



VOLUME 17, NUMBER 1, WINTER 2017

PAJARITO ENVIRONMENTAL EDUCATION CENTER

## We Are Here, Together

By Katherine Bruell, Executive Director

Usually at this time of year my message from the director involves thanking you for supporting PEEC. Your generosity at the end of the year always exceeds my greatest expectations, and this year was no exception. We are thrilled that you like what we do and amazed by the big-hearted way you make it possible for us to keep doing it! Thank you.

This year, I want to add another thanks. It was a hard autumn for many of us, with the divisiveness in the country that emerged in the election. It's easy to think dark thoughts about where our country may be headed, and I know I certainly had some dark days in November. But what brought me back from the brink was people who cared. After the election, people came out of the woodwork, out of the background, out of everywhere to say, "We're here, we care about each other, we care about the future of our country, and we care about the future of our planet." Every time I felt discouraged, I would encounter another example of friends and strangers going out of their way to stand up for what they believed in. People seemed more committed than ever before to protecting the things that are important to all of us—clean air and water, healthy forests, magical open spaces and public lands, and all those places where we go to recharge and reconnect with nature.

So, thank you for showing me that nature really does matter, that nature isn't going to be abandoned, and that we will all be there working to make sure nature survives. I'm so grateful to have allies like you. 🙏



*Doug provides a helping hand in Rim Canyon during a PEEC slot canyons hike with Doug Scott. Photo by Ken Hanson.*

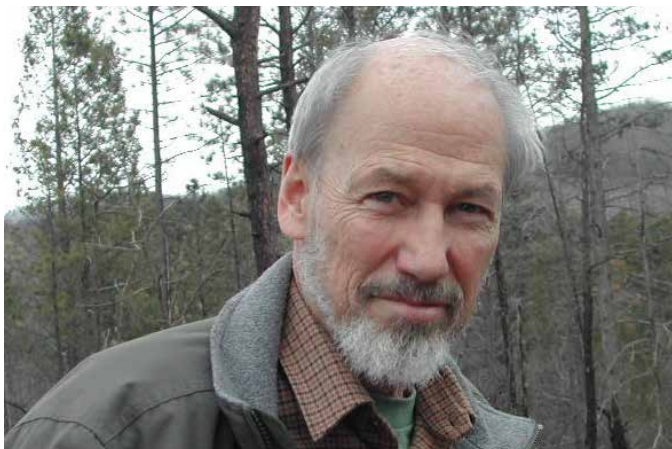
# A Changing Climate

By Chick Keller

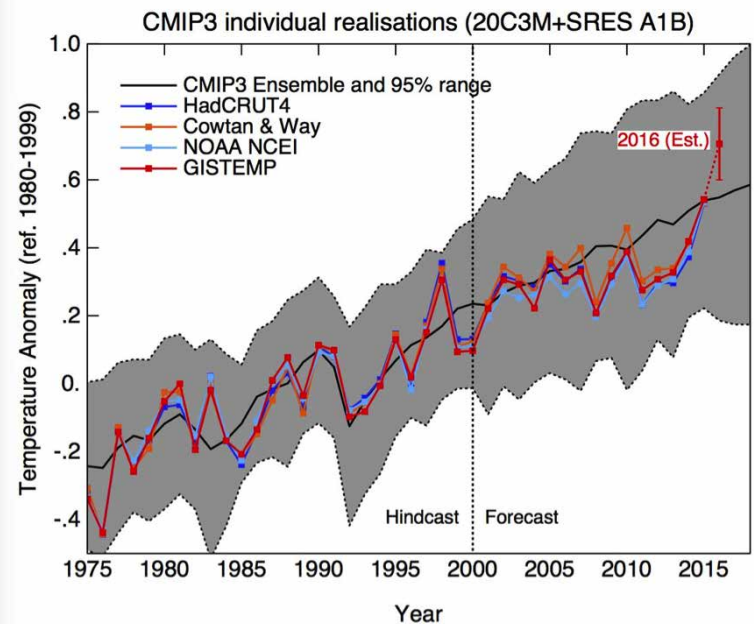
If recent political decisions have increased your concern for our planet and the future of climate change, you are not alone. There have been many discussions about whether or not human emissions of greenhouse gases are warming our planet. After some 30 years of hard work through scientific research, most of the disputes have been settled. It is generally agreed that humans are contributing to climate change by introducing extra carbon dioxide and other greenhouse gases into the atmosphere. And yes, those gases are warming the planet and perhaps causing other climate problems such as droughts, stronger storms, etc.

Today (many blogs and talk-show hosts to the contrary), only one problem separates critics of human-induced climate change from the majority of climate scientists. Most critics now admit that our burning of fossil fuels is causing warming, but they deny that the effects will be all that bad. Their argument centers around “climate sensitivity”—a term to denote the temperature increase in response to a doubling of atmospheric carbon dioxide concentrations, an event projected to occur by the second half of the century. It depends on what actions are taken now and in the near future to reduce emissions.

Doubling atmospheric carbon dioxide by itself should only raise the planet’s temperature about 1.3° C (about 3° F), but the actual increase is expected to be about twice as high. Why? Everything is connected, and a change in one system causes changes in others. In Earth’s case, warmer temperatures cause more water to evaporate from



Chick Keller discusses climate change on January 31.



CMIP3 is an ensemble of many computer models run. The lines are different estimates of global temperatures.

the oceans. Since water vapor is also a powerful greenhouse gas, it will add to the warming, a so-called “positive feedback.”

Climate critics say there are also “negative feedbacks” (not simulated in the computer models) that will not allow such a temperature increase and so there’s nothing to worry about. They point to the lack of

dramatic global temperature rise in the past 10 years or so to support their assertion. The curious lack of warming in the past decade indeed has climate scientists looking for why the warming

has seemingly slowed. They have found a variety of reasons, from lower solar activity to volcanic eruptions and cool Pacific Ocean temperatures (La Niñas). But there is still something missing, and so considerable studies of changes in cloudiness are underway. Because clouds reflect sunlight back into space very effectively, even a small change in cloudiness could result in cooling. Finally there is a hint in the 160-year temperature record that the oceans combine to warm and then cool over time with a cycle of about 60 years. If true, we are now in a major ocean cooling phase.

If the models are correct, we can expect a very rapid warming in the next 30 years, faster than the environment (and probably most of the world’s human population) can adjust to.

My talk at the nature center on January 31 will discuss many of these aspects in more detail along with possible solutions. 🌀

# Getting Started with Wildlife Photography

By Hari Viswanathan

Los Alamos is a wonderful place to be a wildlife photographer. It is a place where no one is far from the natural world. Canyons weave through our community, providing many urban wildlife habitats and bringing us closer to nature. As described by the vertical mile exhibit at the nature center, the Pajarito Plateau has amazing wildlife diversity due to the large elevation changes in our area leading to a variety of ecosystems: from juniper woodlands and grasslands to ponderosa pine forests and even subalpine forests and meadows. The Pajarito Plateau also serves as a migration corridor for numerous neotropical migrant birds, a prime setting for top-rate bird photography. If you are interested in wildlife photography, here are a few important things to consider.

1. Research and planning: Knowing the habits of birds and mammals is crucial for increasing your chances of taking a great photo. As in most places, wildlife is more active at dawn and dusk than during the middle of the day. Colorful birds such as Western Tanagers, Lazuli Buntings, and Wilson's Warblers arrive in breeding plumage at the beginning of May and hang around for a few weeks. Last May, around 7 a.m. at the nature center, I saw six Western Tanagers along with multiple warbler species, all within an hour! The bird blind wall behind the nature center has multiple perches for photographers to view the pond and bird feeders. Fall migration in September is also a good time to see birds, but they don't always display breeding plumage.

2. Gear: It is not critical to have expensive gear in order to take good photos. A DSLR with greater than 300

*... a place where no one is far from the natural world.*



*Cougar at Selvi Viswanathan's Warbler Pond. Critter cam photo from Hari Viswanathan.*

mm telephoto lens is very helpful, since it allows the photographer to remain far away from wildlife. Keeping a safe distance is good for the photographer and prevents disturbing the subject. An entry-level setup with Canon or Nikon typically costs about \$700. Although cell phones have increased in their camera capability, they are usually not adequate to take good wildlife photos unless the subject is very close and the lighting conditions are bright. Motion-activated trail cameras (aka critter cams) are a cheap and easy way to see what wildlife is visiting one's backyard while Los Alamos is sleeping. For example, a cougar visits once or twice a year for less than two minutes each time at my mother's National Wildlife Federation Certified Wildlife Habitat on Barranca Mesa. A \$150 critter cam captured this beautiful photo (above).

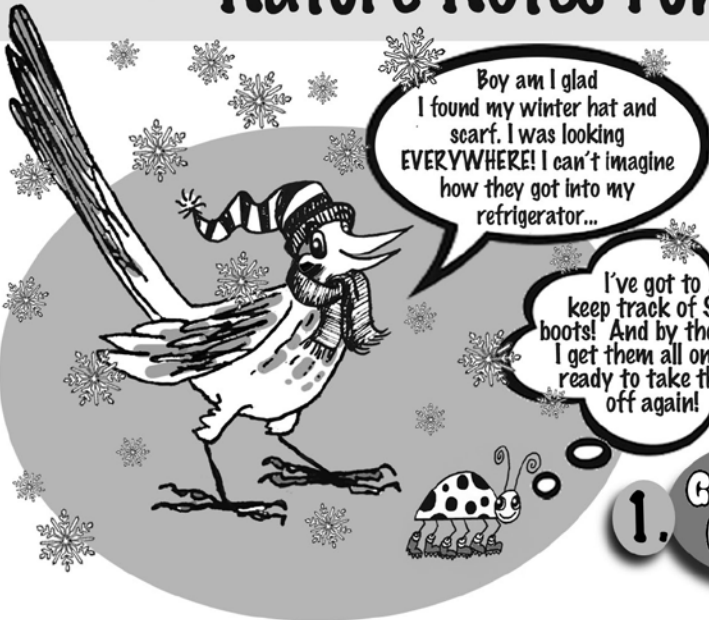
Professional-level cameras and lenses are much more expensive and often heavier. This brings up an important point: the key to getting going with wildlife photography is having a setup that you are happy to carry around so you can practice, practice, and practice. When my mother was 72 years old, I taught her to use my Canon xt with 300 mm telephoto lens. She was very intimidated at first but has since captured beautiful pictures of birds, butterflies, and even a bobcat in her yard! The key to her success is patiently watching day in and day out while improving her techniques by trial and error. Five years after she first used my camera, one of her photos made the cover of *Butterfly Gardener*. With the numerous wildlife opportunities in our community, anyone can capture amazing wildlife photos.

I will show more critter cam photos and discuss more details about wildlife photography on February 21 at the nature center. Bring your photography equipment and your questions. 📷



*Western Tanager photo by Hari Viswanathan.*

# Nature Notes Fun Page--It's Winter!



Boy am I glad I found my winter hat and scarf. I was looking EVERYWHERE! I can't imagine how they got into my refrigerator...

I've got to keep track of SIX boots! And by the time I get them all on I'm ready to take them off again!

## 1. Getting Warm

Winter means a lot of things to us humans: school, holidays, playing in the snow, hot cocoa, warm clothes, and... did I mention playing in the snow? But to animals and plants, winter means

# BRRR-R-R-R!!

To deal with the cold and make it through winter, they have two choices. They can either 1. get WARM, or 2. get AWAY. Let's take a look...

Many animals get warm by "putting on" winter clothes. Deer, rabbits, squirrels, and other animals grow special thick, insulating fur that keeps them warm. Birds puff out their feathers to trap warmer air next to their skin. Here's an example right in our own backyards:

**HELP!!** Oh no, Rody and Bugsy are caught in a blizzard! Bugsy is trying to keep warm under Rody's wing, but they need your help to find their way out!

**SAFETY!**

Bear Den...run!

**START**

Snowdrift blocks path!

Trees too thick! Can't see!

**BUMP**

help Bugsy and Rody get home, come by the nature center for the solution. Just ask!



You see, Albert's Squirrels in the **SUMMER** look like this. →

But in the **WINTER** they grow long ear tufts and look like this. →

Wow, no cold ears on that rodent!

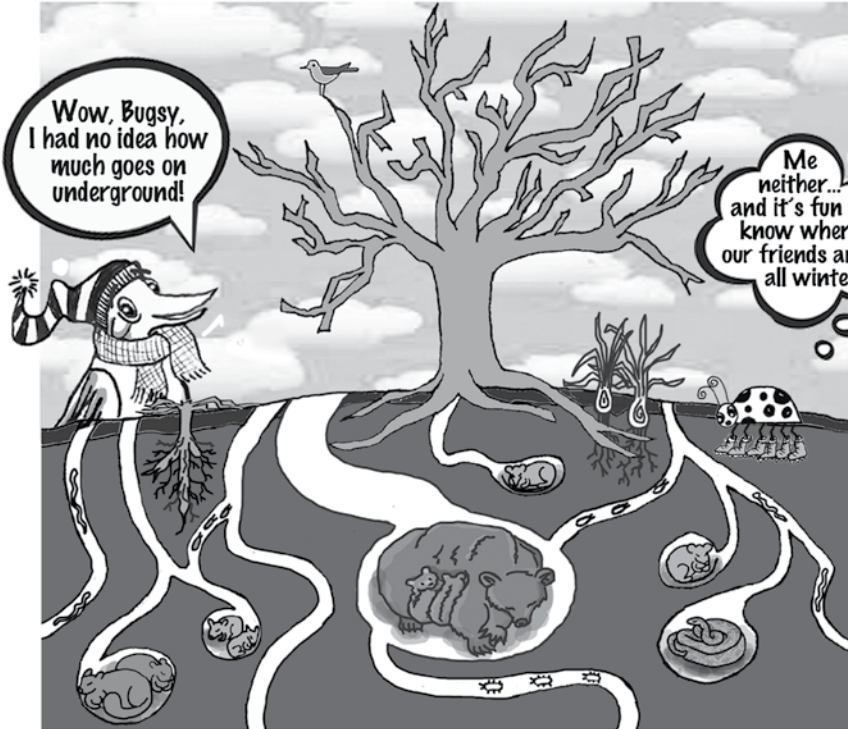
**Did you know?** Albert's Squirrels only live in Ponderosa Pine forests and are a sign of a healthy forest. Every time we see one we can feel happy to know our forests are doing well!

Aren't mazes amazing?? But this one's a toughie! It's enough to make your eyes fall right

# And Roady and Bugsy are back to look at **NATURE** in winter.

## 2. Getting Away

At the top of the getting away list is, of course, **MIGRATION**. If it's cold where you are, go where it's warm! Sandhill Cranes flew over the Pajarito Plateau this fall on their way to their winter hang-outs in the southern part of the American Southwest and northern Mexico. Next spring, they'll be heading north again.



Wow, Bugsy, I had no idea how much goes on underground!

Me neither... and it's fun to know where our friends are all winter!

Another getting away option is **HIbernation**. If you can't endure the cold, hole up and wait until it changes! Animals like bears, some squirrels, and even some snakes, can deal with winter by putting their bodies into a deep sleep until the warmth returns.

Some trees and smaller plants lose their leaves and go into a kind of plant hibernation, called dormancy. Smaller plants either die off completely in the winter after putting out seeds or die off at the surface and draw their life functions into their roots. The temperature underground is just warm enough to keep plants alive until spring.

## Winter Fun with Animal Tracks!

Winter time is special because you can tell who has been where! Here are some animal tracks you might see, even in your own backyard:



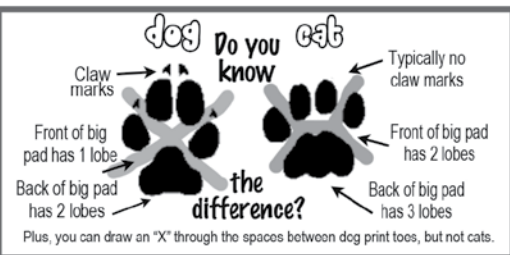
RABBIT SQUIRREL SKUNK RACCOON DEER RAVEN ROADRUNNER



Roady! Your tracks look like "X"s!

Why, yes! Aren't they lovely?

They're called "Zygodactyl" feet and are very unusual among birds. They help me run so fast!



Coyote's back feet step in their own front tracks and make a neater "two-legged" track, while dogs show all four footprints and are messier!



Stop by the nature center to see more tracks and learn more about them. We have a special TRACK drawer. (It's right above the SCAT drawer!)



Abert's Squirrel photo by Bob Walker.

## Abert's Audacious Squirrel

By Marilyn Lisowski

The death-defying, fluffy-tailed rodent you see bolting away from you, shooting up a ponderosa pine, is called an Abert's Squirrel, and it abounds in our Rocky Mountains. It also dwells in our canyon backyards. You can easily recognize it by its dark gray fur, rust-colored back and creamy white underbelly. But it is the pointed ear tufts that really turn heads. Those long, hobbit-like fur extensions also earned this squirrel the name Tassel-eared Squirrel. The tufts vanish in summer but don't be fooled into thinking it's a different animal. The Abert's saucy demeanor is evident year round. Look for the squirrel that is clambering up the ponderosa pine bark, chattering, and confidently leaping through the trees.

The beautiful Abert's Squirrel would prefer life in a ponderosa pine's welcoming branches than anywhere else on the planet. If it could, it would never come down, preferring to bound from tree to tree using strong hind legs and long rear claws, and that titanic bushy tail for balance. Up there, a squirrel is safe from predators like cougars and coyotes. Safe, but sometimes cold.

The racket above our heads last night was surely caused by one of our pesky backyard squirrels that squeezed into the attic. We covered our ears as he leapt off the tower of suitcases with a crash, dove under my summer skirts and sandals, scabbling and bumping. He burrowed into the insulation, scratching ever deeper down towards our pillowed heads.

"I can find at least five recipes for squirrel," growled my husband, searching his iPad.

*"I can find at least five recipes for squirrel... ."*

"He only wants to get warm," I pleaded.

"...guaranteed to get your mouth watering," he read. "Fry in Crisco until brown. Add wine and basil... ."

Squirrels that escape being eaten mate in late February and on into early June. Males in groups chase the female for hours until the strongest and swiftest among them is successful. A pregnant female builds a conical nest from supportive twigs and soft pine needles high in the lofts of a ponderosa pine. She bears as many as five tiny, hairless baby squirrels each summer. The

mother weans her young at ten weeks so that they can learn to forage for food, explore, and play among the trees.

Most Abert's Squirrels do survive the winter, depending on how low the temperature falls, and how much food they find. In late winter and early spring, the squirrels ravenously nibble the underbark of small branches. The weakened branch ends drop from the tree and litter the ground with green needles, providing nourishment for mule deer. When spring arrives, Abert's Squirrels devour new growth buds. This ferocious chomping does damage the ponderosas, costing the trees some needles, new growth, and eventual height, but more often than not, the Abert's Squirrels will leave enough needles and sugar for the trees to survive. At summer's end, enough pine cones remain on the tree to provide seeds for the squirrels to gorge on through fall.

WINTER WILDLANDS ALLIANCE

# BACKCOUNTRY

FILM FESTIVAL

2017

Thursday, January 26<sup>th</sup> at 7 PM

Reel Deal Theater

Beer & wine for sale by Pajarito Brewpub & Grill

Details at [www.pecnature.org](http://www.pecnature.org).

Mushrooms, when the squirrels can find them, are a treat. And, if they can locate sap oozing from a boxelder, they will surely lick a sugary dessert.

Many other species of squirrel store food for winter. The Abert's Squirrel, however, leaps and plays all spring and summer, foraging for food only to satisfy its hunger. In winter, the squirrel is faced with reality. No soft spring buds. No pine seeds. No mushrooms. In desperation, it munches on the inner bark of the tree, unless it can find something better.

Our backyard squirrels leap each morning onto the back porch birdseed cage. As though gravity were not a law, they scramble, wide-bodied, over and under the little housing, chewing on the bars and tilting the entire setup so that seed spills onto the ground twelve feet below. Mission accomplished, they

**VERTICAL MILE SOCIETY**  
*Secure PEEC's Future!*

**JOIN THE VERTICAL MILE SOCIETY TODAY!**

*A Vertical Mile of Community*

**SKIES**  
**MOUNTAINS**  
**MESAS**  
**CANYONS**

*...four levels of support help keep PEEC on the up and up.*

To join, contact Katie Bruell, [director@peecnature.org](mailto:director@peecnature.org)  
Learn more at [peecnature.org/support/vertical-mile-society](http://peecnature.org/support/vertical-mile-society)

The poster features a woman looking at a large informational board. The board is divided into four levels: SKIES, MOUNTAINS, MESAS, and CANYONS. A quote on the board reads: "...four levels of support help keep PEEC on the up and up." At the bottom, contact information for Katie Bruell is provided.

jump down and gobble their breakfast.

The night scrabbling continued above our heads.

"He's dining on our electric wiring," asserted my husband, grabbing a broom. He banged the end on the ceiling. "Quiet!" he shouted.

Silence. My husband crawled back into bed and promptly fell asleep. The scratching began again. I sighed. But soon, it fell silent. Squirrels are, after all, diurnal. Once comfortable, they sleep at night, whether in a tree or an insulation nest in our attic. Pesky and beautiful, Abert's Squirrels adorn our local forests and, hopefully, will continue to dwell plentifully among the ponderosa pines where we can watch and enjoy them.

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

## PEEC Board of Directors

Bob Walker, President  
Daniel Poretti, Vice President  
Rick Wallace, Secretary  
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Michele Altherr, Jeremy Campbell, Craig Martin,  
Rebecca Oertel, Karla Sartor, Ann Shafer, and  
Hari Viswanathan

## PEEC Staff

Kate Barrere, Gift Shop Manager  
Katherine Bruell, Executive Director  
Beth Cortright, Nature Center Manager  
Jonathan Creel, Director of Interpretation  
Denise Matthews, Educator  
Siobhan Niklasson, Education Programs Director  
Christa Tyson, Volunteer Coordinator  
Sandra West, Marketing Manager

## Inspiring the Next Generation:

*"We all loved getting outside on such a beautiful day. We had a wonderful hike and learned a lot about fire ecology. Thank you!"*

*-High school teacher's response to our fire ecology hike in Bandelier*

## Nature Center Hours:

Monday 10-4  
Tuesday 10-8  
Wednesday 10-4  
Closed Thursday  
Friday 10-4  
Saturday 10-4  
Sunday 1-4

## Visit us online, too!

[www.peecnature.org](http://www.peecnature.org)  
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2600 Canyon Road  
Los Alamos, New Mexico 87544  
505.662.0460  
www.pecnature.org

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*This bobcat visited while the nature center was open on Wednesday, September 7 at 2:31 p.m. Since then, it has returned to hunt in the pond.*

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## FEATURED EVENTS

- Community Night: Parks & Rec. **JAN. 17**  
Backcountry Film Festival **JAN. 26**  
Climate Change Talk **JAN. 31**  
National Geographic: *Before the Flood* **FEB. 7**  
Community Night: Wildlife Photography **FEB. 21**  
Bird Rehab with Sally Fitzgibbon **MAR. 7**
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