Nature Notes

Volume 11, Number 1 Winter 2012
Your Nature Center in Los Alamos

President's Message : Exciting Possibilities for PEEC in 2012

by Rebecca Shankland

Remember how you felt as a kid opening a present you'd been hoping for all year? First, the suspense; then the hope; and then the joy as you tore off the wrapping paper….

That was the PEEC board opening up Catalyst Architecture's next design for a nature center in Los Alamos. Presto! We discovered a shiny new building, a composite of the best attributes of the two earlier designs.

But first—a little history of the last few months. Ideas from the Survey Monkey and the November 15 meeting in Fuller Lodge provided a starting point for Catalyst. Then we followed them step by step as they benchmarked other nature centers and evaluated three sites, the Canyon Rim across from the Coop Market, the current PEEC site, and the old skateboard park on Canyon Road. The last site was the near-unanimous choice of the PEEC stakeholders and the public.

Catalyst returned a month later with three conceptual designs: one for the PEEC site and two for the skateboard park ("the Lodge," reminiscent of Fuller Lodge, and "the Fibonacci," loosely based on the natural spiral found in pine cones and nautilus shells). More public feedback led to the current design, dropping the wet lab in favor of a room for messy activities for kids and adults and expanding the wildlife viewing windows.

Catalyst's work is based on the criteria generated by the community, which said it wanted a building that would "be inspirational," "be sustainable," have a sense of mystery and awe," and "be open to the world of nature." Specific criteria were:

*to be able to view wildlife and birds from inside the building
*to demonstrate that the County is a leader in energy efficiency and water conservation
*to educate children, which has been shown to improve school performance, as well as adults
*to create a destination building that will draw tourists as well as locals
*to be close to downtown and public transportation
*to have more interactive exhibits, animal exhibits
* to be open more hours.

The major rooms in the close-to-final plan are

*trellised entryway on the south with waterfall window feature
*greeting area with gift shop
*3 offices with workroom space
*exhibit room
*observation/viewing room to outside
*children's discovery room
*herbarium

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(President's Message continued)
*outdoor viewing deck on canyon edge
*combined meeting room/planetarium, and the
*expected restrooms, coat rooms, storage areas.

The meeting room/planetarium has a domed ceiling that permits visual projections of the heavens and also visitors' introductions to the Pajarito Plateau and Los Alamos, becoming a multi-purpose space for various community uses. The entrance on the south weaves through a garden area with a butterfly garden and children's vegetable garden, among other features. The north side is reserved for wildlife viewing.

The architects will continue refining this design for public presentation on January 19 in Fuller Lodge at 6 p.m. with light refreshments at 5:30. Next the project will go before the CIP (Capital Improvement Projects) Committee, scheduled for February 23. If approved, it will then be presented in April to the County Council for its determination.

Relevant information and drawings are all posted at PajaritoEEC.org under "Capital Improvement Project."

What amazing new possibilities for PEEC in 2012! Happy New Year to the whole PEEC family and the Los Alamos community! ☼

A Shower of Stars

by Sue Watts

Maybe it was the stars calling or maybe it was just the lingering effects of a cold.

No matter, I woke in the middle of the night, and, after lying there for a time, decided to get a cup of lemon chamomile tea. While it was steeping, I remembered the words scrawled across the bottom of the calendar, "Geminid Showers."

Well, why not ... I was up anyway. Slipping on my shoes and heavy coat, I stepped outside. The dark parasol of night pricked by sprinkles of stars hung overhead. The filmy cloud of the Milky Way spread across the sky in a band. Orion strode through the heavens, his nebula firmly fixed in his belt.

A faint streak of light shimmered and went out. A bit of space dust fell to earth followed by another. I was seeing the evidence of the intersection of the earth's orbit and the debris trail left by passing comets or asteroids, a wonder in itself. The streaks were all over the sky, but if I had traced the pathways back, they would have led me to the Gemini constellation. And then, as my mother-in-law used to say, "Thick and fast, they came at last ... and more and more and more." Sometimes, there were as many as five or six streaks at a time. There would be a pause, then another burst of three or four would dance across the sky. Just before my shivering sent me inside for the warmth of that cup of tea, the finale: two streaks of light, one bright, one faint, traveling in tandem, fell across the sky.

That night the skies held one more surprise. Still chilly, but hating to give up the marvel of the night sky, I opened the curtains before crawling back into bed and discovered that I could see the outside shower of stars. And then, a streak of light ten times wider than any I had seen pulled me upright. It raced across the sky from the southwest and disappeared behind the ridge north of our house. I sat for some time wrapped in the wonder of what I had seen and remembered my dad's favorite end-of-life phrase, "We are all made of the stuff of stars."
Note: This star shower occurred in December, 2010. In 2011, the moon was too bright to see much. For 2012, see the list and web address below.

Also, if you'd like to participate in an international citizen science project, you and your kids can help the Globe at Night organization (http://www.globeatnight.org/index.html) gather data on the relative darkness of the night sky in our area. Data will be gathered the second or third week of January through April. It's a great family activity and promotes an awareness of the wonder of the night sky. When compared with reports from around the world it will demonstrate just how endangered a dark sky is – as ephemeral as the streak of a meteor. ☼

Meteor Shower Schedule 2012

See much more information at the following web site. http://earthsky.org/astronomy-essentials/earthskys-meteor-shower-guide

January 4, 2012, in the wee hours before dawn, Quadrantids

April 22, 2012, Lyrids
The Lyrid meteors – April's "shooting stars" – tend to be bright and often leave trails.

May 5 and 6, 2012, Eta Aquarids

July 28 and 29, 2012, Delta Aquarids
These showers favor the Southern Hemisphere and the tropical latitudes in the Northern Hemisphere

August 12 and 13, 2012, Perseids
You don't need to know the constellation Perseus to watch the shower because the meteors appear in all parts of the sky.

October 7, 2012, Draconids
Unlike many meteor showers, the Draconids are more likely to fly in the evening hours.

October 21, 2012, before dawn, Orionids
These fast-moving meteors occasionally leave persistent trains and bright fireballs. If you trace these meteors backward, they seem to come from the club of the famous constellation Orion the Hunter.

November 4/5, 2012, late night November 4 until dawn November 5, South Taurids

November 11/12, 2012, late night November 11 until dawn November 12, North Taurids
The South and North Taurids are perhaps best suited to die-hard meteor aficionados.

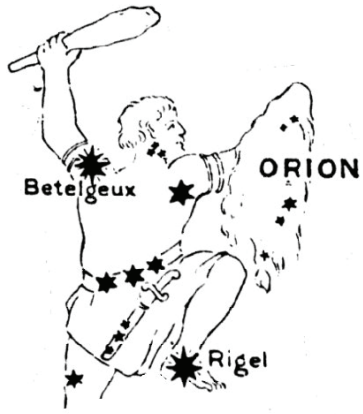
November 16/17, 2012, late night November 16 until dawn November 17, Leonids
Historically, this shower has produced some of the greatest meteor storms in history.

December 13/14, 2012, late night December 13 until dawn December 14, Geminids
Either the August Perseids or the December Geminids give us the most prolific display of the year. ☼

The Stars of Orion

"You know Orion always comes up sideways.
Throwing a leg up over our fence of mountains,
And rising on his hands, he looks in on me ..."
(From "The Star-Splitter," by Robert Frost)

Ed. Note: That's exactly what happens in the eastern sky after about 7:00 these nights. Recognizing the shape of the hunter, we seldom realize the differences in the stars' brightness and distances. Here are excerpts from an article written by Paul Kohlmiller for the San Jose Astronomical Association in 2005, www.sjaa..net/eph/0504/d.html.



etc.usf.edu/clipart

One of the major stars in Orion is Saiph. Don't know Saiph? It's down by the left foot of the hunter. It is 720 light years away. Betelgeuse is about 450 light years distant. If Betelgeuse were located where the Sun is, Earth, Mars and possibly Jupiter would be inside the star. Betelgeuse will eventually explode as a nova or supernova. When will this Occur? Some say it could happen tomorrow, others say it will be millions of years. Betelgeuse is about 400 light years away and a supernova would have to be within 100 light years to be a serious threat. Although we think of Betelgeuse as the left shoulder of Orion, the name means something closer to armpit.

Bellatrix is 240 light years away, close enough that it seems unlikely to have been formed from the same cloud of dust that created most of the Orion stars. Bellatrix is found at the right shoulder of Orion.

Rigel is actually the brightest star in Orion despite the designation "Beta Orionis." Rigel is probably a dying star, having exhausted its supply of hydrogen, and is now burning helium into oxygen and carbon.
The stars of Orion's belt are, from left to right, Alnitak, Alnilam and Mintaka. The three stars are similar. They are all blue-white giants that will eventually be supernovae. They appear to be nearly equal in magnitude so the intrinsically brightest would have to be the one farthest away. That would be Alnilam, around 1300 light years distant. Alnitak is 870 light years away and Mintaka is 915 light years distant. All of these stars were formed from the same interstellar cloud that is the source of the Great Nebula in Orion.

The Great Nebula is emission nebulae M42 and M43, magnificent views of a stellar nursery and a star party favorite. [Note: an image from the Hubble telescope, http://www.guidescope.net/nebulae/m42_43.htm, shows protoplanetary discs forming around many of the young stars.] The nebula is farther from earth than the other stars we mentioned, 1500-1800 light years away.

The four bright stars in the center, the trapezium, have actually blown out a hole in the nebula that lets us see inside. The trapezium is a multiple star system designated Theta Orionis.

One vital source for this article is a set of web pages at http://www.astro.uiuc.edu/~kaler/sow/saiph.html, http://www.sjaa.net/eph/10504/d.html. ☼

A Tale of Two Turtles

by Linda Hull

Ed. note: Linda Hull applied to PEEC's Animal Adoption Program for Elf, our exhibit turtle, in memory of her pet turtle Thomas, and our curiosity rose. Elf and Thomas have the same native area, the southern U.S. Linda wrote a comparison for Nature Notes.

A very long time ago, when I was a little girl growing up in Florida, my father brought home a tiny turtle he had found along the shore of one of the lakes near our house. I named this little fellow *Thomas* in honor of Tommy Harrington, the first-grade classmate I adored.

Thomas quickly became a beloved member of our family, climbing up the plastic palm tree in his dime store bowl to watch us wash dishes at the kitchen sink. He joined us on vacations to Ohio for dips in Lake Erie, and alarmed us when he unaccountably disappeared one day, only to reappear weeks later from under the refrigerator, a dust bunny moving at a turtle's pace.

Thomas outlived my parents, who cared for him when I went away to college, married, and started my own family. A childhood friend lovingly took care of him in her Florida home until he was 47 years old. In those years, Thomas grew from the size of a quarter to the size of a small platter and was a keen and attentive companion. He is buried under the oak tree where my friend used to take him for walks in the woods.

Thomas, my childhood pet, is classified in scientific terms as *Pseudemys peninsularis,* commonly known as a Peninsula Cooter, because he and his kin are geographically limited to the Florida peninsula. Although Elf is also a freshwater turtle and sports the same distinctive yellow and black markings as Thomas, he is a member of *Trachemys scripta elegans*, a species native to a broader cross-section of the Southern United States. Commonly known as Red-eared Sliders, they are today's most popular pet turtle, and are now found throughout the United States wherever living conditions are favorable.

PEEC photo

Instead of ears, turtles have sensitive tympanic membranes on each side of their heads. Elf's bright red marks contribute descriptively to his name. Thomas doesn't bear *slider* in his common name, but like Elf and other Red-eared Sliders, Peninsula Cooters also slide effortlessly into the water after basking in the sun on logs and rocks.

Thomas came into my life directly from the wild, but Elf came to PEEC through a more circuitous route. He was purchased from Pete's Pets here in Los Alamos with science fair money awarded to the Mountain Elementary School fifth grade class taught by Michele Altherr, one of PEEC's founding Board members. At the end of the school year, a drawing was held to select the student who would take Elf home. Matthew Whicker's name was selected; when Matthew went to college several years later, he donated Elf to PEEC. Elf is currently the only non-native animal at the nature center.

Wild animals kept in captivity as pets rarely fare well when released. Many of us who have had wild animal friends in our lives would agree that better options exist.

For instance, your $25.00 donation allows you to adopt any of PEEC's many wild animals, from worms to a bullfrog, snakes to birds. Your gift provides your animal friend with fresh food, a clean and well-maintained habitat, and good lighting. You receive a certificate of adoption, informative updates, fact sheets about your animal, and a decorative magnet featuring a photo of your animal friend. It's an impressive packet!

In addition, your name will appear on a plaque displayed on your animal's habitat.

As the Los Alamos community enthusiastically plans a new nature center, this is the perfect time to show your support by adopting an animal friend for yourself or someone special. For more detailed information, please go to www.PajaritoEEC.org and look under *Support*. ☼

Students Test Water Quality at Fenton Lake

by Laura Dorius

On the morning of September 27th and again on October 3rd, 60 Mountain School sixth graders headed out for an hour-long bus ride to Fenton Lake. Equipped with science journals, kick-nets, buckets, sorting trays, water testing devices, and meter tapes, they were prepared for a day of science and fun. The purpose of their investigation was to see if the streams and lakes at the park are providing a healthy ecosystem for fish and other aquatic organisms.

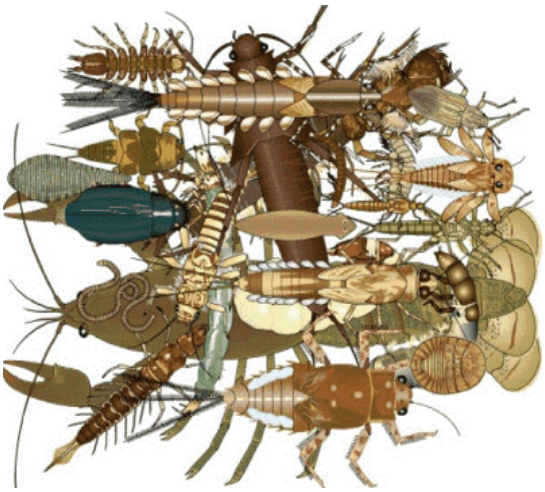
Fenton Lake was created when a dam was built on Cebolla Creek in 1946. The lake is a favorite recreational destination for fishing, boating, camping, hiking, and picnicking. For many students this was their first trip to the lake and, as a result, many have expressed a renewed interest in coming back with their families.

The students are collecting important scientific data in the park that will be reviewed by Game and Fish. They are testing water temperature and PH levels, calculating stream flow, and observing and recording macroinvertebrate populations. [Note: macroinvertebrates are animals that have no backbones and are visible without magnification.]

Water temperature is not only important to swimmers and fisherman, but also to industries and even fish and algae. Temperature can affect the ability of water to hold oxygen as well as the ability of organisms to resist certain pollutants.

PH is a measure of how acidic/basic water is. The range goes from 0-13, with 7 being neutral. PH's of less than 7 indicate acidity, whereas PH's of greater than 7 indicate a base.

Unlike fish, macroinvertebrates cannot move around much so they are less able to escape the effects of sediment and other pollutants that diminish water quality. The students are learning how to measure the health of the water source by studying the biodiversity of these tiny creatures. Getting wet and collecting bugs was the highlight for many students!



macroinvertebrate sample from www.wv.gov/wwe

The sixth graders also are addressing how water flow affects water quality, living organisms, and habitats in a stream. Stream flow is the volume of water that moves over a designated point over a fixed period of time.

Other exciting studies for the kids are the active beaver ponds present in the park. It's rare that students have an opportunity to study beavers in their natural habitat. Once almost extinct in North America, the American beaver has made a dramatic comeback and now is found frequently throughout forested streams, rivers, and wetlands of New Mexico.

Future trips in the spring will provide opportunities for students to observe and investigate an active monitoring site on Cebolla Creek. They will be identifying invasive and native plants, monitoring the effects of soil erosion, and studying the impacts of cattle grazing.

Monitoring and analyzing river quality is essential for ensuring the quality of drinking water and protecting human health, wildlife and recreational fisheries. The data collected by the students will be shared at www.watershedwiser.org

PEEC and Mountain Elementary School are piloting this sixth grade project with the purpose of helping to foster opportunities for students to learn through direct experiences outside the classroom.

We wish to extend our thanks and appreciation to Kyle Sisco, Fenton Lake Park Ranger, for his support with this project, NM State Parks' Outdoor Classroom Program for transportation funding, and Riversource for teacher training and supplies. Thanks also go to our sixth grade teachers, Sarah O'Brien, Mary Ethel Plotner, Brett Hawkins, and Kendra Brophy for providing the opportunity for Mountain School kids to experience the outdoors in a meaningful way. Special thanks go to Terry Foxx, who has been a pillar of support and a dedicated contributor to school projects such as this throughout the years. ☼

Macroinvertebrates in Lakes and Streams

Excerpts from the web site of West Virginia Department of Environmental Protection

Bottom macroinvertebrates are animals without a backbone that can be seen with the naked eye and have to the ability to cling to bottom surfaces such as rocks, leaves or roots. They include crustaceans, mollusks and annelids but in many aquatic environments most of the macroinvertebrate community are the larvae of aquatic insects. Macroinvertebrates are an important link in the food web between producers (leaves, algae) and higher consumers such as fish. They are key indicators of biological integrity in streams, rivers and wetlands.

Depending upon the stream environment, a variety of methods and equipment are used to collect benthic macroinvertebrates from wadeable streams. In rocky-bottom streams, WV Save Our Streams recommends using a two-pole screen-barrier net (commonly known as a two-pole kick-net) or a single pole rectangular style kick-net (sometimes called surfer on a stick). Both types should be equipped with 500-micron mesh netting. Two-pole kick-nets require at least two people working together to collect the sample. ☼

New Musical Benefits PEEC

by Joyce Nickols

"Petra and the Jay," a new musical written by PEEC member and local author Carolyn (Cary) Neeper with music by Alice (Bonnie) Kellogg will be performed as a benefit for PEEC in mid-April.

Photo courtesy Maura Taylor

Maura Taylor, a high school senior and the choral president at Los Alamos High School, sings the role of sixteen-year-old Petra. Kayll, an aquatic elll, will be sung by thirteen-year-old Kai Coblentz who attends the Los Alamos Middle School.

The story begins on earth in the far future (3021 C.E.). It evolves around Petra's love for her earthly animal friends, a jay bird and a deer, her devotion to her life long friend, Kayll, and other alien friends, but she has disdain for humans who she feels are hopeless.

Indeed, others on earth feel something needs to be done to address current over-population problems signaled by on-going water wars and disease that will eventually destroy the earth. Enter Alice (Sheila Schiferl), a human, and Darrok (Dale Arnick), a humanoid vorok from the planet Varok, Petra's adoptive parents. As part of the Population Study Council, they invite members of UFFDA to a conference to help address Earth's problems.

Some of you will recognize delightful alien characters from the 2007 Little Theater production of UFFDA. Ellmar, aquatic loner elll from the planet Ellason (Martin Kellogg), has been living on Earth for the last 20 years with his mate Lillan (Joy Drake); Kayll is their hatchling. Ramseed (Larry Gibbons), a lovable peace-making flying-carrot-type that produces many rootlets, also appeared in UFFDA. Dannyborg (Irene Zaugg), a Milky Way dinocyborg, is a new cyborg. Geriton (George Spillman), a pompous silicon-based germanium eater, completes the alien cast.

The aliens arrive on Earth and find they are not welcomed by all humans. After the conference is disrupted by a Guardians (chorus) protest, Petra is challenged by Mattie (Kate Ramsey) to accept being the human she is. She must understand their point of view: fear that the aliens are plotting to take over earth that is meant for human use. Petra suspects Bart (Michael Beauchamp) is going to do harm to her "outer" friends and she is right. As humans and

"outers" struggle to understand their differences, Petra has a personal struggle. When Petra tries to make her beloved jay bird and deer behave as she wants, they reject her in the only way animals can. Her dear friend Kayll tries to make her understand that, life-long friends that they are, he is a person but not the person she wants -- she is a human and he is an aquatic elll. Stuart (Todd Nickols) shares Petra's love of animals but is realistic and understands their differences. With his understanding and support from the entire cast, Petra comes to understand who she is and is united with her dear jay bird.

This musical production, directed by Alicia Solomon of Opera Alto, is a story full of fun but with a lesson for children and adults. ☼

Art Shows the Way

"Aspen art teachers had the children in the various grades do an art project based on Terry Foxx's book *The Forest and the Fire*. They discussed the Las Conchas fire and then did an art project. Each grade level did something different: Aspens in the Fire, Leaves in the Fire, Forest on Fire, Trees in the Fire, etc. "I was inspired and touched," said Terry Foxx.

Leon Petriu
"Aspens in the Fire"
Aspen Elementary. Ms Newman's 2nd Grade.
Art teacher Mary Grace

Scarecrow by Green Team
Mountain School
Photo by E Albright

Green Team, the environmental club at Mountain School, created a scarecrow for the downtown contest in October. Made completely of recycled materials, it sported cans, juice boxes, an old sweater, two old gloves, dried markers for fingers, a cakepan for the face, paper for the brain and pasta for the hair.

"One of my Green Team members suggested a door decorating contest to celebrate National Recycling Awareness Month in November," writes Michele Altherr, a GATE teacher at Mountain School. The turkey on the door included recycled paper, pipe cleaners, and bottlecaps for eyes. ☼

Door decorations by
Ms Souza's fifth grade. Mountain School.
Photo by M Altherr

Wintertime Protection

Bears are hibernating in deep sleep. Mountain lions and coyotes are not, and they are hungry.
Go to the following web site to learn about predators, their prints, habitats, and hunting methods.
Then scroll down to see how we might live safely in the wilderness.
http://www.wildlife.state.nm.us/publications/documents/predator.pdf ☼

PEEC
Pajarito Environmental Education Center
3540 Orange St.
P.O. Box 547
Los Alamos, NM 87544
www.PajaritoEEC.org

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 sign up, go to the website www.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	**$60**
	Sunflower	**$100**
	Wild Iris Donor	**$250**
	Skyrocket Gilia Donor	**$500**
	Wood Lily Donor	**$1000**

	Non-Profit Membership *One newsletter plus PEEC This Week for up to 3 organizational members.*	**$75**
	Corporate Membership *One newsletter plus PEEC This Week for up to 3 organizational members.*	**$100**

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 or Renewing Is Easy!

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

Name(s): _____ Address: _____

Phone: _____ E-mail to send receipt: _____

Subscribe this email address to PEEC This Week (circle): YES / NO / Already subscribed

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

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

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