



VOLUME 15, NUMBER 4, FALL 2015

PAJARITO ENVIRONMENTAL EDUCATION CENTER

You're invited!

**The board and staff of the Pajarito Environmental Education Center
cordially invite you to join them for our annual member meeting,
The PEECnic, on October 18 from 1-3 p.m.**

**Please come enjoy a dessert social, fun and educational activities for adults
and kids, and vote for your new board members for 2016.**

We're so glad to have you as a member of our PEEC community. You get kids and adults outside, enjoying our beautiful canyons, mesas, mountains, and skies. You help us put on the talks that teach people more about what they see and experience outside. And you help us share our amazing local nature with visitors from around the state, around the country, and around the world. In the first five months we were open, we had visitors from all over New Mexico, from 49 states, the national capital, and 24 countries! That's lots and lots of people who now have a better idea about what makes Los Alamos special, and it's all thanks to you.

Each year we hold our annual members' meeting in October. Legally, it's a way to fulfill our obligations as a non-profit organization and to elect our new slate of board members. Emotionally, it's a way to say thank you for all that you do for us.

This year, our first in the new building, promises to be lots of fun for all ages. Of course we'll have our delicious dessert social to show you how sweet we think you are. We'll also have experts stationed throughout the nature center to help you get an in-depth look at the exhibits, including a fish expert talking about the fish (you can read more about the fish on page 3, as well), our animal care expert taking the animals out for you to touch and meet face-to-face, a birder to help you learn more about the birds that visit our wildlife observation garden, and an astronomer to show you the sun through a solar telescope. The planetarium will be open for you too! For the kids, there will be lots of hands-on fun and games outside and in the Children's Discovery Area.

We hope you can join us on October 18th. Nothing at PEEC would be the same without YOU. 🐦

What's That "Ratchet" Animal?

Ask PEECBirders!

By Rebecca Shankland

Have you joined one of PEEC's online interest groups yet? Here's a sample of what goes on in them.

One night in July Akkana Peck sent a plea to PEEC Birders to identify a "ratchet" noise in her back yard in White Rock. Happily, she described it and sent a 2-second recording. She noted that it emanated from the region around a pond. Bird? Goat? Sheep?

Ann Shafer ruled out flickers by saying they don't drum at night. Becky Shankland said it sounded "froggy." Early next morning Rozelle Wright sent a Web site [Californiaherps.com.Canyon Treefrog] with Canyon Tree Frog recordings, and we all felt that we had a winner. We were especially delighted because we have a little trio of Canyon Tree Frogs (*Hyla arenicolor*) in our canyons exhibit at the Nature Center.

Bob Dryja noted that friendly frogs might be more abundant in this year of extra rainfall. Next Steve Reneau posted a photo of a Canyon Tree Frog on his deck in White Rock in 2007. He's close to the edge of Pajarito Canyon and used to hear the call, but hadn't heard it for some years.

And finally, Terry Foxx, an ecologist for many years at LANL, confirmed that she had studied frogs for 10 years and that Tree Frogs like living around canyon edges or crevices where moisture collects.

So citizen scientists identified the sound in less than 12 hours. Are you interested in being a part of one of these groups? Take your pick at peechnature.org/learn. 🐸



Newly metamorphosed canyon tree frog, *Hyla arenicolor*. Photo by Beth Cortright.

You Brought This Mom to Tears

By Katie Watson

But in a good way! A boy in our Nature Odyssey camps started his two-week session very unsure about nature. He didn't want to hike, was afraid to pick up insects and even sticks, and definitely didn't want to get dirty. He stuck close to the two other kids he knew, and didn't want to talk to anyone else.

By the time the two weeks of camp were up, this boy was standing in Bill Orr's muddy pond, catching bullfrog tadpoles for all of his new friends (most of whom were more hesitant than he was about getting in the water).

His mom brought us a thank you card when camp was over, in tears because she was so happy about the changes she saw in her son. She said, "I cannot even express all of my gratitude in words to the nature center. Honestly, my son's two weeks of the summer program increased his confidence in himself. He wants to interact with more children and has a greater interest in the outdoors."

Your generous support of PEEC, through your membership and your donations, made a huge change in this boy's life. Without your gifts, we could not put on our high-quality, intensive programs that get kids outside again and again, changing their outlook on nature and on themselves. Thank you for all you do—for this boy, and for hundreds of other kids like him. 🐸



Nature Odyssey campers aren't so sure about getting into Bill's pond! Photo by Jonathan Creel.

The Tribulations of Fish

Part II: Surprise Guests, Both Welcome and Unwelcome

By Dan Poretti

Hopefully by now, you have had the opportunity to stop in to the Nature Center and see the many beautiful and interesting exhibits. Of course, those exhibits include PEEC's large fish tank showcasing four species native to New Mexico: the Longnose Dace, Rio Grande Chub, Rio Grande Sucker and our star attraction, Rio Grande Cutthroat Trout. The trout, an endangered species, were a special addition to this exhibit. It was Jim O'Donnell's vision to bring the trout to the Nature Center, and he worked diligently with Trout Unlimited to make the trout exhibit a reality. Their donations, and yours, made the trout exhibit a reality. What a success it has been! Visitors of all ages have been fascinated by the PEEC fish exhibit, which is one of the few places in New Mexico (indeed, in the world) where the Rio Grande Cutthroat Trout can be observed outside of the wild. As you might guess, keeping a large fish tank with four species humming along takes a bit more work than meets the eye.

It's All in the Chemistry

First things first—the chlorine in the tap water used in the tank has to go. Of course, fish in the wild do not swim in chlorinated water, and the bacteria that are critical for maintaining the water chemistry definitely do not appreciate chlorine, so it must be removed. For the PEEC fish exhibit, a large filter does this. But getting the chlorine out is just the beginning—we also carefully monitor the ammonia, nitrite, and nitrate levels in the tank. This is where the bacteria come in. They work diligently to break down the excess food and the fish waste to keep the water chemistry just right. This "bio-filter," along with mechanical filtration, allows us to keep the tank water in balance.

Or, Maybe It's the Temperature?

Behind the scenes, PEEC's fish exhibit uses a large chiller to keep the water temperature in the tank at a brisk 60 degrees (if that doesn't sound brisk to you, try putting your whole arm in 60 degree water for 20 minutes while you clean the algae from the sides of the

tank!). Along with the current generated by the pumps, this lets us approximate the conditions of the mountain streams that form the native habitat of the trout and the other species in the tank. This "natural" environment seems to be working—we have had some surprise visitors.

It's a Boy! And a Girl! And Many More!

A couple of months ago, one of our sharp-eyed staff members (Jonathan Creel) spotted something small and new swimming in the tank—baby fish!

Apparently, conditions in the new exhibit tank were just right to encourage spawning, and we have had several hatches of fry since. As you can imagine, being a quarter-inch long fry in a tank with predators (Cutthroat Trout, we're looking at you) is not ideal. Jen Macke and Melanie Boncella were able to rescue about a dozen of the fry and transfer them to their home aquariums. Jen reports that they turned out to be Longnose Dace, and are now about an inch long. Unfortunately, the baby dace have not been our only unexpected visitors.

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One of the unwelcome visitors: a skin fluke (Gyrodactylus) taken from one of PEEC's trout. The fluke attaches to the fish by the little tentacles on the end. The photo was taken through a microscope at magnification 430X. Stained specimen provided by Dr. Bob Fuselier; photo by Jennifer Macke.

Parasites, Anyone?

We all live with parasites, even if we do not like to think about that. However, in a closed environment like a fish tank, parasites can run amok and cause serious problems. Although the PEEC fish exhibit uses a quarantine tank (which is not part of the public display), and no new fish have been added since the trout arrived in April, this July an infestation of parasites reared its ugly head. With the help of our veterinarian, Bob Fuselier, we were able to identify not one, but two different parasites plaguing the fish: flukes and a single-celled parasite commonly called ich. After consulting various experts and other resources, a treatment plan was put into place, and we were able to successfully bring the parasite infestation under control. Eliminating these unwelcome visitors is probably not feasible in the short run, so the fish exhibit crew remains ever vigilant for another outbreak.

More Trout on the Way

As big as the PEEC tank is, the trout can still outgrow the space available to them. So, over time you will see some of the large trout replaced with smaller trout--in fact, our largest trout ("Bruiser") was recently taken away by Tony Jacobson of the Seven Springs Fish Hatchery (the birthplace of our trout). We anticipate that Tony will bring us some new, smaller trout in the next month or two. In the meantime, we will do our best to keep the algae in the tank in check. 🐞

Maternity Ward at PEEC?

Hopes Raised, Hopes Dashed

By Rebecca Shankland

A visitor to the Los Alamos Nature Center, Paul Sena, spotted something peculiar on our vinegaroon (giant whip scorpion, *Mastigoproctus giganteus*). He pointed out the large egg sac she was carrying, like a little bag of white pearls.

That was August 4, when Director of Interpretation Jonathan Creel took this photo. But almost immediately we noticed that a few of the eggs were lying on the moss



Captive whip scorpion (vinegaroon) at the nature center with egg sac. Photo by Jonathan Creel, August 15, 2015.

and twigs of the tank. (As of September 12, two tiny white eggs were still visible at the right-hand back corner.) So what are the maternity prospects?

We learned that vinegaroons carry 30 to 40 eggs internally for several months after being fertilized; then the eggs are carried in a fluid-filled sac under the abdomen. So it appears that the ones that left the sac won't develop. And now we can't see the others.

If the babies were to hatch we'd see the mother carrying them on her back for a month. (Check out our scorpion tank to see the photo of this species --

Vaejovis sp.--with her tiny babies on her back—an amazing event that happened at PEEC a few years ago.)

The baby vinegaroons molt several times as they progress to adulthood and live for about seven years.

*He pointed out the
large egg-sac she was
carrying, like a little bag
of white pearls.*

Curious facts

- They are called “vinegaroons” because they can spray a vinegar-smelling substance from glands near their tail if they are frightened.
- They are not scorpions but arachnids. Their “tail” is actually a feeler, not a stinger, and they're not poisonous.
- They have eight legs, but walk on only six; the front legs are feelers. Their crab-like claws are used to catch prey, which is insects, spiders, even small lizards. 🐞



White Raven Landing Sequence

By David Yeamans

September 2, 2015

Raven 1 to tower – request permission to land Runway bravo 2. Over.



Raven Bravo 2, permission granted for runway 2-zero.



Landing gear down. Full flaps. We have a visual on the white landing zone... Over.



Reverse thrusters. And ... touchdown. Raven Bravo 2 convert to ground control.



Full Brakes. Roger that, convert to ground control.



Please leave your luggage stowed until...



This is White Raven Bravo 2 at home in Los Alamos. Perfect landing.

PEEC Interest Groups in Action

Joining a PEEC online interest group can put you front and center for local nature news. In this case, it gives us a glimpse of this raven of a different color.

On September 2nd, Melissa Bartlett was the first to alert local birders that a white raven was seen near Smith's Marketplace in Los Alamos. Several people jumped into action and tracked it as far as the airport.

David Yeamans took a series of photographs of the bird at the airport, writing to say, "Maybe he's smokey or pearly. Some photos show a tiny bit of pink on the gape, indicating that this is a juvenile."

The PEEC Birders interest group was abuzz with questions and ideas about what to call the bird. What makes this bird even more interesting, is that it isn't an albino. As David Yeamans noted, "It is a leucistic bird, not albino, because of the pigment in the eye and feathers."

Many people are still on the lookout to see if this bird is a local or was just passing through. Have you seen this bird or one like it?

In addition to the PEEC Birders, there are four other PEEC interest groups available at peecnature.org/learn: Butterfly Watchers, Wild Plants, Naturalists, and Trail Users. 🌀



The Satch and George Cowan Children's Discovery Area brought a smile to his face. Your support made this possible. Thank you.



Post-fire flood event at Bandelier Visitor Center

Help Restore the Rito de los Frijoles – Seed Harvesting Hikes and History

By Jen Vrooman of Keystone Restoration

Land stewards play an important role in a post-wildfire environment.

PEEC volunteers and members are part of a post-fire restoration effort underway on the Rito de los Frijoles, in Bandelier National Monument. Bandelier partnered with Keystone Restoration Ecology, a Santa Fe-based watershed restoration company, to address the creek's degradation. This project is made possible by funding from the New Mexico Environment Department River Stewardship Program and support from volunteers.

Why are land stewards so important?

The Las Conchas Fire burned 85% of the river's watershed above the Visitor Center. Then, post-fire floods during 2011 and 2013 monsoon seasons caused this small creek to repeatedly rise to several times the peak flow of the much larger Rio Grande. In order to accommodate excess sediment and water, the channel tried to expand. Large trees on the banks in certain areas constricted the water flow and the channel cut downward. Now the Rito de los Frijoles has areas that are entrenched gullies disconnected from its floodplain.



Rito de los Frijoles gully; flood waters cut downward

Presently, the headcut in the Rito de los Frijoles is near the Visitor's Center, having moved 50 feet upstream already this year.

With entrenched gullies like this one, flood waters no longer flow on the floodplain to irrigate riparian vegetation and species begin to die. Unfortunately, the degradation cycle also continues because with no floodplain, the force of the flood waters is concentrated, as when you put your thumb over a hose, and cuts the channel deeper and deeper over

time. A "headcut," the origination point of a gully, left alone will continue to progress or "cut" upstream through the valley causing damage to the stream and floodplain. Presently, the headcut in the Rito de los

Frijoles is near the Visitors Center, having moved 50 feet upstream already this year.

What can we do now?

The project aims to stabilize the stream channel, restore the floodplain, and increase habitat diversity with riparian plantings. Assessment and design began this summer; construction is slated for 2016. To improve stream function, Keystone Restoration Ecology uses natural channel design, which works with the central tendencies of the stream channel in both form and process. For example, rock and log structures create pools and riffles for invertebrates and fish. The goal is to restore and re-vegetate the floodplain wherever possible.

Would you like to help?

Keystone and PEEC need volunteers to join in the re-vegetation effort. Join us this fall for seed harvesting hikes where we will collect plants and seeds from Frijoles Canyon in effort to preserve the unique genetics of the area. The wetland plant seeds will be sown along the Rito de los Frijoles after construction. The next hike is on Oct 10th. Go to peechnature.org/events to register. KRE is also looking for folks to pot up cuttings of canyon grape, hops, asparagus, and mint, which will be transplanted along the new banks of the Frijoles. Please contact KRE at www.restoration-ecology.net to participate in potting up cuttings. And stay tuned for future announcements in 2016 about transplanting days where wetland rushes and sedges will be transplanted. Dates and details for these events will be on PEEC's website. It takes a plan and many hands to restore a watershed. Hope you will join us on the first of many projects to regenerate this unique and beautiful area. 🌱



Seed collection hike, September 2015

*It takes a plan and
many hands to restore
a watershed.*

**Our Mission: Enriching people's lives
by strengthening their connections to
our canyons, mesas, mountains, and
skies.**

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Honeybee. Photo by Bob Walker

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FEATURED EVENTS

Fishing Adventure at Fenton **OCTOBER 3**

Red Rock Wilderness Talk **OCTOBER 6**

PEECnic **OCTOBER 18**

Mesa Prieta Tour **NOVEMBER 7**