



NEWSLETTER

Pajarito Environmental Education Center

60 Barranca Rd., Los Alamos, NM 87544

Volume 2, Number 2

Spring 2003

President's Message

Michael G. Smith

"I've always wanted to see a Martian," said Michael. "Where are they, Dad? You promised."

"There they are," said Dad, and he shifted Michael on his shoulder and pointed straight down.

The Martians were there. Timothy began to shiver.

The Martians were there—in the canal—reflected in the water. Timothy and Michael and Robert and Mom and Dad.

The Martians stared back up at them for a long, long silent time from the rippling water...

--Ray Bradbury, *The Martian Chronicles*

One of the many reasons I live in Los Alamos is the change of seasons. They thrill me with the aplomb that ushers the new one in. Unlike many regions in which the march from one season to the next is subtle, here there is little doubt that the earth has shifted in its orbit around the sun. One day it is winter; the next day brings windy spring. The air smells and feels different.

Seasonal markers exist, even for Martians. In Los Alamos we anticipate the return of the turkey vultures, the first hot day of summer, and the migration of the snow geese. Such events are significant because they help define the place that we live and who we are. Place extends far beyond the household:

where does this trail lead and why? What does the arrival, or absence, of a particular bird tell about our landscape and the happenings in distant lands? What can I grow around my house, and how will this influence the animals that visit? By observation and experience we become aware that our home place is dynamic; therefore, we too must adapt. Only by understanding where we have been can we envision the best path forward.

Spring is particularly significant for PEEC because that is when the organization's seed sprouted. In April 2000 a small group of Los Alamos residents organized the community's Earth Day celebration around a weekend of outdoor hikes arranged to highlight the natural history of the County. Since then PEEC has grown Earth Day into a week-long celebration to entertain, educate, and encourage residents of all ages and interests to experience the beautiful and diverse landscape we share with many other creatures.

Earth Day 2003, *A Sense of Place*, highlights our ties to the Pajarito Plateau. This is home turf--for those that came before, for us, and for those that follow. If we look, we see that rock, trees, the night sky, the paths of Coyote, and the migrants who stay only a short time tell stories. We are fortunate to have among us so many that know the tales and can interpret them.

PEEC's Earth Day Committee (Michele Altherr, Laura Burrows, Yvonne Keller, Sarah Meyer, and Becky Shankland) has organized a diverse choice of activities for the week of April 20. I hope you sample a few and broaden your understanding of this special

place called Los Alamos. As always, we encourage and welcome feedback. What did you like? What was missing?

Spring's arrival also brings two new PEEC initiatives and a new officer. Membership has been expanded to three categories to coincide with the annual membership drive. We have also initiated a survey of local organizations to gauge the needs and desires of the community for a nature center. Gordon Spingler, our fine treasurer, resigned so that he may devote more time to grandchildren. Janie Enter will serve out his term. She comes to PEEC with a wealth of treasurer experience and we welcome her aboard.

Finally, keep abreast of PEEC activities at PEEC's Web site (www.pecnm.org).

Bird Poetry Contest Deadline Extended to May 1

The Call for Poems that appeared in the last PEEC newsletter is still in effect. We would like to have more submissions so that we can publish the best poems from grades 1-3, 4-6, 7-9, and 10-12 in an anthology. See the Web site (www.pecnm.org) for information, or call Michele Altherr, 661-4237.

PEEC Survey

Randall Ryti, PEEC board member

In January the PEEC board sent out a request to members to assist with a survey of potential users of the proposed nature center. We also plan to interview other organizations within the region with missions similar to PEEC's. The survey is a key part of the business plan for the center. We were pleased by the response from the membership--eight PEEC members volunteered to interview one or more organizations.

The board took an initial list of 89 organizations and prioritized 57 to interview. We have completed interviews for 25 organizations or over 40%. Many interesting

results are already apparent from these interviews. PEEC members should be pleased to learn that we have a lot of support in the community for an environmental education center and potential partners such as the Scouts have been identified in these surveys.

For more information on the survey, please contact Randy Ryti at ryti@mac.com.



They're Back!

Yvonne Keller

The vultures, that is. The Frijoles vultures have turned the tables this year. Last year they didn't appear until March 25, as reported by Chris Judson of Bandelier NM. This year Terry Hodapp spotted the first vultures--in fact, 10 to 15 of them--flying over Frijoles Canyon on the morning of March 17. They had evidently arrived the night before.

The Hill vultures appeared later than last year when Ron Harper reported one on March 15. This year Nancy Shera reported a lone vulture flying into Guaje Canyon on March 27, while Donald Hoard saw another one over Los Alamos Canyon on April 3. On the same day Becky Shankland spotted one soaring between the airport and the "Y"--perhaps Donald's loner? I saw my first vulture on April 7 as I was hiking up the Quemazon Trail on the Los Alamos Canyon side--again, this one could also be Donald's vulture. Like last year, the Hill vultures seem to be coming back one or two at a time--not in a group like the Frijoles birds. Any guesses why?

PEEC Science Fair Winners

Michele Altherr, PEEC vice-president, chose five Science Fair winners this year. Each one received a certificate and a money prize to recognize their outstanding projects. We asked them to write a brief account of their project. Their write-ups appear on this page and on pages 6 and 7.

Drip...Drop...Drip!

Emily TenCate, Chamisa School, 4th grade

Did you ever wonder how much water a leaky faucet wastes? I decided to investigate this topic as a science project.

I set two faucets in my house to drip at certain rates. I set one faucet to drip slowly, at about 15 drops per minute, and the other to drip fast, at about 110 drops per minute. In ten minutes, the slowly dripping faucet leaked 5 teaspoons and the fast faucet leaked 9 1/2 ounces. It didn't seem like a lot, but 5 teaspoons in 10 minutes is 15 cups per day, and 15 cups per day equals 342 gallons a year! Similarly, 9 1/2 ounces in 10 minutes is 10 1/2

gallons a day, which is about 3900 gallons per year! Wow!

Taking this one step farther, I wondered "What if every household in Los Alamos had one slowly dripping faucet?" Using the phone book, I estimated there to be about 8200 households in Los Alamos. If each of these households had one slowly dripping faucet, I calculated that that would be over 2.8 million gallons of water lost per year! That's enough water to fill the Blue Whale four times! (The Blue Whale holds 670,000 gallons of water.)

Next I asked, "What if every household in New Mexico had one slowly dripping faucet?" That would be 342 gallons per year times 500,000 households equals 171 million gallons of water wasted every year! (Number of households is estimated from the 2000 census data.)

In conclusion, even though it doesn't seem like a slowly dripping faucet will waste a lot, it adds up over time. We live in a desert, so we need to save water, and not letting faucets drip is a good way to help save water. It costs less than \$1.00 to purchase rubber washers necessary to repair a leaky faucet. Next time you pass a dripping faucet, remember that it could cost you hundreds of dollars and millions of gallons if you don't take the time to fix it.



Emily TenCate with her Science Fair project

"A Sense of Place" - - Earth Day 2003 Schedule of Events

For all hikes wear good walking gear, hat, sunglasses, sunscreen, water, and snack or lunch.

Sunday, April 20

2- 3:30 pm "Readings Inspired by Nature," moderated by Michael Smith at R Books.

Monday, April 21

7:30- 9 pm "Green Economics: Strengthening Our Regional Economy," a panel discussion sponsored by the League of Women Voters at Graves Hall, United Church.

Wednesday, April 23

12:30- 2:30 "Seed Ball Making" for county revegetation project, for kids preschool and up. Lunch provided; RSVP to Lynn Finnegan, 661-8001. At Trinity on the Hill Episcopal Church.

2:30 pm "Rio Grande Cutthroat Trout Life Cycle Game," a game for children grades 2-6, with Lisa Matlock, Education Coordinator for the Santa Fe National Forest at Mesa Public Library downstairs, children's section.

4 pm "All Things Connected," stories, puppets, and animal balloons with storyteller Terry Foxx. At Mesa Public Library, downstairs in the Rotunda.

7- 8:30 pm "Success and Failure of Prehistoric Pueblo Farming Strategies," a lecture by Rory Gauthier, Bandelier archaeologist, at Mesa Public Library, upstairs meeting room 3.

Thursday, April 24

6:30 pm "Growing, Preserving, & Using Herbs" with Sarah Meyer at the R Books Coffee Bar.

Friday, April 25

8:30- 5 pm "Flowers, Fire, and Flood," a strenuous 12-mile hike into Upper Guaje Canyon via the Mitchell Trail with botanists Brian and Elaine Jacobs. Meet at Mitchell Trailhead (corner of Arizona and Yucca).

Saturday, April 26

All day "Earth Day at the Stables," Spring Cleaning and Recycling, sponsored by Stable Owners Association and County Parks Dept. Manure & usable building & fencing materials available.

9 am "Otowí Mesa," an easy half-day hike with Ilse and Rainer Bleck of Sierra Club. Some climbing and great views. Meet at the end of Los Pueblos Road.

9 am "Forest Ecology and Bark Beetles," a moderately strenuous 5-mile Bayo Canyon hike with Tom Jervis. Meet at the intersection of Diamond Drive and San Ildefonso Road.

9 am and 1 pm "North Community Pathways," neighborhood paths with connections to county trails with Trails & Pathways Subcommittee members. Meet at the Mountain School parking lot.

9- 12 "Taking Care of Your Place," Chamisa School grounds cleanup for the whole family, sponsored by PTO. Bring trash bags, rakes, shovels, and drinking water.

9- 2 "Beautify a Canyon," Rendija Canyon cleanup, sponsored by Los Alamos Sportsmen's Club. Cook-out lunch provided. Meet at Sportsmen's Club in Rendija Canyon.

9:30- 10 am Tree and Shrub Give-away by the Master Gardeners. At the Demonstration Garden at the County Municipal Building on Central Ave.

10:15- 11:15 am Demonstration Garden Tour by the Master Gardeners.

11:30- 4:30 "Affluenza," "The Global Banquet: The Politics of Food," and "Who's Counting?" films sponsored by the League of Women Voters, Mesa Public Library, upstairs rooms 2 & 3. Films run continuously.

1- 4 pm "A Sense of Place Should Also Include Snakes," with Jan and Stephanie Macek. Snakes displayed from 1-4; presentation of babies at 3. Talk from 3-3:30. At Mesa Public Library, downstairs in the Rotunda.

1- 4 pm "A Safe Place for Wildlife," display and two wild birds, with Ed and Jo Ferdinand and Carol Van Vesse, Wildlife Center. Bird presentation at 1 and 2:30 at Mesa Public Library, downstairs in the Rotunda.

1:30- 2:30 pm "Living with Skunks," with Bob and Cathy Anderson of Kritter Gitters and Fur and Feathers. At Mesa Public Library, downstairs in the Rotunda.

3:30 pm "How Los Alamos Animal Control Deals with Wildlife," Charles Lujan, Animal Control officer. At

Mesa Public Library, downstairs in the Rotunda.

2- 3:30 pm "More Green per Gallon: Gardening in Our Dry Climate," talk by Judith Phillips, sponsored by Master Gardeners. Judith Phillips book signing. At Fuller Lodge. \$5.00 fee.

3:30- 4:45 pm "Demonstration Garden Tour" by the Master Gardeners, County Municipal Building.

Downtown GREEN FAIR on the sidewalk on Central from 15th to 20th Sts., 10-2

Saturday, April 26

Animal Clinic of Los Alamos, Melissa Montoya: "Pets and the Environment," information on cats and wildlife, toxic plants, flea, tick and heartworm protection, and general pet care.

County of Los Alamos Solid Waste Board: Alternatives to the standard toxic chemicals used in households for cleaning, pest control and gardening. Handouts and surveys.

Defensible Space Project, Susan DiMauro: Information on the County's program to minimize vegetation that could ignite a home.

Hybrid Car Display, sponsored by LWV, organized by Gail Zander-Barlow. In the parking lot by Starbucks.

Girl Scout Earth Day Celebration: Two short puppet shows for children, "Recycling" and "Leave No Trace" by puppeteers Caroline Wurden and Tasha Vasilik, every 15 minutes between 10-12.

LAHS Environment Club: Earth cookies and "Dirt Cake" for sale, eco-fishing game for young children, information brochures, and making seed balls with Volunteer Task Force.

Community Development Department, Comprehensive Plan and Open Space Committees: Information and maps on land use & the Comprehensive Plan; free rulers, mousepads, and magnets.

Los Alamos Monitor: Bring your newspapers to recycle.

Native Plant Society of New Mexico: Exhibits, newsletters, and hot-off-the-press gardening guide for the Southern Rocky Mountains (published by the NPSNM) for sale.

Pajarito Environmental Education Center: PEEC newsletters and membership forms, Earth Day schedule of activities, cloth grocery bags for sale, and face painting.

R Books: Earth Day books for sale; free frappe & smoothie samples.

Santa Cruz Farms: Organic produce for sale and CSA (Community Supported Agriculture) information

Solar Energy Exhibit, NM Solar Energy Association: Passive solar home model, simple building guidelines, equipment demonstrating photovoltaics, hydrogen fuel cells, solar ovens. In the parking lot by Starbucks.

Valles Caldera National Preserve, Kimber Barber: Information about upcoming public activities. Public input and comments welcome.

Volunteer Task Force: Seed Ball Demonstration and Participation. Get dirty and help green up the Cerro Grande burned area.

Sunday, April 27

10 am "A Sense of Place," moderate 3-mile hike on Los Alamos homestead roads with Dorothy Hoard. Some steep uphill pitches. Meet at entrance to Rodeo Grounds on North Mesa.

12:30 pm "Historic Trail with a Timeless View," 2-3-mile hike on Camp Hamilton Trail with Janie O'Rourke of LAPA and LA Walks. Some steep sections. Meet at East Gate on Main Hill Road.

12:30 pm "Deer Trap Mesa Scavenger Hunt for Children," with Sarah Gustafson. 1.5-mile round trip, Some scrambling at beginning. Bring water, a snack, and an adult. Meet at Barranca and Navajo Roads.

1 pm "Nature Photography Hike for Teens" on Deer Trap Mesa with LA Monitor photographer Gary Warren. Participants must have camera and know how to use it. Meet at Barranca and Navajo Roads.

1:30 pm "2003 Los Alamos Seed Ball Championship." Enter either the Thirty-Minute Dash or the Ninety-Minute Marathon. Prizes! To register, go to www.volunteertaskforce.org. At Ashley Pond.

More details in the Los Alamos Monitor "Get Out!" section April 18, 2003.

Thanks to sponsors LA Walks, CB Fox, and LA Sportsmen's Club.

MORE SCIENCE FAIR WINNERS

Computer Modeling of the West Nile Virus

Christopher Alme, LAMS, 8th grade

My goal was to make a simulation model that could be used to study the spread of West Nile virus. (WNV), a flavivirus. commonly found in Africa, West Asia, and the Middle East. WNV was first observed in the U.S. in New York in 1999 and spread along the Atlantic coast in 2000. It has since spread to almost all of the continental 48 states.

The key elements in transmission of the virus are birds and mosquitoes. The mosquitoes are the vector and the birds are the reservoir. A mosquito bites an infected host--blood feeding--and becomes infected with the virus. At its next blood feeding, the mosquito gives the virus to another host (usually birds).

I wondered how WNV managed to spread so rapidly across the U.S. Dead crows were most often found to have the disease. However, crows don't migrate. I decided to build a computer simulation that would let me test whether a local bird population such as crows or a migrating bird population would be responsible for the rapid spread of the virus across the U.S.

My computer simulation included a spatial grid, a bird population and a bird migration model. I constructed a model that mimics the migration behavior of birds, I implemented and tested a WNV infection status model for birds, a WNV infection status model for mosquitoes, and a bird-mosquito interaction model.

With these models I have been able to perform preliminary simulations of the spread of WNV in the Eastern U.S. due to migrating birds. I have just gotten the bird-mosquito interaction model running, so my conclusions are very preliminary. In the simulation, temperature effects are important. When I used a seasonally varying temperature rather than just a constant temperature, the epidemic was much less as winter approached.

The length of time the birds can be contagious is very important--if too many of the birds die too soon, the epidemic dies out. The mosquito lifetime is very important

because the length of time the mosquitoes can be contagious is very important.

In the future I plan to implement a more realistic model of Eastern U.S. geography, implement a more realistic mosquito population model, and implement species-specific bird population and migration models.

Off-Center Tree Rings

Oliver Funsten, Barranca Mesa, 5th grade

I was wondering why tree rings are sometimes off center. I thought that the tree rings might be off center because of the way the tree grows on a hill.

I went to two places and took pictures of trees that were cut down after the Cerro Grande fire. I went up the Ski Hill Road and found a north-facing slope with stumps. The slope was about 15°. I also went to Arizona Avenue and found a south-facing slope with stumps. The slope was about 50°. I took pictures of the stumps so that the right side of the picture was southward. I used the position of the cursor in Microsoft Photo Editor to measure the center of the tree rings and the left, right, top, and bottom edges of the tree.

I plotted how far the centers of the tree rings were from the horizontal and vertical averages that I calculated using the location of the left, right, top, and bottom edges. For the south-facing slope, the average of all the data was a horizontal offset of 3.8% south and a vertical offset of 0.7% west. For the north-facing slope, the average of all the data was a horizontal offset of 2.5% south and a vertical offset of 0.9% east.

I concluded that 1) on average the tree rings are centered several percent to the south for both the north-facing and the south-facing slopes; 2) the average growth of the trees is more on the north side, so the slope of the ground has nothing to do with the off-center tree rings; 3) the growth on the north of the tree may give it strength to withstand the winds from the south (on the Internet I learned that the afternoon winds here are mainly from the south); 4) the wind may cause more growth on the north side.

The sun shines more from the south but I do not know why it would affect the growth on the north side.

Temperature and the Mountain Pine Beetle

Anna T. Trugman, LAMS, 8th grade

I investigated the role of temperature and its seasonal variation on the life cycle of the mountain pine beetle. I developed a computer-based model of the beetle's life cycles, examining the temperature dependence of their growth. My hypothesis is that the beetle's life cycle can only be successful within a certain temperature range.

My simulations have proven my hypothesis correct: the range of temperature that is optimal for the bark beetle's success is limited. When the temperature drops too low, the beetle cannot complete its life cycle in a year, making the beetle unsuccessful because

its life cycle is not designed to slow down to two or more years. High temperatures can have an even worse effect. When the temperature is too high, the beetles grow at alarming rates and complete multiple life cycles in one year. The high temperature disrupts the synchronization that results from the seasonal change in temperature combined with growth curves with temperature thresholds. Synchronization is the most critical part of the beetle's success because, in order to kill trees, the beetle MUST attack in mass numbers and therefore beetles need to reach adulthood within a week or so of one another.

The optimal growth temperature range is defined as a temperature warm enough to complete a cycle and moderate enough so that synchronization occurs. My simulations reveal that the optimal mean temperature is between 6 and 10° C with deviations of 10-11° C.

MEMBERSHIP DRIVE!

With this newsletter, we are asking members to renew their PEEC membership. Note our new categories. Please ask a friend or neighbor to join too! Canvas grocery bags with the PEEC logo will be given to new or renewing members at the \$50 level.

Membership valid to Earth Day (April) 2004; PEEC is a 501 (c) 3 tax-deductible organization.

Name: _____

Mailing address: _____

Phone number: _____ E-mail address: _____

Membership levels (make checks payable to PEEC):

- Individual/Family \$20
- Friend \$50
- Benefactor \$100
- Additional Donation \$_____

Check the ways you could be involved:

- Develop programs
- Lead educational activities
- Help with site selection
- Give a guest lecture
- Support one-time events (e.g., Earth Day, talks)
- Raise funds/write grants
- Edit newsletter

Would you like to offer any special interests and skills? (use other side.)

Please return this form and a check to PEEC, 60 Barranca Rd., Los Alamos NM 87544

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FIRST CLASS