: PEEC celebrated ten years of existence, ten years since the Cerro Grande Fire, and five years of having a building thanks to Los Alamos Public Schools. Terry Foxx led an extraordinary triple-whammy Earth Day event with Clan Tynker, and Felicia Orth catered our fund-raising banquet with a Nativo Meal for over 100 guests
- 9 Months of Teaching: As required by the state's anti-donation clause, PEEC and LAPS had to sign a lease approved by the State Board of Finance to either pay marketvalue rent or provide services to LAPS totaling \$36,000. After five months of negotiations, the lease was approved, and PEEC is working hard to provide field trips and school visits to LAPS kids.
- 8 Grants Applied For: LANL Foundation, REI (Recreational Equipment Inc.), Moms in Motion, Keep New Mexico Beautiful, Delle Foundation, NM Game and Fish, YMCA AmericaCorps Partnerships, First National Bank of Santa Fe, Blue Cross/BlueSheild it's a struggle to write all these grants. We won some, lost some, and some are pending, but grants and our community members are our financial lifeblood.
- 7 New Teachers: Besides our many PEEC volunteers, we've hired an amazing group of creative, experienced teachers—Emma Starrett, Jessie Ross, Elena Gustafson, Kristine Coblentz, Jocelyn Warner, Susie Schillaci, and Siobhan Niklasson.
- 6 Months of Funding: After going it alone for ten years, we finally asked the County for \$25,000 a year to support (continued on page 2)

our administration of community programs. Our RFP will probably be approved for the first six months of 2011.

- **5 PE-EC Clubs**: Our original Kinnikinnick Club (grades 4-6) has morphed into environmental clubs at the high school and middle school, Critter Club (grades 1-3), and Nature Playtimes for Toddlers and Pre-schoolers.
- **4 Leaders Joining**: Our Board of Directors gained terrific new skills from Paul Arendt (treasurer), Kelly Larson, Siobhan Niklasson, and Dave Yeamans.
- **3 Leaders Leaving**: But we bade a sad farewell to departing Board members Natali Steinberg, Peter O'Rourke, and Hedy Dunn.
- **2 CIP Hearings**: First, the Capital Improvement Project committee; second, the County Council. From Chick Keller's eloquent presentations and packed houses of PEEC supporters, their passionately spoken words conveyed our needs for more space and service to the community. The PEEC proposal for a new or remodeled building was passed for Phase 1 funding. So we hope we're on the path toward a new nature center.

And a Director Named Katie: We hired Katie Watson this fall to replace our treasured Branden Willman-Kozimor, who is at home treasuring her little Ezra. Katie hit the ground running (after all, she is a trail-runner), connecting with LAPS teachers, writing curriculum that meets NM standards, reaching out to the community, writing grants, creating articles and flyers, redoing our failed wireless system, organizing the programs part of PEEC while Diane Noveroske runs the administrative end.

Onward with 2011. May your lives by enriched by PEEC activities.

## Eagles, People, or Both?

by Sue Watts

The sun was out and promised to warm the late November day. There was little wind. The high school environmental science class was excited and happy to be on a bus instead of in the classroom. It was a great day to count eagles.

Thanks to the sharp eyes of the eighteen kids and of the consultant, we saw five flying bald eagles. It appeared that three of them had the white heads of adults and two of them were splotchy juveniles. Terry, the resource person who has studied the eagles since the opening of the Valles as a preserve, was discouraged since he is used to seeing a lot more. There was one 3/4-mile stretch where he had seen between six and twelve perched eagles at a time. This year, there were none. After scanning the area with a spotting scope, he determined there were no eagles, so we drove through the area on the preserve road. In that reach, we found two cars and several fisherfolk.

In the past, fishing was supposed to end in September to help provide a comfortable place for the avian fishers (eagles). Now, people can fish on through the beginning of December, but only on Fridays. Past research indicates an inverse correlation between the number of people fishing a stream and the number of eagles perching in trees. A perching eagle, it seems, is a happy eagle. At least, it is an eagle that has to use less energy to get its fish.

This created a great case study for management issues: what happens to the eagles when they fly away? What happens if they can't fish everyday? Why are they allowing fishing while the eagles are here? Are there more perching/fishing eagles on the six days when the reach is closed to fishing? Who is more important...paying fisherfolk or the eagles? Can the resource be managed to benefit both shareholders? Since the eagles can only vote with their wings, who can speak for them? How are these decisions made? What role do the fees play in the decision to keep fishing? What role does science and observation play in making these decisions?

It reminded me of an environmental ethics exercise in decision-making I once generated to keep folks from falling asleep after lunch. It was so thought-provoking, I used it for years. Basically, I created a values line and asked people to take a stand. First, I introduced three bases for making environmental decisions:

- 1. anthropocentrism: making decision based on HUMAN needs and desires only
- 2. biocentrism: including ALL LIFE when considering environmental decisions
- 3. wholism: including the WHOLE EARTH living and non living in those decisions.

Then, I would ask the group to stand by the term which best described their point of view. Participants could explain why they were standing by a certain term. They had to listen to what others said. They could move between the points of view if they changed their mind. Most people in those environmental groups stood between biocentrism and wholism. But I remember one woman who stood by *anthropocentrism* and I remember her observation...she challenged us to pay attention to the decisions we actually made in the ensuing months to see if

professed...an eyeopening experience in
itself.
So...where do you
stand?

\*\*Bald eagle at Bosque del
Apache. An old meaning of

we practiced what we

Apache. An old meaning of "bald" was "white."
Photo by E. Albright





The Secretive Cat Is Out - at the Bird Feeder

by Siobhan Niklasson

Photo by Rebecca Shankland

About a year ago, the birds outside Becky Shankland's house at the edge of White Rock Canyon suddenly set up a ruckus. Curious to see what had the birds aflutter, Becky hurried to the window and looked out. The birds were scolding something – a cat. Not a neighborhood house cat prowling for a feathered snack, but a less familiar creature, about twice as large as Fluffy, with a distinctive spotted coat and cropped tail: a bobcat.

Bobcats (Lynx rufus) are fairly common predators in much of New Mexico, including Los Alamos County, but because the felid carnivores make a living out of being secretive, they often escape our notice.

Bobcats are adaptable creatures, requiring only sufficient cover and an adequate supply of meat to survive. Thanks to this adaptability, bobcats have a wide distribution throughout North America. They live in a variety of environments, including on the fringes of human development.

According to Rick Winslow, a carnivore biologist with the New Mexico Department of Game and Fish, about 60% of the state is good bobcat habitat, and the setting around Los Alamos is particularly favorable. Our broken canyon country speckled with loose rocks and shrubs provides cover for the cats to den or lie in wait for their prey. Their favorite food, cottontail rabbits, is in good supply.

Like other felids, bobcats are obligate carnivores, meaning they can eat only meat. Because they cannot supplement their diets with plant matter in lean times, they must have a consistent supply of meat. They patrol territories of around three to five square kilometers in New Mexico (Rick Winslow, NM Department of Game and Fish), hunting mainly at dawn and dusk or at night, when their prey is most active. While rabbits and hares are their favorite food, they also eat rodents, birds, small animals, poultry and even, occasionally, small livestock.

There are around 35,000 to 55,000 bobcats in New Mexico, and in Los Alamos their population density is comparable to that of coyotes. But while coyotes are a common sight in and around town, bobcats are much less conspicuous. Of course, they are most active during the dark hours when we are least likely to see them, but their hunting style also keeps them out of sight. Whereas coyotes chase their prey, even across open ground, bobcats silently stalk from under cover, and then pounce when their prey is within a few meters' striking distance. In addition, their dappled coloring conceals them well.

Despite their healthy population in much of New Mexico, it can be difficult to spot bobcats in the wild. But their tracks can be seen on dusty paths or in fresh snow, especially in areas of broken cover. Their tracks are like those of a house cat, but larger, about two inches across. Both front and hind prints show four toes, and bobcats often place their hind paws directly on top of their front prints. As all cats do, bobcats retract their claws while walking, so their prints, unlike dog prints, rarely show claws.

If you want to take a closer look at this elusive animal, the Nature Center at PEEC has a stuffed bobcat on display, as well as pictures of bobcat prints and other information about the predator. Pay a visit to see this specimen, and then keep your eyes out for tracks next time you're on a hike around Los Alamos County.

Editor's Note: Becky reports that a bobcat reappeared before Christmas and her son, Stephen T. Shankland, took this photo.



### Bird Migration Journeys

by David Yeamans

Bird migration is the regular seasonal journey undertaken by many species of birds. Bird movements include those made in response to changes in food availability, habitat or weather. Sometimes, journeys are not termed "true migration" because they are irregular (nomadism, invasions, irruptions) or in only one direction (dispersal, movement of young away from natal area). Migration is marked by its annual seasonality.

So much for Wikipedia.

Other animals migrate and not all birds migrate, but just for simplicity, let's look at birds in our area. We might think of geese or sandhill cranes when we think of bird migration. In autumn these birds fly over us from the far northern breeding grounds to wintering grounds where food is available, not frozen under snow and ice. Then in spring the noisy (or silent) flocks head north. But there are more ways to migrate than the familiar single-destination, twicea-year flights we are familiar with.

We have a special environment on the Pajarito Plateau that allows birds to migrate several climate zones without leaving the county. A robin that you might see at 10,000 feet elevation in summer, breeding in the Jemez Mountains, might migrate only as far as Española at 5600 feet for the winter. Check out the food-rich Russian olive trees along the Rio Grande at Otowi Bridge if you want to see a lot of robins that might have migrated only a short distance to a conveniently placed source of food and water for the winter.

Also, birds can migrate to their own individual summering and wintering areas. Many mallards migrate in this way. It's as though all mallards are on a platform that moves north and south with the seasons, and the ducks don't ever leave the platform. In that way, ducks that summer in the far north end up more northerly in winter than other ducks. Likewise, the mallards you find here in summer might go much farther south than the ones summering farther north. This is a general trend and any one duck might make an exception.

Another type of migration is the usual spring-fall movement, but the birds go south to a common area in winter and north to much broader dispersion in the springtime. Some Central and South American countries host our birds in greater winter concentrations than we see them in summer here. (Or is it that we host their birds in summer?) Perhaps some will come to your yard.

Watch in Los Alamos County for migrating birds in the spring and autumn. My yard, for example, is a happy place for a regular 15 to 20 species daily in the winter, but during migration times I regularly see 30 to 45 species in any day. During the nesting, hatching, and fledging times the count settles in around 25 or so.

Which of the 200 or so species seen in Los Alamos County can you find? Which of the close to 100 species that nest here do you recognize?

Join Us to See

# Migrating Birds by the Thousands

Sandhill Cranes 6,862 ★ Light Geese 30,785 ★ Ducks 69,246 ★ Canada Geese 455 ★ Bald and Golden Eagles 4; this is the December count at Bosque del Apache.

If you are a birder, how many times have you heard about the author of the preceding article? Or, how often do you hear the name Stephen Fettig? How much pleasure would you have going birding with both of these experts? Well, PEEC's January trip to Bosque del Apache expects to include them. Steve is both leading the Bosque trip on Saturday, January 15, and inviting our group to visit the rosy finch bird banding project at Sandia Crest House on Sunday, January 16.

Saturday's birders gather at the bosque at 9 a.m., so it's good to travel the day before. A good side trip on your own would be to Bernardo Wildlife Area south of Belen. Cranes and geese often rest there, too.

If you are not an experienced birder, why not start with a group that welcomes you to an amazing experience?

Contact Corry Clinton for information and to register for our trip. The fee is \$15 per person, not including travel expenses. E-mail Corry at corry@pegasoi.com, or use PEEC's web site at PajaritoEEC.org.



Sandhill Cranes. Bosque del Apache is said to have the world's largest collection of them. Big birds with a six-foot wing-span, they migrate from the northern Rockies.

Photo by E. Albright



#### A closely packed flock of snow geese at Bernardo, 2008

Snow geese breed from late May to mid August, but they leave their nesting areas and spend more than half the year on their migration to-and-from warmer wintering areas. During spring migration, large flocks of snow geese fly very high along narrow corridors, more than 3000 miles from traditional wintering areas to the tundra. Source: Wikipedia.com. Photo: E.Albright

# Family Nature Connection

# Hibernation, That's an Energy Saver

by Michele Altherr

The cold of winter brings harsh conditions for wildlife. Some animals migrate to new areas where food is more plentiful while others stay and adapt to winter conditions. Animals that stay use a variety of amazing strategies that help them cope with low temperatures and food shortages. Mammals grow thick winter coats and birds fluff up their feathers for added insulation. They also look for warm shelters. Cold-blooded animals such as frogs pass the winter in a dormant stage buried in mud at the bottom of a pond. Insects survive the winter in an immature stage or as eggs. Honeybees have their stored honey and beavers have their cache of logs to nibble on during the long winter.

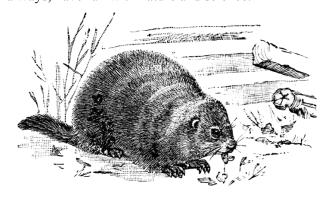
A few animals hibernate and "sleep" right through winter's food shortages and cold. However, the "sleep" of hibernation is not at all like the sleep of humans where you move around and are awakened by loud noises. Hibernating animals appear death-like and it takes them a long time to wake up enough to even move around. When an animal begins to hibernate, its body temperature drops

an animal begins to hibernate, its body temperature drops very low so that it almost matches the temperature outside. The animal's heartbeat and breathing slow way down, too. You might be thinking that the animal has to wake up to eat. Actually the animal doesn't need to because it did

enough eating in the summer and fall to last the winter. The animal's food energy is stored in the form of body fat. For example, a black bear can gain as much as 30 pounds a week in preparation for winter. Stored body fat lasts longer in winter because of the changes to the animal's body during hibernation. During four months of hibernation an animal uses about the same amount of energy as it would in four days of normal activity. Now that's an energy saver!

Locally we have animals that hibernate or go into something similar called torpor. These animals include squirrels, raccoons and skunks. A hibernating woodchuck slows its heartbeat to three or four beats per minute and its body temperature drops to 38 degrees Farenheit. It breathes only once every five minutes.

With your parents' help, check your body's heart rate, temperature and breaths per minute. Do this at rest and after activity like jumping rope. Compare your results to the hibernating woodchuck. How many degrees would your body temperature have to drop in order to match the temperature of a frosty winter's day? Remember that the higher your rates, the more food energy you need to survive. Would you be able to survive winter without eating for four months? The answers to these questions make me marvel about the mysterious ways of nature. How about you? As always, have fun with nature and science.



A woodchuck in its winter coat, a true hibernator in the marmot family. Woodchucks are the subject of a great deal of medical research. Scientists are studying their ability to lower their body temperature and reduce their oxygen consumption. Source: www.hww.ca/hww2.asp?id=109
Drawing from Clipart Etc., etc.usf.edu

# Making a Difference: The Los Alamos High School Environmental Club

by Melanie Boncella

You may not know much about the high school environmental club. It isn't large or well known compared to other clubs or sports (continued on page 6)

at the high school.

However, the kids who participate work hard to help the environment.

The club collaborates with PEEC and the YMCA to come up with and carry out projects aiding the environment. Their accomplishments so far this year have been cleaning up LA Mountain and pumping up tires at Metzger's Mobil gas station.

The Clean Up LA Mountain project occurred in the fall, when club members and some kind citizens picked up trash off LA Mountain and straightened up the LA letters. They also pulled white paint off rocks and bushes, since it was blurring the iconic LA and killing the plants. The project was advertised in the Los Alamos Monitor, as was the following Brownout Day, when the club went up to clear away more white paint that didn't belong, and to cover what they couldn't pull off with environmentally friendly brown paint.

The *Tire* project was an event held at Metzger's Mobil gas station in an effort to reduce carbon dioxide emissions and raise awareness about tire pressure. Since low tire pressure is linked to higher emissions, the environmental club pumped tires for free and noted what the original tire pressures were. Doing this also raised awareness of tire pressure and the effect it has on car emissions.

The environmental club at the high school is always working on finding new ways to help save the environment. They are helping to raise awareness of environmental issues, as well as implementing local solutions.

**Editor's Note**: PEEC is proud of the school environmental clubs. Next issue: the club at the Middle School.

## Winter Ecology Program Starting at PEEC

by Katie Watson, Program Director

This winter Los Alamos Public School students will be studying winter up close and personal when they get out on the trails on snowshoes!

Seeds of the program were sown when Branden Willman-Kozimor (then Program Director) wrote a grant to the New Belgium Brewery to purchase snowshoes. While searching for winter ecology curriculum, we discovered the Winter Wildlands Alliance

(www.winterwildlands.org). This organization focuses on human-powered snow sports, and is dedicated to "ensur[ing] a safe, quiet, tranquil experience for every winter wildlands adventurer, now and always." Part of their outreach is Snowschool. Snowschool supplies curriculum, ideas, activities and lesson plans for winter ecology, *and* allows Snowschool sites to purchase snowshoes from Atlas and MSR for 10% below wholesale cost.

PEEC will be bringing this program to any interested 4<sup>th</sup>-8<sup>th</sup> grade class, thanks to a grant from the New Belgium Brewery, the support of the Winter Wildlands Alliance, and the expertise of the Sandia Mountain Natural History Center. PEEC signed up as a Snowschool site, and we have now purchased 46 pairs of snowshoes for kids and 5 pairs for adults. The Winter Wildlands Alliance even threw in eight pairs for free, since manufacturers often donate extra gear to them. We've got three 6<sup>th</sup> grade classes signed up already to take to the trails nearest them to study how plants and animals have adapted to survive through the winter.

As if all that wasn't great enough, we were contacted earlier this year by the expert naturalist educators from the Sandia Mountain Natural History Center, wanting to know if they could help lead any field trips for us this year. They are funded by the museum, with a mandate to serve kids all around the state, and wanted to make sure they served kids in Los Alamos this year. They have agreed to come to Los Alamos to study our trails and to help us to develop a winter ecology curriculum tailored to our environment and State Educational Standards. To cut transportation costs for schools, the classes that sign up will be taken on an adventure that begins within walking distance of their schools.

We couldn't be more excited about this fantastic program. We have only one thing left to wish for—SNOW!!

✡

# Backcountry Film Festival Coming to PEEC

by Katie Watson

One of the perks of being a Snowschool Site (see article above) is the opportunity to show the Backcountry Film Festival at a reduced cost to us. Now in its sixth year, the Backcountry Film Festival highlights the beauty, diversity and fun of the winter backcountry experience. Submissions come from world-renowned filmmakers who travel every corner of the globe to submit their best work and from grassroots filmmakers who take a video camera out on their weekend excursions and submit their best film short. The top films are then juried and assembled into a night of fun for all. Whether you like to ski, snowboard, snowshoe, or even just stay indoors and drink hot cocoa by the fire, this film is for you. The trailer is up on PEEC's website now.

PEEC will be screening the film on Thursday, February 3<sup>-</sup> at 7 p.m. We'll be charging just \$7 for adults and \$5 for kids, and there will be a raffle for great gear and prizes at intermission. Join us for an evening of winter adventure!

## The Crystal Structure of Snowflakes

Excerpts from *The Snowflake, Winter's Secret Beauty*, by Kenneth Libbrecht, Photography by Patricia Rasmussen, Voyageur Press, 2003.

When we say *snowflake*, we usually are visualizing a *snow crystal*, which is a single crystal of ice. A *snowflake* is a more general term that can mean an individual snow crystal, a cluster of snow crystals that form together, or even a large aggregate of snow crystals that collide and stick in midair, falling to earth in a flimsy puffball.

The mystery of snowflakes is how they are fashioned into such complex and symmetrical shapes. They are not made by freezing liquid water – a snowflake forms when water vapor in the air condenses directly into frozen ice. As more vapor condenses onto a nascent snow crystal, the crystal grows and develops, and this is when its elaborate patterning emerges.

From nothing more than the simple act of water condensing into ice, these amazing crystal structures appear complex, symmetric and in endlessly varying designs. Some stellar crystals contain scores of side branches, giving them a leafy, almost fern-like appearance. Others contain fewer side branches, perhaps decorated with thin, patterned ice plates.

Whatever their appearance, stellar snow crystals usually grow six primary branches, each supporting additional side branches. Sometimes the side-branching appears to be symmetrical, but often it does not. Sometimes snow stars have three- or twelve-fold symmetry. Snow crystals never have eight-fold symmetry, nor are they four-, five- and seven-sided. They do sometimes form long, columnar or needle-like crystals. The most basic of these forms is a simple hexagonal column of ice, similar to the shape of a standard wooden pencil, often sharp.

Water droplets in clouds do not freeze readily because in a sense they don't know how. The molecules in a liquid droplet are disordered, jostling against one another in a chaotic jumble – the perpetual dance that comes from thermal motion. Water molecules need to become ordered into a crystalline lattice to freeze, but they have a hard time settling down.

Once an individual droplet freezes into a microscopic ice particle, it grows by condensing water vapor from the air, thus forming a full-fledged snow crystal. The snow crystal grows as it floats through the cloud. After some tens of minutes the snow crystal will have grown large enough that gravity pulls it to the ground.

The additional water vapor needed to grow a snow crystal is provided indirectly by the remaining liquid cloud droplets. These will slowly evaporate away, putting water vapor into the air, which is then consumed by the growing snow crystals. During a snowfall there is a net flow of water – from droplets to air, and from air to ice crystals. That is how a cloud freezes, turning its liquid water droplets into solid snowflakes.

Snowflakes are the product of a rich synthesis of physics, mathematics, and chemistry. They're even fun to catch on your tongue.



**Stellar Snowflakes.** Snow crystals often fall to earth as sixbranched ice stars, created in endlessly different patterns.

Contact Terry Foxx at storyteler@comcast.net.

**Earth Day** is coming to PEEC on Saturday, April 30. Clan Tynker will return then to entertain us. Hikes, exhibits, lectures, classes and other events will fill the days before Earth Day week-end. We're in planning mode and, if you'd like to help, the Earth Day committee will begin meeting January 13.

The annual fund-raising party for PEEC will again feature a special dinner and silent auction of nature-oriented experiences: star talks, wildflower walks, trips to wildlife refuges, landscaping advice, photography lessons, and more. If you have expertise that you would like to auction on PEEC's behalf, please contact Michele Altherr at mjaltherr@gmail.com. Thank you!

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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
Living Lightly	\$20
Penstemon Benefits of membership plus t-shirt or canvas shopp	\$60 ving bag.
Sunflower Benefits above plus additional t-shirt or canvas sho	\$100 opping bag.
Wild Iris Donor Benefits above plus Muench coffee table book.	\$250
Skyrocket Gilia Donor We will contact you to determine how to recognize generous level of donation.	<b>\$500</b> this
Wood Lily Donor We will contact you to determine how to recognize generous level of donation.	<b>\$1000</b> this

Non-Profit Sponsor  Newsletter and PEEC This Week for up to 3 organizational mem	\$75 abers.
Corporate Sponsor \$100  Newsletter and PEEC This Week for up to 3 organizational members.	

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 organ	ization.	Donations are tax-deductible.
	****	********	*****

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