

*IN THIS ISSUE:*

## EEANM

- 1 Environmental Literacy or Activism?
- 2 Shared Vision, Inc.
- 3 EEANM NEWS
- 8 WERC and Project WET
- 12 Challenge '98
- 17 *EE Connected*  
Useful addresses for EE information on the Web
- 19 Materials/Opportunities
- 23 Volunteer Opportunities
- 24 Membership Form

5 NMMNH



NEW MEXICO  
MUSEUM OF  
NATURAL HISTORY

9



WILDLIFE  
RESCUE,  
INC.  
OF NEW  
MEXICO

13 PROJECT  
WILD



15 NEW MEXICO  
STATE PARKS

## What is the Difference Between Environmental Literacy and Environmental Activism?

by Sue McGuire

The question of environmental literacy continues to be a hot topic on the national scene. The definition of an environmentally literate citizenry remains a point of contention between those who support EE and those who are highly critical of the current practice of EE.

Most EE programs use some version of the Tbilisi Declaration as their goal or mission. The Tbilisi Declaration, adopted by acclamation in 1978 at the first UNESCO conference on environmental education, lists five objectives of EE. The fifth of these is, "Participation in activities that lead to the resolution of environmental challenges." In 1996 the National Environmental Education Advisory Council prepared a report for Congress which concluded that EE should, "[provide] all citizens with the information and tools they need to make sound decisions about the environment and participate in local, state, national, and international policy-making."

The 1997 NAAEE Guidelines for Excellence included seven goals of good quality EE. The 6th goal is that of students assuming personal responsibility; the 7th goal is students demonstrating environmentally responsible behavior, to include active and considered participation aimed at solving problems and resolving issues, such as persuasion, consumer action, eco-management, political action, and legal action.

That students would be expected to take action is a source of disagreement with EE critics. The Independent Commission on Environmental Education published the 1997 report, "Are We Building Environmental Literacy?" with funding from a conservative science and public-policy group, the George C. Marshall Foundation. In this report, the Commission was critical of EE that promotes responsible environmental behavior. In their opinion, "there is no consensus among parents or the community at large on what constitutes environmentally responsible behavior or to what extent schools should encourage students to take action on behalf of an environmental cause. The field [of EE] should place its emphasis on building environmental knowledge, not on promoting a particular kind of behavior."

So, if students participate in a tree-planting day on their school grounds as part of a classroom activity, most would agree that they are "actively participating and assuming personal responsibility." But if they campaign for a city ordinance on reducing water consumption, have they become activists? If they nag their families to

...continued on page 2

## Environmental Literacy... *continued*

recycle, have we trained "eco-terrorists?" If students are better educated about environmental issues than their parents, then whose consensus is important in determining what is or isn't responsible behavior?

These are not easy questions to answer. We all hope that our EE programs and materials will awaken a sense of environmental responsibility in our students (no matter what their age), and that this sense will lead to a more secure and sustainable future. Yet many environmental educators will freely admit that it is easier to teach children than adults because children will accept ideas more readily. "They are the hope for the future," is an oft-heard refrain. Does this open us to charges of indoctrination?

It is a fine line between honest education on complex issues and pushing our personal agendas as environmentalists (or anti-environmentalists, for that matter), but if we cross that line, we open ourselves to attack by the critics of EE. We also open ourselves to rejection by parents whose jobs may be affected by

environmental regulations, especially if they think we are turning their children against them. Criticisms also emerge when a world view is promoted that conflicts with a fundamentalist Christian view, i.e., if we teach that humans are not more valued than other species.

As we struggle with this question of environmental literacy vs environmental activism, there are several things to consider. We need to consider what is appropriate action for students to take, given their age and their ability to understand complex issues. We need to understand the communities in which we are teaching and think in terms of community education. It isn't enough to focus on children in schools; we also need to direct educational efforts at parents and community leaders. Most of all, we need to let students take action based on fair and equitable presentation of all sides of an issue, all facts, and knowledge of short-term vs long-term gain. We need to teach them how to come to their own conclusions, regardless of the biases of others. Only then will we be able to avoid the criticisms currently being leveled against all EE. ■

## Shared Vision, Inc.

### Position on Constructed Wetlands Project

Shared Vision, Inc. (SVI), through its caucuses, continues to express its support for environmentally-sensitive projects. The caucuses, through their collaboration with the Water Education Working Group of the Environmental Education Association of New Mexico, has fostered support for the City of Albuquerque water rate increase of 1995, the Youth Xeriscape Committee, and the 1995 Federal Wastewater Reclamation Projects (H.R. 1803 and S. 901).

The Environmental Awareness and Land Use/Transportation caucuses support the City of Albuquerque Constructed Wetlands Wastewater Reclamation Study. In particular, the caucuses commend the City Council for initiating the study and the Public Works Department for its commitment with funding and staffing to complete the three-year study, with preliminary data in mid-1997 and final data in mid-1998. A broad spectrum of community and governmental organizations have expressed significant interest in and support of the study. A sub-group of the Water Education Working Group is preparing a plan for a wetlands environmental education program.

The wetlands study has significant potential to establish a major environmental remediation and education resource similar to the City of Albuquerque's Soil Amendments Facility, Cerro Colorado landfill, Recycling Intermediate Processing facility, and Bio-Park. Such a major resource could involve the acquisition of 500-600 acres of Bosque for a full-scale wetlands near the South Broadway Treatment Facility, using dedicated funds. The US Army Corps of Engineers may fund development of a riparian environment.

At the least, such a program would be a vital, initial step towards restoration of bosque habitat, a tertiary water treatment activity, a secondary recreation site, and a major environmental education study of wetlands restoration.

The program has the potential for wetlands to remove metals from the waste stream and help the City meet EPA NPDES permit requirements. This will require redoubled testing and analysis efforts at the pilot project to determine the efficacy of wetlands to do so.

For additional information, contact Will Hoffman, Albuquerque Solid Waste Dept., 761-8174. ■

**MARCH 1, 1998**  
**SUBMISSION DEADLINE**

The next issue of *EE Connections* will cover April—June, 1998.  
Please mail articles to Sue McGuire at 187 El Rey Drive, Corrales, NM 87048, or e-mail them to:  
[m McGuire@darwin.nmmnh-abq.mus.nm.us](mailto:m McGuire@darwin.nmmnh-abq.mus.nm.us)

# EEANM N.E.W.S

## Welcome to 1998 with EEANM From the New President, Dr. Debra Thrall

The upcoming year is going to be a most exciting venture for all of us and, as your new president, I am most pleased to be able to welcome all of you to a new year with EEANM.

I would like to take this opportunity to introduce your new board. We are going to work hard to see that we make some positive strides this year in the areas of state standards alignment and greater networking within state and national arenas. The new board was installed at the October annual meeting at Taos Ski Valley. By the way, if you missed the conference you really missed something! Not only did we have a beautiful setting in the mountains complete with gorgeous snowfall, we also had dynamic and interesting speakers and workshops. Many of the participants said that it was the best conference EEANM has done so far and we're only getting better!

### Now to introductions:

I am a science instructor and director of volunteer programs at Sandia Preparatory School in Albuquerque. I also teach a course in nuclear technology in conjunction with the UNM nuclear engineering department. Dr. Elaine Hampton, the new president-elect, is a science curriculum expert from NMSU. She is also chairman of the standards subcommittee of the EE2000 steering committee and is the program chairman for next year's annual conference, which will be held in Las Cruces. Peg Sorensen of the BLM is remaining on board as past-president, and will be heavily involved with the membership directory, membership flyer, and she's also working on the members database. Cathy Ruhl is our new secretary and will be a valuable addition to the board. She teaches middle school science with an environmental emphasis at Bosque Preparatory School in Albuquerque. It is also a pleasure to welcome Mary Stuever back to the EEANM board as treasurer. Mary is one of the founding members of EEANM and so has a plethora of information about the New Mexico environmental community, past and present.

Our 1997 conference chair and former secretary, Carolyn Cleveland, is taking on the task of membership development and she has some really fun ideas in the works. Look for a competition with lots of prizes, including REI goods. We also have a new member, Harlow Pinson, who has been doing

a lot of work on a webpage for EEANM. He's a computer guru from Albuquerque who has been working in the environmental education field for many years; send him any information you would like to share with the on-line community and he'll see that it gets on the web.

In closing, I'd like to say again how honored I am to be able to work with such powerful people in the EEANM. As the leaders of the environmental education field in NM, they are willing to give much of their valuable time to improve communication and education standards within the state. Between all the members of the board, we have years of experience working in environmental education from the public, private, formal, non-formal, governmental, for-profit, non-profit, volunteer, and about every other category that you can think of. And even more importantly, these people really do care about environmental education and its future. Perhaps Bill Stapp and others who published the first definition of environmental education back in 1969 in the very first edition of Environmental Education said it best: environmental education is "aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve those problems, and motivated to work toward their solution".

Your association board is definitely knowledgeable, aware, and motivated and I'm proud to be associated with them.

Environmentally yours,  
Dr. Debra Thrall ■

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## Environmental Education Luncheon Forums— an idea whose time has gone?

You will notice the announcement about an EEANM luncheon scheduled for February 25, but perhaps you aren't familiar with the nine year history of this event. The first luncheon was held September 27, 1989 under the name of the New Mexico Environmental Education Forum. The purpose of the luncheon was to gather people working in environmental education to network and learn about each other's program. Several years prior to the first luncheon, the NM Environmental Education Association had folded (well, merged with Volunteers for the Outdoors), and many people felt isolated, as if they were the only hope left for educating the populace about the environment. The luncheons were an instant success, often drawing twenty to thirty people together four to six times per year. Eventually, the need for a professional organization to support environmental education was realized, and organizing committees met following the luncheons. By 1993, the Environmental Education Association of New Mexico was a viable, operating organization. At that time, EEANM took over the Forum as an EEANM-sponsored event.

The luncheons are typically held on Wednesdays to allow some teachers who have an abbreviated day to attend. The vast majority of luncheon attendees have been people involved in the informal side of environmental education. These people often develop programs, curriculum, and materials to assist EE throughout the state. There is valid concern however that the forum, often held in Albuquerque during the work day, is not accessible to all EEANM members, many of whom work outside the Albuquerque/Santa Fe area or cannot get away during the weekday. Over the years, forums have been held in Las Cruces, Alamogordo, Espanola, and in the evening and early morning to try to accommodate these concerns.

However, the most successful programs were usually at the Indian Pueblo Cultural Center in Albuquerque. The luncheons always include informal time to visit with colleagues, as well as an opportunity to make short announcements to the group and share materials. There is a speaker, usually on an environmental education program or opportunity in New Mexico.

Recently, attendance at forums has dropped off, and the officers are currently considering discontinuing the event. We have decided to sponsor one more event to see if there is still a group of people who are interested in this program. Because one complaint has been the same old menu, we have found a new location.

If you would like to see EEANM continue to support this activity, simply sign up and attend the February 25 forum. If you are opposed to this activity as an EEANM-sponsored event, please write a note to the officers stating your concerns. ■

## EEANM Luncheon Forum

**Speaker:** Dan Shaw from Bosque Prep School. Dan will share information on the Bosque Environmental Monitoring Program. This innovative National Science Foundation-funded program organizes volunteers, including elementary through college-age students, to collect valuable baseline data in the Middle Rio Grande bosque for long-term ecological study.

This is a networking event. In addition to the opportunity to visit with colleagues in EE, there will also be a time for announcements and a resource table for information, handouts, etc.

**Time & Date:** Feb. 25, 1997, 12:00 noon to 2 p.m.

**Location:** Grandma's Restaurant,  
141 Osuna Road NW, Albuquerque

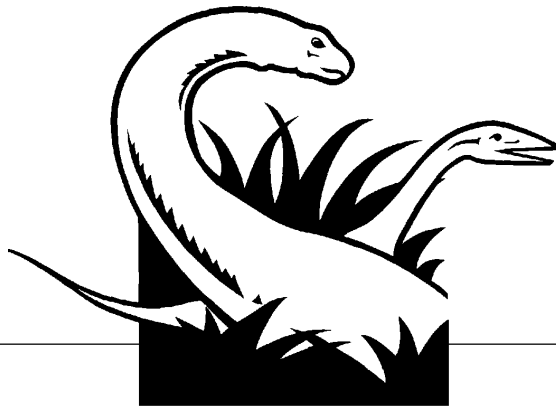
**Cost:** \$8.50. Price includes beverage, tax, tip, and forum costs. (*Cost for beverage and forum only is \$4.00.*) Choose one of the following menu items.

*Grilled Chicken Salad:* Tender grilled breast of chicken served with tomatoes, carrots, red cabbage, cheddar and jack cheeses on salad greens, sprinkled with sunflower seeds.

*Build Your Own Burger:* Your choice of 1/3 lb. ground chuck or 1/3 lb. vegetarian garden burger served on a seeded bun with lettuce and tomatoes. Green chili, cheddar, jack, bacon or guacamole on request.

*Lighter Luncheon Combo:* A plate of fresh seasonal fruit, with a whole wheat demi-loaf of bread, and a dish of cottage cheese.

To register, please mail a check and meal choice to EEANM, PO Box 61, Belen, New Mexico 87002, by February 15, or call Mary Stuever before February 24 at (505) 867-4661. ■



## NEW MEXICO MUSEUM OF NATURAL HISTORY

### SANDIA MOUNTAIN NATURAL HISTORY CENTER

Over 4,000 fifth-grade students participated in the Ecology Field Program at the Sandia Mountain Natural History Center this fall. Once again the students led the way in discovering secrets of the ecosystem. Whether it was finding the horn coral in the limestone cobble, the Jerusalem cricket under the rock, or the deer gazing at us through the forest cover, it was usually the eyes of the fifth-graders who observed the unusual long before the rest of us.

During January and early February, we will be taking our Ecology Field Program on the road to several school districts outside the Albuquerque region. In addition to working with fifth-grade students at their school site, we will also be leading teacher workshops at those sites to provide classroom teachers with additional resources for incorporating environmental education into their lesson plans. This year, we will be visiting Las Vegas, Socorro, Jemez Valley, Pecos, Santa Rosa, Cuba, and Grants.

We welcome Helen Haskell as a new teacher at the Sandia Mountain Natural History Center. Helen hails from Nottingham, England. She graduated from Manchester Polytechnic with a degree in Applied Community Studies. Her interests took a turn toward education when she took a job teaching natural history at the College Settlement in Philadelphia, Pennsylvania. She then moved to New Mexico, where she was education director for Hawks Aloft. She spent many hours taking rehabilitated raptors

to classrooms all over New Mexico, teaching students about ecology and birds. Most recently, she worked for the Young Explorers Summer Science Camps at the New Mexico Museum of Natural History and Science. We look forward to having her expertise in bird ecology, her experience teaching students, and her enthusiasm for natural history up at the SMNHC. She will be a valuable member of our team.

### SUMMER SCIENCE CAMPS

The Museum Summer Science Camp Program will offer two new camps this coming summer. Students in kindergarten through third grade can discover the world of dinosaurs in the Dinomite Dinosaurs Camp. (Did you know that *T. rex* had front arms that were so short that it could probably only use its front claws for picking its teeth or pushing itself up off the ground?) Third through fifth-grade students in the Very Cool Volcanoes Program will learn about volcanoes on Earth and other planets. (Did you know that Olympus Mons on Mars is the largest volcano in the solar system?) The teaching staff for each program will include veteran museum Junior Docents who will share the knowledge and experience they gained working with visitors in the museum with the students in the camps. And, as always, the field-based Young Explorer's Program will offer camps for first through fifth-graders this summer. Call Leigh Davidson (841-2822) for more information.

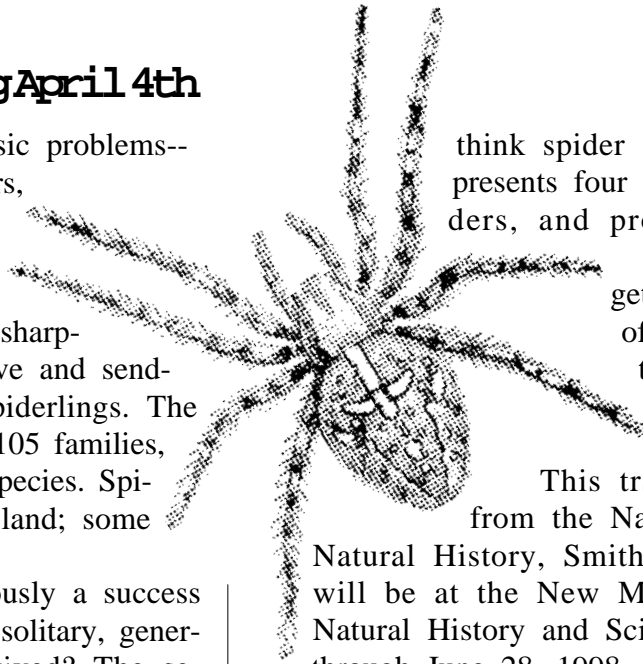
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## **SPIDERS!**

### **A New Exhibition coming April 4th**

All living things face basic problems-- finding food, fending off dangers, finding a mate, producing offspring. Spiders, like us, just have to make a living. Spiders have spent at least 380 million years sharpening their skills for staying alive and sending forth new generations of spiderlings. The spider family tree now includes 105 families, containing as many as 170,000 species. Spiders live nearly everywhere on land; some even live in fresh water.

Spider evolution is obviously a success story. So how have these small, solitary, generally near-sighted creatures survived? The secrets of spider success lie in three specialties: sex, silk, and poison. In **SPIDERS!**, a traveling exhibition from the Smithsonian, you will explore each of these three adaptations. "Spiders, Spiders Everywhere" will show some of the most striking and beautiful of the 34,000 identified species of spiders. "Spiderize!" lets you step into a spider's shoes, see what a spider sees, and catch the vibrations, literally. "Matters of Life and Death" shows why making spiderlings isn't simple, or even safe! In "Silken Lifelines" you can weave a web, snare a fly,



think spider strategy. "Poison!" presents four famous deadly spiders, and proves that spiders aren't really out to get people. "Speaking of Spiders" sums up the spider story with stories about spiders.

This traveling exhibition from the National Museum of Natural History, Smithsonian Institution, will be at the New Mexico Museum of Natural History and Science from April 4 through June 28, 1998. **SPIDERS!** is made possible through the generous support of Marvel Entertainment Group, Inc. with additional funding from the Smithsonian Special Exhibition Fund.

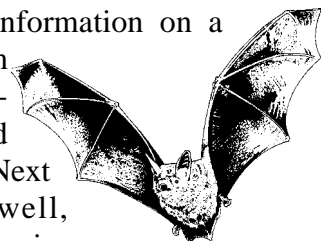
Public lectures and other special events will be planned to accompany the exhibition. Watch for announcements of dates and times. The Smithsonian Institution supplied us with a limited number of posters of the four famous deadly spiders, suitable for classroom use. If you are interested, contact Gabe Romero at 841-2820.

## **EXPLORATIONS!**

The New Mexico Museum of Natural History and Science Foundation, in conjunction with the Four Corners School of Outdoor Education is offering a family raft trip on the San Juan River, June 26 - 30, 1998. Museum educators and professional raft guides will lead the 60-mile trip from Mexican Hat, Utah, to Clay Hills Crossing. In addition to floating the mighty San Juan, participants will have the opportunity to explore the limestone walls, swim in the pot holes hidden in side canyons, and experience the grandeur of the Colorado Plateau. Call Leigh Davidson (841-2822) for more information.

## **EDUCATION OUTREACH**

Museum Outreach Docents and education department staff have been busy providing natural history programming for schools throughout New Mexico. In addition to visiting schools in the greater Albuquerque area, the Outreach program traveled to Clovis and Farmington this fall. Outreach docents present activities and information on a variety of topics, from dinosaurs to bats, volcanoes to birds, and earthquakes to skulls. Next up will be Roswell, Carlsbad, and Tucumcari.



## THINKING LIKE CHILDREN

by Kristin Gunckel

"Where are all the bears?" "The sun is shining. Why isn't the snow melting?" "Will we be climbing steep hills using our hands?" "Are we in Albuquerque?" These are just some of the many questions fifth-grade students ask us everyday at the Sandia Mountain Natural History Center. The questions are predictable, yet genuine. The answers, while obvious to us as teachers, can be difficult to explain on a fifth-grade level.

As professional educators, the teaching staff at the SMNHC strives to align our curriculum with state and national teaching standards. We participate in discussions about education theory and psychology, read journals that highlight the latest education ideas, and work with classroom teachers and education professors to make the Ecology Field Program a quality educational experience. We take pride in our scientific understandings of the ecosystems, and try to develop lessons that are conceptually accurate as well as educationally progressive.

However, in our quest for academic rigor, we cannot forget to reflect on the cognitive and emotional level of our students. Many of the fifth-graders who visit the SMNHC have never before been to the mountains. Another significant portion have only been to the mountains on a short outing and have never had the opportunity to really explore and discover. All of our students have developed conceptions and misconceptions about the outdoor environment. To them, realizing that the forest has depth, that the wild animals are shy and will not likely jump out and attack people, and that one does not often need to climb with both hands and feet to hike in the mountains, are significant discoveries.

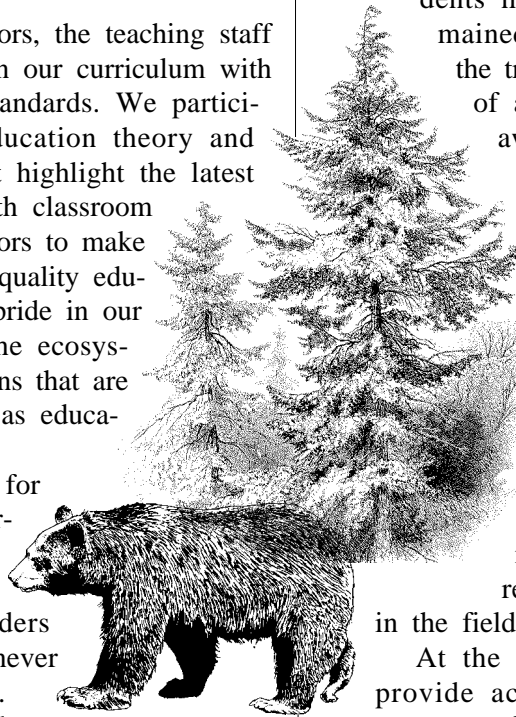
We have to meet our students at their level. Before we can teach about energy flow in an ecosystem, plant and animal adaptations, or the geologic history of the Sandias, we have to answer students' initial questions and settle those issues that occupy their minds. For example, I explain to every group that there is not a snake hiding under every rock and that bears are not hiding behind every tree.

Correcting misconceptions often takes more than explanations from a teacher. The students

must experience how their misconceptions are wrong. Then, they can accept a more accurate explanation. I once had a student who was sure the bears were out there lurking in the forest much the way the Big Bad Wolf sat waiting for Red Riding Hood. As we hiked he kept asking me where the bears were. No matter how much I explained that a wild bear will probably run away once it hears 30 students hiking up the trail, this student remained unconvinced. Toward the end of the trip, however, he stopped with a look of amazement. "Oh, the bears can run away!" he said. He had thought the forest was only as deep as he could see and that the bears would really be there just beside the trail. It wasn't until after he had hiked into the forest that he understood the concept of space as a part of the forest ecosystem and that there is more to the forest than one can see at any one time. This lesson was not a formal part of my lesson plan for the day, yet for that student it was probably the concept he will remember most from spending a day in the field.

At the SMNHC, we will always work to provide academically challenging education programs for the students who participate in the Ecology Field Program. Meeting state and national standards, using up-to-date teaching techniques, and providing conceptually based education programs will always be a foremost goal. But, we also remember that sometimes it is the basic experience of hiking in the woods that provides students with the experience necessary to understand those academic concepts. We have to remember, each and every day, what it was like when we took our first hike in the mountains. We have to remember that it is those basic understandings of the outdoor experience that are often worth just as much as the academic concepts presented during the program.

"Wow, I have never walked in snow this deep." "Oh, it is wind blowing in the trees that makes it sound like water is flowing nearby." "I never knew before that there were different kinds of trees in the forest."



# W E R C

## For all New Mexico Educators...

**Mark your calendars for March 31—April, 1998!**

The event: a joint conference on the environment featuring education sessions for all educators. To be held at the Albuquerque Crown Plaza Pyramid Hotel. Sponsored by the Waste-management Education Research Consortium (WERC), the New Mexico Hazardous Waste Management Society, and the Western Region Hazardous Substance Research Center (HSRC).

**Topics to be covered:**

Environmental Education for K-12, university level programs, training for environmental profes-

sionals, alignment of environmental education curriculum with math and science standards, Project WET and PLT facilitator training.

**Learn about:**

- New Mexico's Content Standards and Benchmarks relating to environmental issues
- Curriculum materials that address environmental issues and that are aligned with New Mexico's Content Standards and Benchmarks
- Post-secondary opportunities for New Mexico graduates in environmental fields
- The latest research

in New Mexico's environmental issues and hazardous substances

- State Department of Education's expectations for lab safety and chemical disposal

Receive free environmental education materials and lessons.

Registration for educators: \$75.00. Deadline is February 23. Please call 1-800-523-5996 for registration forms.

One person from each of New Mexico's 89 school districts is sponsored (travel, registration, substitutes) fully by WERC. The notice of this sponsorship has been sent to the Superintendent of Schools for each district.

## Water Education for All Water Users

Project WET New Mexico is now a reality and available to you! Project WET is proud to introduce your new state facilitators:

*Abiquiu*

Verna Hibner

*Alamogordo*

Douglas Clark  
Dave Hohe

*Albuquerque*

Anne Janik  
Peg Sorensen

*Anthony*

Anthony Chavez  
Sarah Torres

*Artesia*

Darrell Brown

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Ray Nance

*Cloudcroft*

Trudy Brewington

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Project WET is sponsored through a partnership of the Waste Management Education Research Consortium (WERC), a program of the College of Engineering at NMSU, and the New Mexico Farm and Ranch Heritage Museum. The state coordinator is Bryan Swain, Teacher Education Programs of WERC (1-800-523-5996 or e-mail bswain@nmsu.edu). The Farm and Ranch contact is Carrie Hernandez at 505-522-4100 or e-mail: carherna@nmsu.edu



# THE FLEDGLING



No. 115  
Winter 1997-98

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## newsletter notes . . . .

**THE FLEDGLING** is published quarterly; it appears within **EEANM'S** quarterly publication. Address any queries to Janelle Harden, Editor, at the address shown at the bottom of this column.

**RENEWALS:**

On your mailing label, the second line (after your name) shows a four-digit numerical code indicating the month/year your renewal is due. For example, 0398 means your renewal is due on/before March 1998. We try to mark each label to alert you if your membership dues are pending.

Help us continue our efforts on behalf of New Mexico's Wildlife by renewing your membership on time (\$15.00/year).

**DELIVERY PROBLEMS?**

Trouble receiving your **FLEDGLING**? Do we have your correct address? If not, call Janelle Harden at 256-7607, or mail your correct address to: P.O. Box 13222 • Albuquerque, NM 87192-3222.

# Corporate Concern for New Mexico's Wildlife

We have reported in the past that Wildlife Rescue receives somewhere in excess of 15,000 phone calls each year—all from concerned New Mexico residents who happened to find injured or orphaned wildlife while biking, walking, picnicking, driving to work, or exploring odd noises coming from their fireplace! Many calls have concerned wildlife-at-risk at various business or industrial areas, and sadly, some callers assume that the large organizations involved are not concerned with wildlife. Though this is true in some instances, we'd like to take this opportunity to report on a particular sector of the corporate community.

Several years ago, multiple frantic callers reported a crow seemingly trapped in the top of a tree at UNM. The closest fire station was called, and they attempted to help, but could not reach the tree-top with their ladder. Eventually, PNM came with a "cherry-picker" truck and lowered the trapped bird, branch and all, to a WRI rehabilitator. (The crow had fishing line wrapped around its leg, and had become entangled in the branches.) Last winter a caller reported a Great Horned Owl hanging from an electrified fence up in the mountains. Central New Mexico Electric Co-op sent a crew to meet a rehabber, and turned off the fence power until the bird could be rescued. This past summer a PNM crew answered a call about a transformer "sparking" on a utility pole. When they arrived they discovered a raven's nest directly above the transformer, and one of the eggs hatched as they looked on! They immediately took the nest down and gently transported it to Wildlife Rescue, where the remaining eggs were incubated and hatched, and all nestlings were successfully raised and released.

In addition, WRI receives reports of owls or other bird species electrocuted by utility lines or transformers. PNM has been contacted and, over the years, has taken steps to modify equipment in ways that will protect wildlife. The Environmental Services Department at PNM recently sent us a report on the success of their efforts, now an ongoing project known as B.I.R.D. (Bird/Animal Interruption Reliability Design). Portions of this report are reprinted on the following page.

We commend PNM and other utility companies who have taken steps to aid New Mexico's wildlife—via both one-time "rescues" and long-term projects of equipment design. ♦



The Bird/Animal Interruption Reliability Design (B.I.R.D.) is an important program dedicated to the proactive solutions to environmental issues involving wildlife and PNM's electric system. The B.I.R.D. ensures that PNM fulfills its community partnership obligation of upholding specific laws used to protect wildlife and at the same time works to improve PNM's reliability. The B.I.R.D. bases its information off an existing PNM company program, called the Emergency Recovery Outage Dispatch (EROD). The EROD is an excellent automated means to track customer calls, status of service restoration, and information about power interruptions. EROD also calculates outage statistics, such as the average minutes of customer interruption. The EROD program is able to accept input from many sources at once, which is especially helpful when outages affecting many customers occur, and these outages are caused by wildlife. The EROD program is scanned daily by Environmental Services for any Interruption Reports which may affect wildlife. All Interruption Reports affecting wildlife are field-investigated for species affected, structure/equipment type, causes, and proposed methods of action, if any. Each report will eventually be placed into the Global Positioning System. This particular B.I.R.D. report is generated partly from 1996 EROD information and partly from information obtained during field investigations. It is hoped that information obtained from the B.I.R.D. will be useful for determining reliability improvement projects. These projects include proposals for the installment of raptor-safe designs and the retrofitting of existing equipment where needed. Environmental Services is working cooperatively to integrate the Bird/Animal Interruption Reliability Design with economic engineering practices into Company business planning, standards, operations, and incentive programs. With a growing emphasis on competition in the utility industry, power quality, and customer loyalty, a proactive approach in dealing with bird/animal interactions in the electric business can be a benefit to PNM's future.

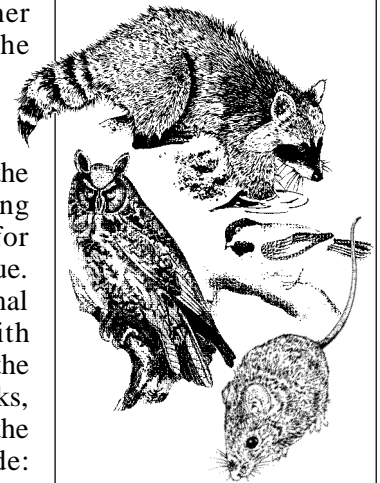
**SPECIES INVOLVED**

There are several laws which warrant the tracking of species affected by the utility industry. Most laws offer protection to species in danger of becoming extinct. Therefore, the B.I.R.D. has tracked all actual bird/animal reports for affected species type. The category of endangered species can be a sensitive issue. This report has no finding of endangered species associated with any bird/animal interactions for the 1996 PNM year. Although no findings associated with endangered species was reported, under the category of protected bird species the following were included: (2) Great Horned Owls, (2) Ravens, (2) Red-tailed Hawks, and (1) Osprey hawk. (A total of seven electrocutions were reported by PNM to the Federal Government for the year of 1996.) Other categories tracked include: Mammals—such as cats, rabbits, raccoons, rodents, and squirrels. The second-to-the-last category is the “Nuisance” category, which includes the species of pigeons, starlings, and house sparrows. Though these species are not protected by laws, they are a large problem when reliability is the focus. The last category is that of “Unknown.” This category is set for those findings which warrant a bird/animal interaction but leave little evidence as to what type of species was affected. For example, two feathers and one foot were found at a location. It is rather difficult to match this evidence to the exact species affected. The greatest incidence occurred because of cats, pigeons, rabbits, squirrels, starlings, and unknowns. Frequency of outages in relation to months varied among divisions, but placed an emphasis on greater activity occurring during seasonal changes, and daytime appeared to be the most prevalent time for outages to occur.

SPECIES INVOLVED	
ALBUQUERQUE DIVISION	
Species Incidence	
Starling .....	21%
Unknown.....	15%
Pigeon .....	14%
Squirrel .....	14%
Cat .....	10%
Rabbit.....	10%
Sparrow .....	5%
Rodent .....	5%
Raven .....	2%
Great horned owl .....	1%
Raccoon .....	1%
Red-tailed hawk .....	1%
Snake.....	1%

SANTA FE DIVISION	
Species Incidence	
Cat .....	27%
Unknown.....	21%
Starling .....	17%
Raccoon .....	11%
Rabbit.....	6%
Raven .....	6%
Great Horned owl .....	6%
Red-tailed hawk .....	6%



*Excerpted from PNM — Environmental Services Department; 1996 B.I.R.D. Report*

# 1997 Summer Intake Center

## N.M. State Fairgrounds

### BIRDS:

#### 39 Protected species

Western kingbird .....	9
Western tanager .....	2
Swainson's thrush .....	1
Scrub jay .....	10
Scaled quail .....	10
Says phoebe .....	4
Redwing blackbird .....	1
Rufous hummingbird .....	3
Pinyon jay .....	1
Pine siskin .....	1
Olive sided flycatcher .....	1
Northern flicker .....	2
Mourning dove .....	52
Mallard .....	42
Unidentified duck .....	9
Killdeer .....	7
House finch .....	104
Greater roadrunner .....	4
Evening grosbeak .....	2
Common poorwill .....	1
Common nighthawk .....	1
Common grackle .....	16
Common raven .....	4
Curve billed thrasher .....	1
Blue grosbeak .....	1
Black headed grosbeak .....	1
Black crowned night heron .....	1
Black chinned hummingbirds .....	34
Barn swallows .....	7
American crow .....	1
American robin .....	82
N =	415

#### RAPTORS:

American kestrel .....	4
Barn owl .....	1
Burrowing owl .....	2
Flammulated owl .....	1
Great horned owl .....	5
Long eared owl .....	1
Redtailed hawk .....	1
Screech owl .....	1
Sharpshinned hawk .....	1
N =	15

#### Species: 49 native species

Almost an equal number of house sparrows, starlings and pigeons were brought to us by a concerned public, totalling nearly 1,000 animals brought by a concerned public in three months.

Of the birds released this year about 50 were banded and released at the Rio Grande Nature Center and Albuquerque Open Spaces. We hope there will be some recaptures in the mist nets at the Nature Center.

#### EXOTICS

##### (Non-Starling, Sparrow, or Pigeon)

Button quail .....	1
Chicken .....	1
Domestic duck .....	5
Ring-necked dove .....	1
N =	8

#### MAMMALS:

##### 7 species

Cottontailed rabbits .....	33
Domestic rabbit .....	1
Ground squirrel .....	3
Jack rabbit .....	4
Raccoons .....	7
Rock squirrel .....	6
White-tailed deer .....	1
N =	55

#### REPTILES AND

#### AMPHIBIANS:

##### 3 species

Ornate box turtle .....	1
Western box turtle .....	1
Woodhouse Toad .....	2
N =	4

# 1997 Annual Meeting

Wildlife Rescue held its annual meeting on December 10th, 1997 at the Department of Game and Fish. Ginny Silva, already a long-standing board member, was welcomed as our new President for 1998. Mike Richard gave a report on progress in establishing a protocol for inspecting rehabilitator's facilities.

A few special awards were given to Sheila Hammack, Treasurer; Janelle Harden, Education Coordinator, Angel Fortner, Volunteer Coordinator; and Dr. Mike Richard.

## Flicker Alert!

Janelle Harden needs to do necropsies on every Northern Flicker that dies, is euthanized, or comes to WRI as a DOA. This is necessary for a "control group" in the on-going research concerning the die-off in early 1997 in the Sandia Mountains. Please freeze the bodies and call Janelle at 256-7607—control data will be very important. This will be a standing request, probably for years to come, to collect enough data to be significant. Thank you.

## Notice to Rehabilitators

Recently Angel Fortner sent all active rehabilitators a list of people wishing to be apprenticed. Please take a moment to look over the list and then call one or two of the people in your area; they would be the ones most able to get to your location easily and quickly so they can be present during initial intake and examination procedures. Please call them directly, rather than calling Angel—you should speak with them to make arrangements.

I am well aware that I am "preaching to the choir" when I say how badly we need new, rehabilitators. Well, we finally have a rather large group of willing people, so let's give them the opportunity! ♦



# Challenge '98

Hosted by:  
The New Mexico  
Riparian Council

## A WORKING SYMPOSIUM ON REDUCING THE IMPACTS OF URBANIZATION ON SOUTHWESTERN WETLAND AND RIPARIAN RESOURCES

DAY ONE • 16 APRIL 1998

### ... the Foundations

Back-to-back sessions will lay the foundations for day two and three workshops. Presentations will span from geologic history and early human water use into a hydrologic overview including the dynamics of flowing waters, and finish with social, economic, environmental, and political aspects of present-day realities.

1. **THOMAS W. SWETNAM**  
*Associate Professor of Dendrochronology and Watershed Management*  
**Long-Term Historical Perspectives of Climate and Vegetation Change in the Southwest**
2. **MICHAEL E. CAMPANA**  
*Hydrogeologist*  
**Water Resources Management and Riparian Ecosystems: A Hydrologist's Perspective**
3. **CLIFFORD N. DAHM**  
*Aquatic and Ecosystem Ecologist*  
**Interannual Flow Variability in the Bosque**
4. **FRANK E. WOZNAK**  
*Consulting Anthropologist*  
**Historic Human Impacts on Riparian Ecosystems**
5. **WILLIAM DEBUYS**  
*Environmental Historian*  
**Recent History and Present Future of the Rio Grande: Live River or Dead Ditch?**
6. **ISAAC BENTON**  
*Architect*  
**Zoning for Open Space Conservation**

**April 16-18, 1998**  
**Albuquerque, New Mexico**  
University of New Mexico  
Continuing Education Center  
1634 University Blvd. NE

For Info call: Doug Shaw, 842-3256  
or e-mail: jharden@nmia.com  
or send in form at right. Mail to:

NMRC • Challenge '98  
P. O. Box 40166  
Albuquerque, NM 87196-0166

DAY TWO • 17 APRIL 1998

### ... the Questions

Two separate panels in concurrent, back-to-back sessions will each address three critical questions:

- "How can we recognize and evaluate the effects of urbanization on Southwestern wetlands and riparian resources?"
- "How can we limit the impacts of urbanization on Southwestern wetlands and riparian resources?"
- "How can we become involved with solutions to these impacts on Southwestern wetlands and riparian resources?"

DAY THREE • 18 APRIL 1998

### ... some Answers

Two sets of concurrent sessions will investigate riparian systems that range from healthy to almost non-existent:

- ◆ **Santa Fe River**—Strong citizen interest in restoring an altered river system.
- ◆ **Rio Grande at Albuquerque**—How to protect a riparian forest in a large and growing urban area.
- ◆ **San Pedro River, AZ**—A once degraded aquatic and riparian system that has been restored only to have new threats from groundwater depletion.
- ◆ **Rio Grande in southern New Mexico**—Can a severely degraded aquatic and riparian system be restored?

## Challenge '98 includes:

- ◆ \$98.00 "Early Bird" (Feb. 15th) Registration (\$135 reg.)
- ◆ Poster Papers
- ◆ Exhibitors
- ◆ Published Proceedings
- ◆ Job Announcements
- ◆ Attendee's Directory
- ◆ Business Card and Web Site Exchange
- ◆ Book Signings

I accept the Challenge!

- I would like a Registration Packet
- I want information on being an Exhibitor
- I want information on being a Sponsor

Name \_\_\_\_\_  
Organization \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_



# PROJECT wild



## Schoolyard Wildlife Habitat Workshops Offered This Year!

### What is a Schoolyard Wildlife Habitat Site?

- Communities working together to restore and improve wildlife habitat on school grounds.
- An outdoor learning area built by students, teachers and community members that incorporates a variety of curriculum areas. No school is too large or too small to undertake a wildlife habitat site/outdoor classroom.
- A place where students learn stewardship skills that translate to positive citizen action.
- An example of awareness to action.

### Why develop a Schoolyard Wildlife Habitat Site?

- Sensitizes students to the needs of wildlife and enables them to make a difference where they live.
- Provides teaching opportunities in all curriculum areas including math, literature, art and history.
- Provides a place to learn about ecological principles in a hands-on way.
- Enables teachers to take 'mini-field trips' without ever leaving the school grounds.
- The stewardship skills that students develop for their outdoor classroom is reflected in greater ownership and care for their entire school and community.
- The group process that is needed to carry out a project results in more positive interactions between students and grades.

### How are the workshops set up?

A Schoolyard Wildlife Habitat workshop requires 4-6 hours of staff time, with preferably a minimum of 10 teachers. There is no cost. Individuals do not need to be science teachers to take part in this workshop, nor does the entire staff have to participate. The workshop should be attended by custodial staff, key administrators, parents, and any interested community members in addition to teaching staff. Schools receive a copy of WILD School Sites Guide, a video, "Exploring School Nature Areas," and other resource materials. These hands-on workshops emphasize team building, getting familiar with resources already present on the school grounds, and interdisciplinary planning. They also provide information on wildlife, native plants, land restoration, habitat improvements, and suggestions on how to get everything started.

### Is There Any Funding Available For A Schoolyard Wildlife Habitat?

Any school K-12 may apply for a Schoolyard Wildlife Habitat Grant. The Conservation Education Section (CES) will work closely with schools to provide the necessary information to apply for a grant. Most successful grants will not exceed \$300.00. There is no minimum grant limit. Additional follow-up grants may be available to schools, depending on the maintenance and success of the initial project. Many schools will use the grant as seed money and solicit additional funding from other sources. Schools do not have to hold a workshop to successfully compete for funding from the CES although it is strongly encouraged.

### How do I schedule a Workshop or Receive a Grant Application?

Contact: Kevin W. Holladay, New Mexico Department of Game and Fish,  
Assistant Coordinator, Conservation Education Section, POB 25112, Santa Fe, NM 87504.  
Or call (505) 827-7867.

Dear Educators,

It's the time of year when the sun reaches its lowest point in the sky and begins its slow climb back towards the summer solstice. Most of us in this field got into it partly out of some connection with the natural world, but I know that many of my friends don't spend as much time as they would like "re-creating" themselves in their favorite places. So in the weeks ahead, we wish for you and your family that you are able to take time to get outdoors and enjoy the natural beauty and wildlife in the area where you live. Take a walk at sunset and soak up the quiet changing sky. Listen to the wind rustle through the trees.

Looking back on 1997, we really enjoyed interacting and working with many of you. We are honored to be associated with so many dedicated and talented educators in New Mexico. Thanks to all of you for your continued support and commitment to environmental education and wildlife conservation. We hope for continued collaboration and partnerships next year in strengthening environmental education in New Mexico. It has been a productive and prosperous year and we wish that you and your loved ones have a great year in 1998! We look forward to talking with you soon!

**Eddie N. Bennett & Kevin W. Holladay**  
*Conservation Education Section*  
 New Mexico Department of Game and Fish

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## Advanced Project WILD Workshops: *Natural History Weekend Schedule for 1998*

Another round of exciting weekend outings are coming up this year. If you have not been on these educational weekends before, they are one of the most popular activities Conservation Education Section offers. They often fill up fast so sign up soon!

### **Bats and Caves**—February 27–March 1, 1998

Near Rattlesnake Springs  
 Carlsbad Caverns National Park, NM

We will be visiting Carlsbad Caverns National Park and learning from park staff about the fascinating balance of life present in the caverns. We will have a chance to explore the Mexican free-tailed bat nursery inside the park.

### **Black Bear**—April 17–19, 1998

Gila National Forest, near Reserve, NM

Hornocker Wildlife Institute biologists will be our guides as we learn about their research project, visit bear dens, observe trapping techniques and how to identify field signs of bears.

### **Warm Water Fisheries**—June 12–14, 1998

Elephant Butte Lake State Park  
 near Truth or Consequences, NM

This reservoir on the Rio Grande is one of the top fishing and recreation areas in the state. Come join us as we explore the warm water fisheries that exist there. We will be working with fisheries biologists as they collect fish from the lake. We will also learn how knowing fish biology makes for better angling.

### **Herpetology**—sometime in July, 1998

Location to be announced.

We are planning on cooperating with the Arizona Department of Fish and Game to explore an area close to our shared border.

### **Elk**—September 18–20, 1998

Valle Vidal Unit, Carson National Forest, NM

This area is the year round home of about 1,700 elk and is one of the premier elk-viewing sites in New Mexico. We will be stalking elk during the rut and learning about their life history and habitat. This workshop involves a great deal of hiking at high elevations.

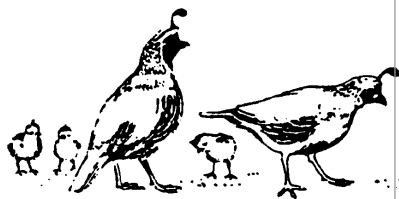
These educational weekends are designed for teachers interested in learning more about wildlife and their habitats. The format is strongly weighted towards content and how to integrate it into effective classroom teaching strategies. These are car-camping weekends involving varying levels of moderated hiking. All weekends begin on Friday evening and end on Sunday noon. There is no cost for the weekend but participants are responsible for their own food. Limited cooking equipment is available. Each participant also receives a packet of information on the subject. For more information or to register, contact Kevin W. Holladay, Conservation Education Section, POB 25112, Santa Fe, NM 87504, (505) 827-7867.



# Park It!

## MISSION OF THE STATE PARK

The State Park and Recreation Division is charged with the development and management of state recreational facilities and providing park visitors with quality outdoor experiences. The Division is dedicated to the preservation and care of all resources within the parks and surrounding areas. These resources provide residents and visitors to New Mexico opportunities to enjoy this state's natural wonders, historic sites, and a vast array of recreational activities.



## MISSION OF THE RIO GRANDE NATURE CENTER

To manage and protect the unique environment along the Rio Grande and to educate the public about Rio Grande ecosystems and positive human interactions with those ecosystems.

## NATURE CENTER UNDERGOING REMODEL

The Rio Grande Nature Center is undergoing a major remodeling effort that will add office space and bring restrooms into compliance with the Americans with Disabilities Act. Begun in December, the project is to take approximately four months. In addition, the Center's permanent exhibits will receive a face lift. Funding for the remodeling effort comes from the New Mexico State Legislature through governmental gross receipts tax revenue. A Bosque Initiative allocation through the U.S. Fish and Wildlife Service will provide additional funds for new exhibits.

The Nature Center and the Bosque Nature Shop will remain open during construction and portable bathroom facilities will be provided.

## ON YOUR NATURE CENTER VISIT UTILIZE NATURE TRAIL PACKS

Small groups and families visiting the Nature Center may want to check out one of three different trail packs which contain equipment, supplies and directions for self-guided nature investigations.

### WEATHER OR NOT:

**Weather and Microclimates** includes a variety of thermometers, a wind meter and wind vanes, humidity meter, a cloud chart and a logbook for recording observations. Investigate differences between several locations at the Nature Center.

### SMALL STUFF:

**Using Magnifiers to Explore Nature** has a collection of magnifiers and suggestions for using them on the trails. Get a close-up look at nature.

### FIVE ALIVE:

**Sensing Nature** includes devices for looking, listening, touching and smelling. Good for younger children; older ones will enjoy it too.

## WINTER BIRD FESTIVAL

Join the Friends of the Rio Grande Nature Center for the **Winter Bird Festival** on Saturday, January 24 from 10:00am - 4:00pm. The focus of the event will be winter birds of the bosque with emphasis on winter bird habitats, survival techniques, and early migration. All-day activities include guided bird walks for children and adults, guided bosque walks, bird identification, demonstrations and children's activities.

## OUTREACH PROGRAMS AVAILABLE

Because of remodeling complications, the staff and volunteer interpreters at the Nature Center are offering extended outreach opportunities. Call the Nature Center at 344-7240 and request one of four presentations for your classroom. Appropriate for grades 3-6.

**BIRD TRUNK**—Find out how birds are uniquely adapted to fly long distances, stay warm in the winter and find food. Discover through hands-on activities the differences in beaks, feet, legs, eyes, wings, feathers and bird lifestyles. Explore the relationship between birds and humans.

**MAMMAL TRUNK**—Learn the distinguishing physical characteristics of mammals, how they bear and raise their young, and their behavior. This trunk covers the mammals common to the Rio Grande Bosque. Skulls and pelts are included for examination and animal track and sign activities are included.

**ARTHROPOD TRUNK**—Learn to classify arthropods, including arachnids. Trunk includes a collection of insect mounts and pictures. Discuss why insects may be beneficial or harmful. Study differences between spiders, scorpions, tarantulas, insects, true bugs, butterflies and bumblebees.

**BOSQUE MODEL**—Build a section of the Rio Grande Valley as it was before major human intervention, then manipulate it to demonstrate how the riparian environment has changed. Four activities include plant and animal communities, cottonwood reseeded, and natural and human changes in the river.

**We are preparing a reptile trunk. If you have extra biofacts to donate, please do so!**

## SIGN UP FOR SPRING AND SUMMER BOSQUE EDUCATION TRAINING

The Rio Grande Bosque is the oldest continuously inhabited region in the United States, and possesses the finest remaining example of cottonwood forest in the Southwest. The bosque provides water for more than 100,000 people and nearly 90,000 acres of irrigated lands, and is also a critical flyway and wintering ground for migrating birds.

**Bring the Bosque Into Your Classroom** by participating in the **Bosque Education Service Training** and receiving a 217 page Bosque Education Guide, part of an environmental education program for third to fifth grades. The training and guide covers the 160 mile stretch of the Rio Grande from Cached Dam to San Marcial. It includes historical background, ecological concepts, and hands-on activities aimed at educating students about the protection and restoration of the cottonwood forest that stretches through central New Mexico. Educational materials and teaching kits are provided to participants at no cost!

*Dates are:* Saturday, March 14 All sessions are from 8:30am-4:30 pm  
April 25 at the Rio Grande Nature Center.

May 9 and  
Monday, June 1 Call 344-7240 for reservations.

Participants should dress for the weather, wear walking shoes, bring water, hat and a sack lunch.

## A Listserv Dedicated for New Mexico Environmental Educators

by Harlow Pinson • Email: [hpinson@indepthl.com](mailto:hpinson@indepthl.com) • 505-255-8085

At a joint WERC/EEANM meeting in November, it was voiced that improving communications within the New Mexico EE community was a major concern. It was suggested that an active listserv is a good way to foster timely communications about EE events and issues.

It was noted that the "Ecoed" listserv is still alive and could be revived as our New Mexico forum. I heartily agree. "Ecoed" has some 90 members, and is hosted at NM Technet. The list just needs a little coaxing to wake it up so your participation is crucial.

If you are already signed up on "Ecoed," don't be bashful. Post EE news yourself, or e-mail it to me in ASCII text, and I'll post it weekly as a digest. Pass the word on to others who might be interested. If you are not already signed up as a member of the listserv, or have forgotten the procedure to join or leave:

1. Prepare a new e-mail message.
2. In your "To:" field type: **majordomo@www.nm.org**
3. In the body of the message type: **subscribe ecoed <your e-mail address>**  
*Example:* subscribe ecoed barney@purpled.org
4. Very quickly you should receive a return message saying:  
"Welcome to the ecoed mailing list! ..." and a second message saying:  
"subscribe ecoed barney@purpled.org Succeeded"
5. To send a message to the listserv, address it to: **ecoed@www.nm.org**
6. If you ever can't stand the volume of mail you are receiving you have two options:
  - a. get off the list by sending a new e-mail message to **majordomo@www.nm.org**  
In the body type: **unsubscribe ecoed <your email address>**
  - b. Digest the list, (which may or may not be possible, I'll find out) which places all of each day's email into a single message. If you want to try this option, try sending a message to **majordomo@www.nm.org**  
In the body, type: **set ecoed digest** Results are not guaranteed.

The next step, once this listserv is revived, is an active EEANM website dedicated to information and document distribution, hopefully mirroring the quarterly newsletter. Keep posted. ■

## El Niño Web Site

<http://nsipp.gsfc.nasa.gov/enso>

The NASA Seasonal to Interannual Prediction Project (NSIPP), which is part of the Laboratory for Hydrospheric Processes at NASA, has produced an El Niño web site. This site includes a nine-page El Niño-Southern Oscillation (ENSO) primer, appropriate for general audiences, which presents background information, graphics, data and images, and audio on this timely topic.

The ENSO primer is currently available in English, Spanish, French, Portugese, and Russian, and is planned to be available in Japanese.

## Environmental Protection Agency

Overall <http://www.epa.gov> ; Region 5's URL: <http://www.epa.gov/region5/enved>

EPA Region 5 has an environmental education website that you might want to check out. The EPA Environmental Education Division in Washington, DC, doesn't have a website yet, but much of the info on the Midwest site addresses national EE issues.

EPA's overall website, <http://www.epa.gov> will link you to all EPA Regions.

Of the ten EPA Regions, about half have environmental education web pages.

## Application Forms for Telecommunications (E-Rate)

<http://www.ed.gov/Technology/erateforms/>

Final forms for applying for the Universal Service Program, or "E-Rate" discounts on telecommunications services for schools and libraries, are now available on the Department of Education website.

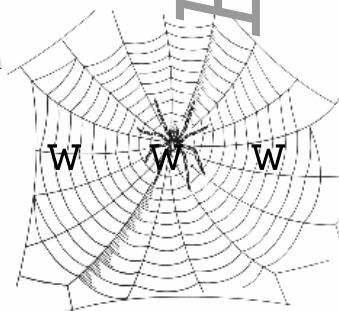
In addition to the two forms (Form FCC 470 and 471), you'll find instructions for filling out the forms & an overview of the program. The overview provides information on topics such as:

- What kinds of schools, libraries, and consortia are eligible
- Calculating the discount
- Classifying urban & rural locations
- Eligible services
- What schools and libraries must do before applying
- The application process
- Websites for more information.

... *EE Connected* continues next page

connected

EE



## **TRMM Successfully Launched**

<http://trmm.gsfc.nasa.gov/>

On November 27, 1997, the Tropical Rainfall Measuring Mission (TRMM) satellite was successfully launched from the Tanegashima Space Center at 4:27 pm EST. TRMM is a joint project of NASA and the National Space Development Agency (NASDA) of Japan.

As of late 1997, measurements of the global distribution of rainfall at the Earth's surface had uncertainties of the order of 50% and the global distribution of vertical profiles of precipitation was far less well determined. TRMM will provide the first spaceborne rain radar and microwave radiometric data that will measure the vertical distribution of precipitation over the tropics in a band between  $\pm 35'$  in latitude. This information will greatly enhance our understanding of the interactions between the sea, air and land masses which produce changes in global rainfall and climate. TRMM observations will also help improve modeling of tropical rainfall processes and their influence on global circulation leading to better predictions of rainfall and its variability at various time scales.

## **Global Learning and Observations to Benefit the Environment (GLOBE)**

<http://www.globe.gov/>

There are now 58 countries participating in GLOBE, with over 2000 schools from around the world reporting data. Through the National Oceanic and Atmospheric Administration (NOAA), GLOBE has selected 8 sites across the country and awarded them contracts to host a total of 40 GLOBE Teacher Training Workshops through summer, 1999. An additional 130 workshops will be held by U.S. GLOBE franchises along with over 150 international workshops. Based on typical attendance levels at GLOBE teacher workshops, an additional 9000 teachers will become involved in this program through these workshops. This will approximately triple the number of teachers involved.

The on-going El Niño offers a significant opportunity for GLOBE schools to contribute to contemporary scientific research. Most effects of El Niño in the northern temperate zone are predicted to occur from November to March. GLOBE schools can play a role as students measure daily air temperature ranges, precipitation amounts, and other parameters. These measurements should reveal the quantitative extent of El Niño effects for the area around each GLOBE school and augment data from other sources. Visualizations of El Niño-related data will be provided via the GLOBE website. What follows is a brief message that is being posted on the Web introducing this activity:

"El Niño is a major shift in the ocean-atmosphere system in the tropical Pacific which has important consequences for weather in many regions around the world. In contrast to the seasonal cycle, which is fairly regular and therefore highly predictable, El Niño events occur at irregular intervals, generally ranging from two to seven years. No two events are alike, and in the early 1990s, El Niño conditions prevailed for four out of five years.

GLOBE students can help scientists learn more about El Niño events by consistently reporting GLOBE measurements. Air temperature, rain, solid precipitation, soil moisture, and quantitative land biology measurements from GLOBE schools will provide direct observations of the changes in temperature and precipitation that are predicted to occur in various regions at different times. The other GLOBE measurements may reveal secondary effects of El Niño-induced changes and help scientists determine the full effects on our environment.

GLOBE will provide schools with a world map showing the changes expected in different regions now and in the coming months. This prediction will be based on the observed effects of past El Niño events and will serve as a hypothesis which we can test with our GLOBE measurements. As the data come in, GLOBE will provide periodic assessments of what they are showing about this event. Seven or eight months from now, if schools are very active in taking data, GLOBE student measurements will have revealed much about the effects of this El Niño.

Throughout the year, GLOBE will feature special learning activities and visualizations to facilitate classroom study of El Niño and to encourage GLOBE schools to engage in their own investigations of this phenomenon and its history. The El Niño has begun, so watch for more information from GLOBE and get going or keep going on taking and reporting GLOBE data."

## **NASA Payload to Monitor Atmosphere During Balloon Flight Around the World**

<http://www.wustl.edu/solo/> To follow Fossett's flight

A NASA science instrument package that may one day study the atmosphere of Mars or Venus will fly aboard adventurer/businessman Steve Fossett's "Solo Spirit" balloon in December, as he makes his second attempt to be the first person to fly solo around the world.

The prototype instrumentation is being provided by NASA's Jet Propulsion Laboratory (JPL), Pasadena, CA. The 7.5-pound package will measure the balloon's latitude, longitude and elevation, and the surrounding atmospheric temperature, pressure, humidity and vertical wind velocity. The scientific data and knowledge gained from the flight will be used by Earth scientists under the sponsorship of NASA's Earth Science Program.

The science payload will gather information from the troposphere, the lowest layer of Earth's atmosphere, during a continuous, two-week period as the balloon flies through the mid-northern latitudes. Fossett's balloon is expected to fly at an average altitude of about 23,000 feet. JPL will receive raw data from the payload telemetry system through a commercial satellite. These data will be converted into scientific measurements and relayed to Washington University (St. Louis, MO), where they will be posted on a web site so the public can follow the flight.

Fossett will again launch from St. Louis's Busch Stadium when flying conditions are optimal. This winter's flight is expected to last 15 days. The launch window opens in mid-December and closes at the end of January, 1998.

## AGCI Launches PESTO for Teacher Enhancement

The Aspen Global Change Institute (AGCI) has developed the Pre-and In-Service Earth Science Training Opportunity -- PESTO. PESTO coincides with Institutes's ongoing program of interdisciplinary science meetings for the research community that are held each summer on topics in global environmental change. Twenty-four pre- and in-service teachers from across the country assembled for the week-long workshop in August, 1997. By having the two programs concurrently, the PESTO students were able to benefit from guest discussions and presentations from AGCI's science program.

The workshop faculty consisted of Richard C. J. Somerville, Professor of Meteorology at Scripps Institution of Oceanography, and Milton McClaren, Director of Field Relations and Teacher In-service Education for Simon Fraser University, British Columbia. The hands-on workshop utilized a variety of NASA educational materials, AGCI's Ground Truth Studies Teacher Handbook and as a pre-workshop reading, Dr. Somerville's new book, "The Forging Air." Graduate and undergraduate credit were available to the students.

AGCI was excited by full enrollment, the cooperation of partnering organizations, and the highly positive evaluation comments from the participants for PESTO's first year. If you are interested in PESTO for the summer of 1998 or would like additional information, please contact John Katzenberger at the Aspen Global Change Institute, 100 East Francis, Aspen, CO 81611. E-mail: [agcimail@agci.org](mailto:agcimail@agci.org). ■

## ESSTEP Teacher Training Program

The Earth and Space Science Technological Education Project (ESSTEP) is a joint project of the Geological Society of America, the Space Science Institute and Cypress College. This National Science Foundation (NSF) funded project provides educators (Grades 8-14) with training and support for optimal classroom use of computer and information-based technologies in Earth, space, and environmental sciences. Faculty apply as 2-4 person, multi-grade level, geographic-area teams to participate in two consecutive summer workshops which provide:

- hands-on experience in state-of-the-art data acquisition, manipulation, and presentation technologies, including geographic information systems, global positioning systems, image processing and the Internet;
- innovative strategies for using technology in classrooms to enhance student learning;

- internship opportunities in Earth and space science technology fields; and
- on-going support from peers and professionals via an on-line communication network (TappedIn).

The workshop teaching approach is inquiry-based, includes several field experiences, and models innovative and effective teaching practices. Participants receive a \$600 stipend year one, \$300 in year two, in addition to room and board. Continuing education credits are available. Dates are July 6-18, 1998 in Cypress, CA; July 27-August 8, in Boulder, CO.

For an application, contact Holly Devaul, Geological Society of America, PO Box 9140, Boulder, CO 80301; (303) 447-2020 ext. 150; e-mail:

[hdevaul@geosociety.org](mailto:hdevaul@geosociety.org)

or visit

<http://www.geosociety.org>  
Applications are due March 1, 1998. ■

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## Teacher Dream Fund Grants Available!!

The Ruidoso Municipal School District received a \$173,000 grant for continuing the third year of the Teacher Dream Fund (TDF) through a New Mexico Education 2000 Professional Development Grant. The purpose of the grant is to improve student learning by providing individual teacher professional development funding. The TDF grants will be administered through the Center for Teaching Excellence (CTE) at Eastern New Mexico University. The Teacher Dream Fund grant applications are due at the CTE by 5:00 p.m. on January 20, 1998.

The TDF is a resource for classroom teachers who want to attend a conference, get specialized training, obtain materials to support professional development and student learning, or do research that complements teaching and enhances professional development. Grants will be awarded for a maximum of \$1,000. A minimum of 150 teachers in New Mexico will receive a grant from the TDF. For information, write the Center for Teaching Excellence, ENMU Station 25, Portales, NM 88130, or call 505/562-2266, fax 505/562-2523, or e-mail: [cte@email.enmu.edu](mailto:cte@email.enmu.edu) ■

## STUDENT COMPETITIONS

### ZPG Premiers Nationwide Pop-TV Essay Contest

High school students with a flare for creative writing, a passion for social studies, a keen eye for scientific detail, and a favorite television show could find themselves \$500 better-off thanks to an innovative essay competition from Zero Population Growth (ZPG) that combines population education with pop culture.

ZPG's Pop-TV Essay Contest invites students in grades 9-12 to write a plot featuring the birth of the six billionth person for an episode of a current television show. The human population will reach this mark in early 1999. The contest has two categories: 9-10th grades and 11-12th grades. Each category has first prizes of \$500 and runner-up prizes of \$250. Entries should be 1,500 words or less and must be received at ZPG's office by March 1, 1998.

Teachers and students can obtain full contest details and a free poster by contacting ZPG's Population Education Program by phone: 800-POP-1956, e-mail: [poped@zpg.org](mailto:poped@zpg.org) or on their web browsers at: [www.zpg.org](http://www.zpg.org)

Entries should be sent to ZPG Essay Contest, 1400 16th St., NW, #320, Washington, DC 20036. ■

### Environment Poster and Essay Competition

Over \$1,200 will be awarded to first and second place winners in four different categories in this year's Environment 2000 poster and essay scholarship contest.

Environment 2000 is an equal opportunity for youth to learn about an environmental issue and then use their knowledge to compete for scholarship money in the

Environment 2000 poster and essay contest. This year's theme focuses on sustainability and how people impact the Earth's natural resources. Through activities, discussion and problem solving, all provided in a free educational packet, educators can explore with youth the topic of sustainability. We then hope their interest will lead them to enter the poster or essay contest.

The contest categories include:

#### Poster Contest for Grades K-5

*first place:* \$100 savings bond

*second place:* \$50 savings bond

**Poster Contest for Grades 6-8**, which includes a 125 -word narrative (about 1/2 double-spaced typed page)

*first place:* \$100 savings bond

*second place:* \$50 savings bond

**Essay Contest for Grades 9 & 10;** length of 600-1500 words maximum (about 2 to 6 double-spaced typed pages)

*first place:* \$250 cash

*second place:* \$100 cash

**Essay Contest for Grades 11 & 12;** length of 600-1500 words maximum (about 2 to 6 double-spaced typed pages)

*first place:* \$500 cash

*second place:* \$250 cash

All contest entries must address sustainability and/or how humans impact the Earth's natural resources. Contest is open to youth K-12 in New Mexico, the Navajo Nation and El Paso, Texas. Entries must be received by March 31, 1998. Winners will be announced April 22, 1998—Earth Day!

If you would like your youth group to participate in Environment 2000, order your free educational packet today. You will need the educational packet to enter the contest. There are three ways to order your elementary/mid-

school or high school packet. Please specify which packet when ordering:

Call: 505/262-1862

Fax your request: 505/262-1864

E-mail request: [sric@igc.org](mailto:sric@igc.org)

Contact: Ellie Ortiz ■

### Junior Duck Stamp Entries Being Taken

It is time once again for the call for wildlife artists from kindergarten through the 12th grade. Deadline for this year's contest is March 15, 1998.

Artwork is currently being accepted for the Federal Junior Duck Stamp Contest. The contest is open to all public or private school students, including home-schooled. Artwork will be judged in four groups: **Group I**—grades K-3, **Group II**—grades 4-6, **Group III**—grades 7-9, and **Group IV**—grades 10-12. There will be 3 first place, 3 second place, 3 third place, and 16 honorable mentions awarded in each category. An overall Best of Show will be awarded.

Best of Show winners from each state will be sent to Washington, DC, where they will be judged against the winners from other states. New Mexico's "Best of Show" for 1997 placed in the top ten nationally. The top three finishers in the national competition will travel free to Washington, DC, with their art teacher and 1 parent in the fall. Additionally, the national first place winner receives a \$2,500 scholarship and the winning design is used on the Federal Junior Duck Stamp.

Everyone who enters the contest will receive a certificate. Also, each of the winners will receive a ribbon. Numerous other prizes are given out each year. These are dependent upon the sponsors we're able to obtain on the state level. In 1997 we awarded a patch to each

## STUDENT COMPETITIONS, continued

of the winners. Also, we awarded art materials and field guides that were age appropriate to all of the 1st, 2nd and 3rd place winners. The Best of Show was awarded a savings bond and she and her family were invited to the Festival of the Cranes that takes place in Socorro in November. She was awarded a professionally framed copy of her winning entry at that time.

The Junior Duck Stamp Contest is as much a scientific research project as an art competition. It has been shown that the more research that is done, the better the quality of the students' entries. The students need to know what types of waterfowl and plants occupy the different wetlands systems, and depict the birds in an appropriate setting. Additionally, the student artists need to keep in

mind that plants and plumage change with the seasons.

To learn more about the Junior Duck Stamp program there is a 13-minute videotape and a teacher's curriculum guide available upon request. For a free copy of the guide and/or videotape, please contact:

US. Fish and Wildlife Service  
Federal Duck Stamp Office  
1849 C Street, NW Suite 2058  
Washington, DC 20240  
(202) 208-4369

The Bosque del Apache National Wildlife Refuge is the receiving site for all entries for the State of New Mexico. The address is:

Bosque del Apache NWR  
Attn: Janet Springer  
PO Box 1246  
Socorro, NM 87801  
(505) 835-1828

A national mailing went out to all schools in September, 1997. This was a brochure that included all rules and regulations, eligible species and an entry form. If you did not receive this brochure and are interested in participating in the contest, please contact the Bosque del Apache NWR.

The refuge is currently expanding our outreach program to include school presentations about the Junior Duck Stamp Contest. These programs can include a slide show and/or a 13-minute video. The presenters will explain the program more fully and give helpful tips on creating winning entries. If you are interested in having someone visit your school, please contact Janet Springer and we will do our best to accommodate you. ■



NEW MEXICO  
MUSEUM OF  
NATURAL HISTORY

### ELECTRONIC BRIDGE PROJECT: Ecosystems of the Southwest

The Electronic Bridge Project is a 16-week interactive distance learning program and curriculum produced by the New Mexico Museum of Natural History and Science and the University of New Mexico's Distance Education Center. It is dedicated to enabling secondary schools in the Southwest to conduct ecosystem research in their communities. If you are interested in learning more about this cutting edge program in eco-

system research, contact The Electronic Bridge Project office at: (505) 841-2845, fax (505) 841-2866, or email to: aydelott@nmmnh-abq.mus.nm.us

The television programs are broadcast on PBS stations in Portales, Las Cruces and Denver, CO, on TALNET in Albuquerque, and on a C-Band satellite delivery system throughout the region.

#### DATE PROGRAM

1/28/98 Overview of Ecosystems of the Southwest  
2/04/98 Riparian Ecosystems  
2/11/98 Impacts on Aquatic Ecosystems  
2/18/98 Aquatic Adaptations  
2/25/98 Forest Types of the Southwest  
3/04/98 Forest Ecosystem Management  
3/11/98 Forest Animals

3/18/98 Grassland Research  
3/25/98 Grasslands: Fire, Soils and Grazing  
4/01/98 Grassland animals  
4/08/98 Deserts of the Southwest  
4/15/98 Plant and Animal Adaptations to the Desert  
4/22/98 Desert Animal Adaptations: Reptiles and Invertebrates  
4/29/98 Extreme Environments  
5/06/98 Geologic Past of the Southwest  
5/13/98 Final show for Semester. Closure and reporting mechanisms.

URL <http://www.nmmnh-abq.mus.nm.us/nmmnh/eb.html> ■

## Natural and Cultural Resource Curriculum Activity Guides

These are free workshops scheduled to be held in various locations. In most cases the materials are also free. Many workshops will be scheduled for 1998; contact the state coordinator listed for more general information. The listed workshops will be canceled if fewer than 15 people register for a session. Please reserve your spot.

**Project Wild** is a conservation, environmental education program activity guide that emphasizes wildlife and its habitat, and uses skills across the academic spectrum to provide a tool for all educators. This is an 8-hour workshop. Eddie Bennett is the State Project Wild Coordinator—827-7867. Contact Peg Sorensen (761-8920) to attend a workshop scheduled for August 22, 1998.

**Project Learning Tree** uses plants and emphasizes forests to explore environmental concepts and issues through a book of activities that spans subject matter areas from English to physical education. This is an 8-hour work-

shop. Terri Wildermuth is the State Project Learning Tree Coordinator—827-8089. Contact Peg Sorensen (761-8920) to attend a workshop scheduled for September 19, 1998.

**Project Archaeology** uses cultural resources to provide tools for educators to teach math, science, language, and social studies. The goal is to develop an awareness of the plight of archaeological resources and the value they hold to our collective culture. This is a 10-hour workshop. The State Historic Preservation Office is the statewide contact for Project Archaeology. Contact Peg Sorensen (761-8920) to attend a workshop scheduled for October 17, 1998.

**Project Underground** provides activities that explore caves, cave ecology and karst topography. This is an 8-hour workshop. Peg Sorensen is the New Mexico Coordinator. Contact Peg Sorensen (761-8920) to attend a workshop scheduled for February 7, 1998.

**Wilderness and Wild Land**

**Ethic Curriculum and Box** introduces wild lands and wilderness history, legal foundations of wilderness, and helps students develop their own values toward our public lands through a series of interdisciplinary activities. There is a treasure trunk (box) for loan that is used with the curriculum. This is an 8-hour workshop. Contact Peg Sorensen (761-8920) to attend a workshop scheduled for March 14, 1998.

**Leave No Trace** is a set of principles developed to help visitors to our wild lands use the land and leave it in good condition for the next visitors. The workshop is designed to develop an understanding of the LNT principles and ways of using them in wild land travel. This workshop is an overnight camping trip with some hiking involved. A fee may be required to cover the cost of food for the overnight. Contact Peg Sorensen (761-8920) to attend a workshop scheduled for April 18-19, 1998. ■

## A Cross-disciplinary Literacy Course on Earth System Science for Teachers in the 21st Century

The University of Pittsburgh at Bradford is offering a one-week interdisciplinary workshop on Earth system science aimed at preparing pre-service education students and in-service teachers for the 21st century. The workshop is free of charge. NASA and the University of Pittsburgh at Bradford are providing room and board, tuition, and supplies to participants chosen. Successful participants will be awarded one college credit for pre-service or one continuing education credit for in-service participants.

The objective of this cross-disciplinary teacher training is to develop in students an understand-

ing of the Earth processes shaping the past, present and future. The course provides hands-on training and experience in applied environmental problem solving through fieldwork, lab practicals, and space-based technology. The program is soliciting a group of 16 energetic students of education, and teachers who wish to participate in Pitt-Bradford's weeklong Teacher Enhancement on Applied Earth System Science, July 12-17, 1998. This workshop is specifically aimed at undergraduate students of at least junior standing in an accredited teacher training program, or participating in a certification program. Twenty-five per-

cent of the participants will be selected from in-service educators.

To apply use the electronic application form at:

<http://www.pitt.edu/~aap/>  
or contact:

Dr. Assad Panah, Professor,  
Geology and Environmental  
Science

*Teacher Enhancement Workshop*  
University of Pittsburgh  
at Bradford

300 Campus Drive  
Bradford, PA 16701-2898

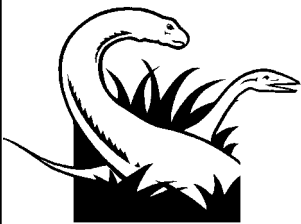
Phone: (814) 362-7569

Fax: (814) 362-5088

E-mail: aap+@pitt.edu.

■

# Opportunities



**NEW MEXICO  
MUSEUM OF  
NATURAL HISTORY**

SEE PG. 5-7

- ✓ If you like to volunteer your time and energy, the Museum offers a variety of volunteer opportunities. Volunteers serve as docents, give outreach programs to schools, prepare fossil specimens, help build exhibits, assist in scientific research, provide clerical support. For complete information, contact Eileen Dustan at 841-2877.
- ✓ If you are interested in programs and resources available to educators, contact Tish Morris at 841-2882 or Tim Aydelott at 841-2845.
- ✓ If you are interested in a Museum membership, contact the New Mexico Museum of Natural History Foundation. Membership provides free admission for your immediate family and a set of Dynamax tickets. For details, call the Membership office at 841-2851.

What is *SEE PGs. 13-14*

## PROJECT wild



Project WILD is an interdisciplinary conservation and environmental education program emphasizing wildlife. The program is designed for educators of kindergarten through twelfth grade. Project WILD capitalizes on the natural interest that children and adults have in wildlife by providing hands-on activities that enhance student learning in all subject and skill areas. Project WILD educational materials are provided to educators through practical, interactive workshops.

- I am an educator interested in attending a Project WILD workshop.
- I am an educator who would be willing to recruit other teachers for, and facilitate presentation of, a Project WILD workshop.
- I am an educator interested in receiving a Project WILD "Action Grant" to establish an outdoor lab/classroom.

Name \_\_\_\_\_ School \_\_\_\_\_

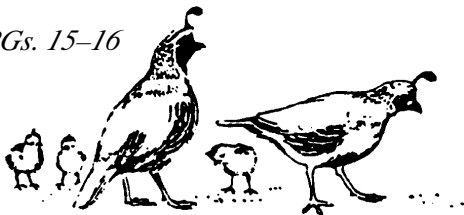
Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**MAIL TO: Eddie Bennett • Project WILD**

NM Dept. Game & Fish • 141 E. DeVargas  
Santa Fe, NM 87503

SEE PGs. 15-16



### Friends of the Rio Grande Nature Center

will be offering general volunteer training in February. An orientation meeting is scheduled Tuesday, February 4, 7:00-8:00 pm. Training will be Tuesday and Thursday evenings, 6:00 pm through February and Saturdays, February 8 and 22, 9:00-12 noon. Volunteer opportunities include a detailed training on bosque ecology and a chance to work with others as they enjoy the bosque. Call Ginnie or Rebecca, 344-7240.

#### FRIENDS MEMBERSHIPS

The Friends of the Rio Grande Nature Center is a non-profit organization dedicated to educating the public on the ecology of the bosque and its fragile ecosystem.

#### MEMBERSHIP CATEGORIES and ANNUAL DUES:

Student	\$10.00
Senior (62+)	\$10.00
Individual	\$15.00
Family	\$20.00
Supporting	\$30.00

Wildlife Rescue, Inc.  
of New Mexico

"To Raise,  
Rehabilitate,  
Release,  
and Educate"



SEE PGs. 9-12

- I am interested in becoming a phone volunteer.
- I am interested in learning how to rehabilitate New Mexico's injured and orphaned wildlife.
- I would like to volunteer time at your Summer Intake Center caring for orphaned wildlife (May-July)
- I would like a volunteer form that shows the different areas in which I can help.
- I am enclosing \$15.00 for a one-year membership.
- I am enclosing a tax-deductible donation, separate from membership fee, of \$\_\_\_\_\_.

Name \_\_\_\_\_

Phone: Hm. \_\_\_\_\_ Wk. \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**MAIL TO: Wildlife Rescue, Inc. of New Mexico**

P.O. Box 13222 • Albuquerque, NM 87192-3222

**MEMBER INFORMATION**

Name: \_\_\_\_\_ Affiliation: \_\_\_\_\_  
Year-round Mailing Address: \_\_\_\_\_  
City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip-code \_\_\_\_\_  
Phones: W. ( \_ \_ \_ ) \_\_\_\_\_ H. ( \_ \_ \_ ) \_\_\_\_\_  
FAX: ( \_ \_ \_ ) \_\_\_\_\_ E-mail address \_\_\_\_\_

**CHECK ONE OF THE FOLLOWING MEMBERSHIP TYPES:**

Individual Membership . . . . . \$10.00

Organizational Membership . . . . . \$50.00  
*(allows for 1 voting and 2 general members)*

*Name of voting member:*  
\_\_\_\_\_

*Names of 2 additional newsletter recipients:*  
\_\_\_\_\_  
\_\_\_\_\_

Occasionally other EE organizations ask for the EEANM mailing list. The EEANM Board is selective in giving out the list to organizations with similar interests or mission(s).

Check here if you object to your name being given to other organizations.

*Notes for EEANM Membership Directory:*  
Briefly include, in ten words or less, how you are involved in environmental education.  
\_\_\_\_\_  
\_\_\_\_\_

Please return this completed form with \$10.00 Individual / \$50.00 Organizational check for dues to:  
**EEANM, P.O. Box 61 • Belen, N.M. 87002**

**ENVIRONMENTAL EDUCATION  
ASSOCIATION OF NEW MEXICO**  
PO Box 36958 ♦ Albq., NM 87176-6958

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Albuquerque, NM

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*Newsletter Editor*  
841-2832 w.  
841-2866 fax  
mcguire@darwin.  
nmmnh-abq.mus.nm.us  
*Typography and Art:*  
JANELLE HARDEN  
The Studio, 256-7607  
jharden@nmia.com  
*Printed by*  
**INTERMOUNTAIN  
COLOR**



Forest fires in Indonesia were a major ecological disaster. They spread smoke over much of Southeast Asia for weeks, causing widespread health alarms. As part of its continuing effort to provide scientifically credible and timely information on the extent of the problem, the United Nations Environment Programme (UNEP) requested that the World Conservation Monitoring Centre (WCMC) make available on the Internet materials that highlight the potential impacts of the fires on the biodiversity of the region--one of the richest in the world.

According to WCMC, the fires in Indonesia threatened at least 19 protected areas, all internationally important. The fauna of Indonesia is considered at particular risk as the country is home to more than 100 threatened animal species, including the highest number of threatened mammals and the second highest number of threatened birds of any country in the world.

The region is also notable for the wide variety of its plant life and 500 tree species were considered under threat of extinction even before the current fire tragedy. Unique forest ecosystems such as heath forest and peat-swamp forest are particularly vulnerable to fire, which destroys their fragile soils.

In September, UNEP made available on the Internet a series of satellite images that show the spread of the smoke throughout the region's atmosphere. These images can be viewed at:

<http://grid2.cr.usgs.gov/indofire/start.html>

The contents of the WCMC Internet/Web site include:

- Locations of Fires--Map of the whole region
- Natural Ecosystems--Table of the original and current extent of ecosystems
- Biodiversity--Lists of endemic and threatened birds, mammals and trees
- Protected Areas--The list of protected areas affected by fire and actions taken.
- Published Material--An extensive bibliography
- Other Internet Sites--Hypertext links to more than 50 other Internet sites

### **International Information That Students Can Use to Study the Earth**

INFOTERRA is the global environmental information exchange network of the United Nations Environment Program. The network operates through a system of government-designated national focal points which currently number 176. An INFOTERRA national focal point is essentially a national environmental information center usually located in the ministry or agency responsible for environmental protection. The primary function of each center is to provide a national environmental information service.

INFOTERRA received its mandate at the 1972 Stockholm Conference on the Human Environment which recommended the establishment of a mechanism for the exchange of environmental information and experiences among countries. The 1992 Rio Conference on Environment and Development (UNCED) reiterated the importance of information for decision-making and requested the strengthening of the INFOTERRA network to improve information.

At the national level, INFOTERRA focal points provide a wide range of environmental information products and services including bibliographies; directories of sources of information; query-response services; environmental awareness leaflets; and access to Internet services.

Anyone looking for information on the environment is welcome to contact the INFOTERRA network through one or more of the following channels:

- a) UNEP World Wide Web (WWW) site <http://www.unep.org/eia/ein/infoterra>
- b) INFOTERRA listserver (instructions on how to subscribe and post messages are available from the INFOTERRA secretariat or may be downloaded from our Web site).
- c) local INFOTERRA national focal point (list of addresses for all 176 national focal points is available from the INFOTERRA secretariat or may be downloaded from our Web site); and
- d) INFOTERRA secretariat (address given below).

INFOTERRA will respond with substantive information from local or international sources of environmental information. For further information on INFOTERRA products and services please contact:

INFOTERRA, The Global Environmental Information Exchange Network  
Division of Environmental Information and Assessment  
United Nations Environment Programme  
P.O. Box 30552, Nairobi, KENYA  
Tel: (254 2) 624299 or 623275  
Fax: (254 2) 624269  
E-mail: [infotinf@unep.org](mailto:infotinf@unep.org)  
Web: [www.unep.org/eia/ein/infoterra](http://www.unep.org/eia/ein/infoterra)

## **TRMM Successfully Launched**

<http://trmm.gsfc.nasa.gov/>

On November 27, 1997, the Tropical Rainfall Measuring Mission (TRMM) satellite was successfully launched from the Tanegashima Space Center at 4:27 pm EST. TRMM is a joint project of NASA and the National Space Development Agency (NASDA) of Japan.

As of late 1997, measurements of the global distribution of rainfall at the Earth's surface had uncertainties of the order of 50% and the global distribution of vertical profiles of precipitation was far less well determined. TRMM will provide the first spaceborne rain radar and microwave radiometric data that will measure the vertical distribution of precipitation over the tropics in a band between  $\pm 35'$  in latitude. This information will greatly enhance our understanding of the interactions between the sea, air and land masses which produce changes in global rainfall and climate. TRMM observations will also help improve modeling of tropical rainfall processes and their influence on global circulation leading to better predictions of rainfall and its variability at various time scales.

## **Global Learning and Observations to Benefit the Environment (GLOBE)**

<http://www.globe.gov/>

There are now 58 countries participating in GLOBE, with over 2000 schools from around the world reporting data. Through the National Oceanic and Atmospheric Administration (NOAA), GLOBE has selected 8 sites across the country and awarded them contracts to host a total of 40 GLOBE Teacher Training Workshops through summer, 1999. An additional 130 workshops will be held by U.S. GLOBE franchises along with over 150 international workshops. Based on typical attendance levels at GLOBE teacher workshops, an additional 9000 teachers will become involved in this program through these workshops. This will approximately triple the number of teachers involved.

The on-going El Niño offers a significant opportunity for GLOBE schools to contribute to contemporary scientific research. Most effects of El Niño in the northern temperate zone are predicted to occur from November to March. GLOBE schools can play a role as students measure daily air temperature ranges, precipitation amounts, and other parameters. These measurements should reveal the quantitative extent of El Niño effects for the area around each GLOBE school and augment data from other sources. Visualizations of El Niño-related data will be provided via the GLOBE website. What follows is a brief message that is being posted on the Web introducing this activity:

"El Niño is a major shift in the ocean-atmosphere system in the tropical Pacific which has important consequences for weather in many regions around the world. In contrast to the seasonal cycle, which is fairly regular and therefore highly predictable, El Niño events occur at irregular intervals, generally ranging from two to seven years. No two events are alike, and in the early 1990s, El Niño conditions prevailed for four out of five years.

GLOBE students can help scientists learn more about El Niño events by consistently reporting GLOBE measurements. Air temperature, rain, solid precipitation, soil moisture, and quantitative land biology measurements from GLOBE schools will provide direct observations of the changes in temperature and precipitation that are predicted to occur in various regions at different times. The other GLOBE measurements may reveal secondary effects of El Niño-induced changes and help scientists determine the full effects on our environment.

GLOBE will provide schools with a world map showing the changes expected in different regions now and in the coming months. This prediction will be based on the observed effects of past El Niño events and will serve as a hypothesis which we can test with our GLOBE measurements. As the data come in, GLOBE will provide periodic assessments of what they are showing about this event. Seven or eight months from now, if schools are very active in taking data, GLOBE student measurements will have revealed much about the effects of this El Niño.

Throughout the year, GLOBE will feature special learning activities and visualizations to facilitate classroom study of El Niño and to encourage GLOBE schools to engage in their own investigations of this phenomenon and its history. The El Niño has begun, so watch for more information from GLOBE and get going or keep going on taking and reporting GLOBE data."

## **NASA Payload to Monitor Atmosphere During Balloon Flight Around the World**

<http://www.wustl.edu/solo/> To follow Fossett's flight

A NASA science instrument package that may one day study the atmosphere of Mars or Venus will fly aboard adventurer/businessman Steve Fossett's "Solo Spirit" balloon in December, as he makes his second attempt to be the first person to fly solo around the world.

The prototype instrumentation is being provided by NASA's Jet Propulsion Laboratory (JPL), Pasadena, CA. The 7.5-pound package will measure the balloon's latitude, longitude and elevation, and the surrounding atmospheric temperature, pressure, humidity and vertical wind velocity. The scientific data and knowledge gained from the flight will be used by Earth scientists under the sponsorship of NASA's Earth Science Program.

The science payload will gather information from the troposphere, the lowest layer of Earth's atmosphere, during a continuous, two-week period as the balloon flies through the mid-northern latitudes. Fossett's balloon is expected to fly at an average altitude of about 23,000 feet. JPL will receive raw data from the payload telemetry system through a commercial satellite. These data will be converted into scientific measurements and relayed to Washington University (St. Louis, MO), where they will be posted on a web site so the public can follow the flight.

Fossett will again launch from St. Louis's Busch Stadium when flying conditions are optimal. This winter's flight is expected to last 15 days. The launch window opens in mid-December and closes at the end of January, 1998.