Shape the Future

Canyon Chatter

Friends of Madera Canyon Newsletter

April 2024

Volume 2024, Number 4, April

From the President

Contents

Visit Our Website
https://friendsofmaderacanyon.org/

On the cover: The blue-green crust on the rock is a lichen. About 3,600 species of lichens are known from North America. New ones are discovered every year. Lichens are found all over the world. They are found in diverse habitats and climates, from the Sonoran Desert in the Coronado National Forest to the alpine tundra of the Rocky Mountains, and into the neotropical rainforests. Photo by Jim Burkstrand See page 14 for more on Lichens

April 2024

Dave DeGroot, an FoMC docent and retired 5th grade teacher, entertained the crowd at the Volunteer Appreciation Breakfast on March 23, speaking to the topic "Secrets of Madera Canyon." He drew on stories about several of the "secrets" that he had revealed to his 5th graders, an approach that worked well since all of his audience had either once been 5th graders or had known one at some point.

Afterwards, I said to Dave that I appreciated the fact that several of his stories were about comparatively small things, like an affliction suffered by grasshoppers that eventually causes their heads to explode and the critter, usually attracted to mouse ears, getting fooled into actions that result in the pollination of pipevine. There are so many other "secrets" of nature capable of eliciting from 5th graders and those of us who are older---wonder.

In my remarks that day, I noted wonder as well. We who support organizations like the Friends are often thanked, and rightly so, for our contributions of time, talent, and treasure. There is a parallel alliteration that begins with the letter "w": work, wealth, and wisdom.

Work and wealth match up well with time and treasure. Wisdom is something added to talent, and the Friends are blessed with members who willingly share their ideas and reflections about what we do and why.

I added a fourth: wonder. Isn't wonder an attraction for you to Madera Canyon, and hence, to your membership in the Friends? Wonder, sparked by nature's splendor, the sanctuary-like sense one gets when alone on a trail, climbing away from the cacophony of daily life, the connectedness with nature that is available to all of us whenever we take time to notice.

I shared with the audience a note I received from a member of Friends as he sent in a gift to the Friends made by his friend in honor of a third couple:

"Esteemed Friends of Madera Canyon You know this place, how its magic fills the eye, calms the mind, and makes the spirit feel so very good as it captures the heart.

Its banquet of beauty held sweet treats this past Thanksgiving Day, lots of white-tailed deer unhurried and moving gracefully to higher ground, squadrons of blue jays vigilant for the errant crumb or orphaned sandwich, oaks flashing white, their leaves downside up against the wind's fitful gusts.

A long time ago we swapped hearts with this place so that it is always with us.

It is a place cherished deeply which you reflect through your hard work in helping nature and safeguarding its treasures.

Madera Canyon. Good medicine.

Please accept our gratitude and the hope that the Friends of Madera Canyon always find more stars than they can count." (Bob and Hilda Anderson)

Dave's talk reminded us that wonder comes in little packages, too, in ways that engage people of all ages, if we take the time to notice. The Andersons noticed.

So, thank you for responding to your sense of wonder sparked by your experience of Madera Canyon and being a part of the Friends of Madera Canyon.

P.S. Check with Dave about the exploding grasshopper heads and pollination by deception. Both are cool stories.

The Bud Gode Volunteer of the Year for 2023

Colleen Verge is the Bud Gode Volunteer of the Year for 2023. She was recognized at the Volunteer Appreciation Breakfast on March 23.

Colleen's principal avenues of volunteer service have been as a coordinator for the Cleanup Crew that collects trash and cleans ashes from the fire grills in the Canyon picnic grounds (The crew has dubbed themselves Ashers and Trashers.) and as a member of the Canyon Preservation and Maintenance Committee which has embarked on trail maintenance and habitat restoration. She has also volunteered at various venues where the Friends have had an information table, and she was elected to the FoMC Board in January 2024.

Congratulations, Colleen, and thanks!

Friends of Madera Canyon
Scholarship Winner 2024

The Friends of Madera Canyon Scholarship Committee is comprised of David Linn and Barb Fleshman as co-chairs, assisted by committee members Patty Greimann and Doug Moore. Every year, Friends of Madera Canyon offers the Bud and Mary Gode scholarship to a graduating high school senior who attends a public high school along the I-19 corridor area, south of Tucson. Each year, we have a variety of applications which makes the selection difficult at times. This year, our choice was clear from the outset.

The Committee is very pleased to announce Ricardo Buelna, a graduating senior from Nogales High School, has been selected to receive the 2024 Bud and Mary Gode Scholarship award in the amount of $5,000.

Ricardo has demonstrated academic excellence throughout his 4-years of high school, as well as a commitment to the improvement of our environment through his employment with Enviro Manufacturing in Nogales, Arizona.

Upon graduation, Mr. Buelna has a vision of betterment of the environment through improved and sustainable construction designs and methods. He aims to achieve his goal by earning a degree in green construction at Arizona State University where he has been accepted for Fall 2024.

We offer our congratulations and best wishes to Ricardo!

Vounteer Opportunities

FoMC welcomes volunteers to support our mission. Whether you prefer regular commitments or occasional help, we appreciate your contribution. Here are two ways you can get involved:

4th Grade Education Docents

Docents help 4th grade students learn about the natural, physical and cultural attributes of Madera Canyon through field trips along the Proctor Nature Loop Trail in Madera Canyon.

Walks are on Thursday mornings during 4-6 weeks in late March to early May and mid-October to late November. Training provided. FoMC membership required. Contact the FOMC Volunteer Coordinator at FOMCEducation@gmail.com for details.

Special Projects Volunteers

Participate in various projects, from assisting at FoMC booths during festivals to helping with event setup, including Music in the Canyon and other upcoming events. Special events are not on a regular schedule but rely on volunteers when needed. If interested, contact Anita Woodward at awoodw3369@aol.com. Your support is invaluable to us. Please consider joining our dedicated team of volunteers. **Continued on next page**

Help Wanted! There is an opportunity for a member of the Friends to do a great service for us by helping to manage data using your computer. If you are interested, **email Dan White—danwhitehi@gmail.com**

Be an Ambassador in Madera Canyon

The Ambassador initiative, sponsored by the Friends of Madera Canyon, is looking for volunteers. Ambassadors are FoMC members who, when visiting the Canyon, act as a mobile information source. That is, an Ambassador mingles with other visitors dispensing useful tips and facts. The job involves hiking your preferred trails while wearing a Forest Service vest, making yourself approachable to visitors of the canyon. Training in the many features of Madera Canyon will be provided.For questions or to sign up, contact David Linn at linngvrhc@gmail.com.

Inventory the Social Trails in Inner Madera Canyon

Become familiar with the many trails in Madera Canyon. The Friends of Madera Canyon and the Forest Service are looking for volunteers to map the many unsanctioned "social" trails in the inner canyon.

The job involves walking canyon trails and using GPS technology to track these unsightly and unwanted trails for ultimate removal. Training in the use of smart phone GPS apps will be provided.

For questions or to sign up, contact David Linn at linngvrhc@gmail.com.

Trail Maintenance in Inner Madera Canyon

Expand your hiking skills to include trail maintenance in beautiful Madera Canyon. The Friends of Madera Canyon and the Forest Service are sponsoring volunteers to work at improving the trails in the inner canyon. Activities include brushing i.e., cutting away from the trail offending tree branches and bushes, and tread work i.e., improving the foot bed of the trail to reduce erosion and rock hazards. The job involves use of loppers, saws, shovels, and hoes and may be moderately strenuous. All activities will be under the supervision of trained FoMC members. For questions or to sign up, contact David Linn at linngvrhc@gmail.com.

Join the Cleanup Crew at Madera Canyon

Here's your chance to make a difference and make new friends. Help clean up the Madera Canyon every Monday morning by picking up trash, cleaning up grills and more. For more information or to sign up contact Colleen Verge at colleenverge@gmail.com

****

How to join Friends of Madera Canyon

Below are links to join as a new member, renew a membership or make a donation. The links will take you to a secure server to use a credit card or an automated payment. Do you have any questions? Let us know. If you prefer to help by writing a check, please make your check payable to Friends of Madera Canyon - mail to:

FOMC
PO Box 1203,
Green Valley, AZ 85622-1203

A New Membership

Renew a Membership

Donate to FoMC

To the left. FoMC will be participating in the Patagonia May Day. If you have some time to volunteer that day contact Hilary Hamlin at <hcphh@aol.com>

Trail Maintenance gets tool storage

Rusty Lombardo

Did you notice? Unlikely, because unless you are a Preservation and Clean-up or Trail Maintenance volunteer, it is not too obvious. You may have read in previous *Canyon Chatters* about the Friends forming our own Trail Maintenance Crew. Along with the dedicated trail workers comes the addition of necessary special tools to do the work. The challenge, where to store the equipment? The "Ed" (education) Shed was already full and shuttling tools from the Abrego Self-storage facility was not practical. The solution, a re-design of the storage closet at the VIS used by the Preservation and Clean-Up crew. Bruce France, Jerry Sazama and Bob de Feyter got to work and came up with a very clever layout. The shelves, which ran from wall to wall were shortened and racks installed to hang equipment in a vertical configuration. "A place for everything and everything in it's place." Thank you. Great behind the scenes work!

You may have read in previous Canyon Chatters about the Friends forming our own Trail Maintenance Crew. Along with the dedicated trail workers comes the addition of necessary special tools to do the work. The challenge, where to store the equipment?

Education Program

March, 2024, Student Fieldtrip Update

Doug Moore, Education Director

One of the main goals of the FoMC Education Program has always been to get kids outside into the canyon and nature. We always strive to achieve this goal, but it seems like every year-particularly for the spring schedule- getting kids into the canyon becomes more of a challenge.

As the local population grows, there are more schools and many more students. At the same time, declining volunteerism limits the number of students attending a field trip. Dates, transportation, and logistics become increasingly complicated. Also, with our limited "good weather" window for field trips, Spring Break always impacts our March schedule, and the new school obsession with standardized testing preparation often ruins the first 2/3s of April.

Sahuarita High School Biotech student group in Madera Canyon, 3-26-2024

None-the-less, despite these frustrations the FoMC Ed Program continues to get as many kids as we can up to the canyon to enjoy & learn about the nature of Madera Canyon.

14 Biotech students from Sahuarita High School participated in a Proctor nature walk on March 26 for the 2nd year in a row. Biotech is the quantitative, lab side of biology. Getting these kids outside to explore nature enables them to "connect the dots", to discover the natural processes, cycles, and ecology that lie behind their scientific experiments in the laboratory. It gives real-world context for performing lab experiments- like

Docent Julie Porter with her Biotech group at the "Frog Rocks"

how doing gall wasp gene sequencing in the lab can help determine gall wasp species diversity in Madera Canyon.

On March 28, 65 Montessori de Santa Cruz K-8th grade students visited Madera Canyon for a field trip. Thirty 4th-8th graders participated in a Proctor Nature Loop Trail nature walk with the FoMC docent volunteers, exploring the five different plant communities while counting wildflower species and bird watching. The 35 K-3rd graders did their activities up at the White House- a nature discovery walk around the loop trail, various art projects, and outdoor yoga!

April will have another high school field trip at Proctor- the AP Environmental Studies class from Walden Grove HS in Sahuarita. At the end of the month, long-time participating school, Sopori Elementary from Amado, will wind up our spring program schedule. It may be more challenging, but the FoMC Education Program is evolving and still working to get kids into Madera Canyon- "Conservation through Education"!

Ed. Dir. Doug Moore with Biotech students at Proctor

Spring at Proctor Road

Bob Pitcher

It's still early in March as I write this, and you won't be reading it until a month from now. By that time, spring will be well under way in Madera Canyon – perhaps literally in full bloom. It's not yet spring there now, but I'm happy to look forward to the longer days and warmer, dryer weather.

Back in mid-February, I went with Canyon Naturalist Doug Moore on a nature walk around the Proctor Road loop trail. We were a group of seven or eight Friends, out to see what plants might be sprouting – no flowers were expected yet – and what birds might be there. There weren't in fact any flowers, but Doug picked out quite a number of flowering plants coming along that would be in bloom later – this is spite of the recent snow in the Canyon, of which a very few patches remained.

But birds? We didn't see a feather or hear a chirp the entire two hours. To be sure, it was early afternoon, nap time for many birds, but still. Much livelier days of birding are coming! Here, I'll restrict myself to the same Proctor Loop, but big changes are on the way throughout the Canyon during March and April.

March

Not many hummingbirds spend the winter in the lower Canyon, and this year fewer than usual were to be seen even at the feeders up at the Santa Rita Lodge. During March, however, six hummingbird species return in some numbers, and can be seen at Proctor. Some are passing through, Rufous Hummingbirds in particular; but some of the Costa's, Broad-billed, Broad-tailed, Black-chinned, and Rivoli's seen in March will stay in the Canyon to breed, most in the oaks or pines higher up.

Turkey Vultures, which migrate south in the fall, will return in March. Some roost in the Canyon, and may well breed there. But look closely at those you see: Zone-tailed Hawks, which mimic the Vultures, also return in March.

Mourning Doves winter in Arizona, but the White-winged Doves almost all go to Mexico. One, maybe two, stayed around the Lodge's feeders this winter, but that's unusual. They return in force in March, and their rhythmic cooing – which Easterners regularly mistake for the hooting of Barred Owls – will be everywhere.

Two little birds that are sure signs of spring are Bell's Vireo and Lucy's Warbler.

Top. A Turkey Vulture, *Cathartes aura* ,from National Parks Gallery. Bottom is a Zone-Tailed Hawk. Buteo albonotatus. Photography by Alan Schmierr

Bell's is much more frequently heard than seen at any season, but it sings practically all the daylight hours for months on end – or so it seems. There's almost always a pair of these little gray birds where the paved path hits Proctor Road. Lucy's Warbler is also a little gray bird; it prefers the mesquites, and is more readily seen -- and heard -- in March and April.

Late in March, one can expect the three orioles of lower elevations, Bullock's, Scott's, and the Hooded, to start reappearing, Scott's on the grassy Canyon slopes, the other two in the trees. Last year, a pair of Hooded began building a nest in one of the bat houses along the trail but gave it up. Not coincidentally, with the reappearance of so many of the breeding birds in the Canyon in March, Brown-headed Cowbirds can be seen again, perched high up to scout out other birds' nests to lay their eggs in. Orioles are a favorite prey.

Another sign of spring in Madera is the departure of some of the birds that have wintered there. Many of the sparrows – including Dark-eyed Juncos -- the original snowbirds – begin to leave for the north during March, though there are plenty still left at the end of the month. (Sparrows have been reported sparse throughout most of Southeast Arizona this winter, however.) Some of the birds that winter down at Proctor just go back up the Canyon in the spring to breed. The occasional Elegant Trogon, for instance, may stay in the Canyon all winter, and much lower than they should be expected later in the year.

Lucy's Warbler, (*Oreothlypis luciae*) at nest, Photography by Dominic Sherony - CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=42568112

April

In the East and Midwest, spring migration comes with a rush and is at its height early in May. In southern Arizona, migration is more spread out, but April is the high point. Perhaps the most noticeable arrivals are the ten species of flycatcher: Cassin's and Western Kingbirds, the small, difficult Western, Hammond's, and Dusky *Empidonax* Flycatchers, the Dusky-capped, Ash-throated, and Brown-crested *Myiarchus*, the Western Wood Pewee, and the tiny Northern Beardless Tyrannulet (a bird shorter than its name). Altogether, flycatchers are a large and noisy contingent in the Canyon, much missed in the winter.

Gray Hawks reappear in April and may stay to breed. Swainson's Hawk migrate through. At night, the owls are calling, including returning Elf Owls. They're joined by nightjars, Common Poorwills, insistent Mexican Whip-poor-wills (at the upper end of the Proctor loop), and Lesser Nighthawks.

Some mornings the woods are apt to be full of small singing migrants, vireos, warblers, and tanagers, among others. Plumbeous and Cassin's Vireos, found rarely in the Canyon in winter, come through in numbers, with the Plumbeous staying to breed in the upper Canyon and the Cassin's going on north. Warbling Vireos, both migrants and breeders, show up in April as well. The warblers include Yellow, Townsend's, Hermit, Brack-throated Gray, Nashville, MacGillivray's, and Virginia's. A few warblers may spend the winter here, especially the Yellow-rumped, but there are more of all these in April as well. Summer Tanagers and the red and yellow Western also reappear in April, the Summers especially along the creek. With these are the Black-headed Grosbeak, breeding later throughout the Canyon, and the bright Lazuli Buntings.

Gray Hawk, *Buteo plagiatus*. Photography by Alan Schmierr

What sparrows remain after March almost all leave during April and the first part of May, but the scarce Botteri's Sparrow, which may well stay the winter now around the Proctor parking area, stays put and will begin to sing.

April doesn't end migration, of course; some of the Madera Canyon specialties don't show up until May or June: the Sulphur-bellied Flycatcher, which doesn't breed as low as Proctor, is sometimes seen there in May; if we're lucky, a Buff-collared Nightjar may

A Brown-headed Cowbird, *Molothrus ater*. National Parks Gallery

again be heard in May and June farther down Proctor Road; Varied Buntings; and Yellow-billed Cuckoos, the latter endangered in the West, may nest along the creek. Blue Grosbeaks aren't about until May, either, nor are Bronzed Cowbirds; and Swainson's Thrush and Olive-sided Flycatchers, which don't breed as far south as this, migrate through in May.

Lively indeed!

New FoMC Website Launched

Jim Burkstrand

On Monday afternoon, March 11, a "new" website for the Friends of Madera Canyon (FoMC) was launched. The website contains both old and new content. The web address of the Home Page remains the same https://friendsofmaderacanyon.org/

It was designed by Shield Bar Marketing using Divi, a flexible WordPress page builder. The design team was guided by the requirements requested by the FoMC BoD. The new website is still, in some ways, a work in progress. There will be some new pages coming, and some of the sections like Education still need to be revised. But we wanted to get the new site up and running as quickly as we could.

We envision the website homepage as one of the first places a visitor may go to before they actually travel to Madera Canyon. Very early on the home page the reader finds

links to the current weather – both in the lower canyon, as well as on Mount Wrightson.

Just below that are four new sections. We are aware that most people come to Madera Canyon for one of three primary activities: birding, hiking, or simply to explore and enjoy the natural beauty of Madera Canyon. And almost everyone takes photographs these days so there is a section for that along with a POM where you can submit photos. From there, you can quickly go to the activity you want more information on. We intend to keep those pages current with up-to-date articles and information, so come back to the Home Page on a regular basis.

And as we continue to move forward with the website, we would welcome your feedback and ideas. Please address them to us at FOMC.BOD@gmail.com

We envision the website homepage as one of the first places a visitor may go to before they actually travel to Madera Canyon. Very early on the home page the reader finds links to the current weather – both in the lower canyon, as well as on Mount Wrightson.

New Photography Web Page

with a Photos of the Month (POM) site

Jim Burkstrand

Along with the new Home Page that was launched, the website now has a place to share your photos taken in Madera Canyon. The FoMC has instituted two Photo of the Month (POM) sections – one for students, one for anyone else. The Student section is open to anyone in High School or younger. The Rules and Entry Instructions are listed on the page. Students must have parental or guardian approval. See https://friendsofmader-acanyon.org/photography/

To begin with we are accepting photos taken within the last year, and they will be placed in a POM album for the month that they were received. These photos will be shown on a revolving slide show on the webpage, and also on a Flickr page https://www.flickr.com/photos/198518361@N07/albums

In the future, we can envision including articles on shooting photos of various subjects in an outdoor environment like Madera Canyon. And as we continue to move forward with the Photography site, we would welcome your feedback and ideas. Please address them to us at FOMC.Photography@gmail.com

Freddy fungus and Alice algae
took a lichen to each other, but
their marriage was on the rocks.

Lichens

Penny France

You have probably seen the green, crusty lichens living on the surface of rocks in Madera Canyon and walked right on by. These initially unappealing lichens are more interesting than you could ever imagine. Since this year seems to be an especially good year for seeing healthy specimens, now is a perfect time to learn more about them.

It is estimated that about 8% of the earth's surface is covered by lichens and that there are at least 3,600 varieties of lichen just in North America. Lichens constitute the sole vegetation of extreme environments such as the Arctic tundra. They can live in hot, dry deserts and in coastal habitats where fog and water vapor abound. Lichens are successful in colonizing on rocks, on or inside the bark of woody plants, on wood, soil, mosses, leaves of vascular plants (especially in the tropics), and even on other lichens, as well as on man-made substrates such as concrete, glass, metals and plastics and slag heaps. Further, they are considered to be among the oldest living organisms. An arctic species has been dated as being about 8600 years old.

Just what is a lichen? Notice that we haven't called it a plant; it's not a plant. The lichen does not have vascular tissue like a plant's xylem and phloem to move nutrients and water around nor does it have the waxy cuticle like leaves on plants have. The unique characteristic of a lichen is that its life depends on a combination of two organisms—the fungus and the algae. The more numerous fungi cannot produce food but can provide moisture, fight off disease and provide growth functions. Fungi are known for their role in the decomposition of organic matter. The alga partner photosynthesizes and provides food for the fungus so it can grow and spread. Fungi rely on each other to provide life. It's called a symbiotic relationship. There are over 13,500 kinds of fungi in the world.

The name of the fungal species prevalent in a lichen seres is the name given that lichen.

The lichen's general structure is composed of layers of fungus threads and green and/or blue-green cyanobacteria alga that together form the interior of the thallus. The thallus is so integrated into the fungus/alga mix that only recently has it it been studied as a single organism in the lichen. The thallus lies against the substrate and has no clearly defined stems or leaves.

Lichens grow slowly, live a long time, are stress tolerant, and come in many colors and shapes (some even resemble minute forests). The outer layer inside the thallus is the cortex and provides a little protection and color, in some species. The algal layer usually tells us, by color, the kind of alga a lichen has. When dry, it is usually gray or matches the cortex color but, when wet, those cells become transparent, and the algal cells underneath show their color. Cyanobacteria can be a layer under the upper cortex or in small pockets on top of the cortex. If there is a green algal layer already present, it will give the lichen a dark green, brown, or black color. In some lichens however, there are no layers of fungus and alga. The individual components are mixed together in one big uniform layer and the resulting growth form is gelatinous. These types are called jelly lichens—qualifying as a unique shape.

How do lichens attach themselves to a substrate? There are a couple of ways. Rhizomes are fungal filaments that extend out and hold the lichen down to whatever it is sitting on—the substrate. The other way is the "holdfast," an extension of the lichen thallus. Some lichens have a central peg or holdfast that attaches to the substrate—typically a rock—kind of like an umbilical cord.

About one billion people globally eat lichens as part of their diet. They are used to prepare indigenous foods, beverages, spices, and animal feed in various cultures around the world.

Since the fungus can protect its algae, the normal water-requiring lichens can live in dry, sunny climates without dying as long as there are occasional rain showers or flooding to let them recharge and store food for the next drought period. Further, lichens provide a means to convert carbon dioxide in the atmosphere through photosynthesis into oxygen, which we all need to survive.

In recent years, lichens have become more frequent subjects for scientific research. Their unique symbiotic association between alga/cyanobacterium and fungus produce secondary metabolites that offer promising drug leads. To quote an article in an August 2022 Journal of Ethnopharmacology entitled "Lichens: An Update on their Ethnopharmacological Uses and Potential as Sources of Drug Leads": "Natural products are low molecular weight molecules produced by living organisms (plants, animals, and microbes) and have been traditional leads for medicines for ages. They have a historic significance as im-

portant novel compounds which are useful as drugs, models for synthetic/semisynthetic structure modifications and optimization, biochemical and pharmacological probes…”. “Natural product molecules and/or their synthetic modifications, have been particularly useful for chemotherapy of cancer and malaria.” “…introduction of new therapeutic agents has not kept pace with the increase in the evolution of multi-drug resistant microbial strains, making many infections untreatable. There is therefore a dire need for novel drugs.” So that ho-hum lichen we routinely walk by without noticing has something pretty special about it that is well-worth our

attention and appreciation.

Lichen photographs by Jim Burkstrand

References

Adenubi OT, IM Famuyide , L J McGaw, JN Elof, 2022. Lichens: An update on their ethnopharmacological uses and potential as sources of drug leads. Journal of Ethnopharmacology 298 (2022) 115657.

Asplund, J. & Wardle, D.A. (2017) How lichens impact on terrestrial community and ecosystem properties. Biological Reviews, 92, 1720–1738.

Lutzoni F. and J. Miadlikowska 2009. Lichens. Current Biology Vol 19 (13) R502.

Nelsen MP, Lücking R, Boyce CK, Lumbsch HT, Ree RH. 2020. The macroevolutionary dynamics of symbiotic and phenotypic diversification in lichens. Proceedings of the National Academy of Sciences. 117(35):21495-503.

Recognizing the Special Relationship between Friends of Madera Canyon and the GVR Green Valley Hiking Club

David Linn

As former president and hikemaster of the Green Valley Hiking Club and current vice-president of Friends of Madera Canyon, I am in a unique position to acknowledge and value the enduring relationship these two organizations hold. We are linked by our abiding love for the Canyon. We have shared history and values in that we have both been around for a while, with the hiking club established in 1981 and, of course, FoMC was founded in 1987. In fact, the first club hike conducted was up the Madera Canyon Nature Trail.

Our interests have been united in the conservation and maintenance of the Canyon for public recreational opportunities. In mutual pursuit of these goals, we have each repeatedly signed volunteer services agreements with the Forest Service of Coronado National Forest.

The hiking club is probably the biggest consumer of the Madera Canyon bounty with our hikers climbing into the Canyon on a daily basis. And on the Thursday group club hikes Madera's trails are filled with happy hikers enjoying the views, the wildflowers, the birds, and occasional bear sightings. Southeastern Arizona is rich in nearby mountain ranges that are frequently hiked by the club. But Madera Canyon and the Santa Rita Mountains are truly the home range.

The advocacy efforts for a thriving Madera Canyon are and should be a concern for all who participate in enjoying her gifts. The Green Valley Hiking Club and Friends of Madera Canyon will remain linked in that common purpose.

The Editor's Desk

The dangers of being a cold reptile

Reptiles that can emerge from winter dormancy early have access to food and other resources before other species. Some of these species are the abundant Ornate Tree Lizard, the Side-blotch Lizard, the Gopher Snake, and the Western Diamondback Rattlesnake. One species I saw active in early March was the Sonoran Spotted Whiptail. This was surprising because whiptails tend to have body temperatures slightly higher than the other lizards on the list.

The Ornate Tree Lizard, *Urosaurus ornatus*. JCM

Hibernation is a term applied to winter inactivity when animals escape the harsh conditions on the surface. Since 1965, winter inactivity of reptiles has been called brumation but it has received much less attention from science than its equivalent in mammals - hibernation. As ectotherms, reptiles do not rely on metabolic heat production for temperature regulation, and they cannot conserve energy by reducing body temperature regulation (as mammals can). As such, reptiles are characterized by relatively low standard metabolic rates and cannot remain active below the range of body temperatures required for efficient locomotion and digestion. Therefore, like many other ectotherms, reptiles reduce their activity in winter. Although sometimes, at least in warmer regions like Arizona, reptiles emerge to bask or drink on warm winter

Sonoran Spotted Whiptail, *Aspidocelis sonorae, JCM*

days. However, winter feeding is uncommon in reptiles because their digestive system operates poorly at body temperatures below 20°C (68°F), and trying to digest food at low temperatures can prove fatal. In winter, the declining ambient temperature reduces body temperature and metabolic rates. This partly

Gopher Snake, *Pituophis catenifera. JCM*

compensates for the loss of energy intake but makes reptiles more susceptible to predation. A cold lizard or snake encountered by a predatory bird or mammal cannot defend itself.

It is unknown whether brumation is 'programmed' to occur because of an environmental cue, such as a reduced photoperiod (changes in day length with

Hibernation is a term applied to winter inactivity when animals escape the harsh conditions on the surface. Since 1965, winter inactivity of reptiles has been called brumation but it has received much less attention from science than its equivalent in mammals - hibernation.

the seasons of the year), or is a direct result of declining temperatures, inactivity, and fasting. When conditions are favorable, many brumating reptiles have a high capacity for winter activity.

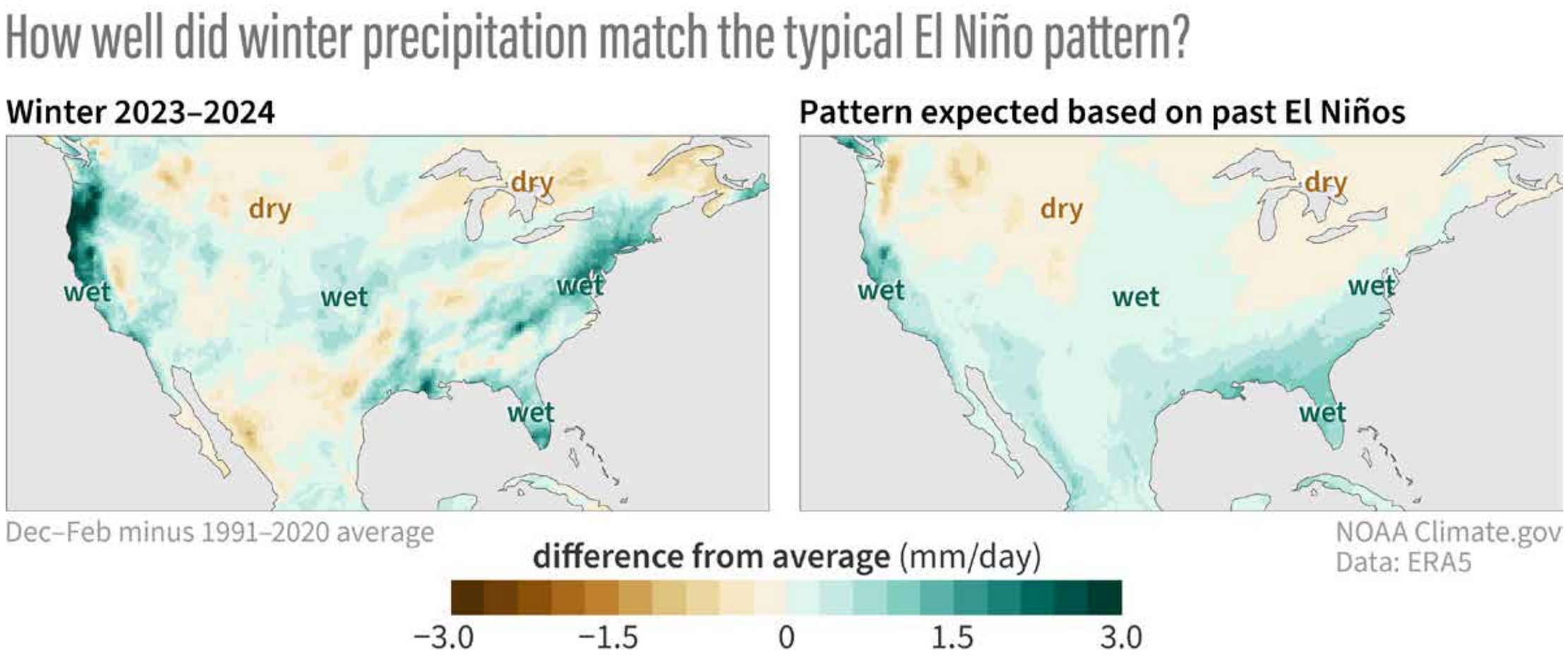
The reptiles you encounter on a warm winter day may be pushing the boundaries of activity at lower temperatures and responding to something other than just temperatures.

References

Dubiner S, Jamison S, Meiri S, Levin E. 2023. Squamate metabolic rates decrease in winter beyond the effect of temperature. Journal of Animal Ecology 92(11):2163-74.

Mayhew, W. W. (1965). Hibernation in the horned lizard, Phrynaosma mcalli Comparative Biochemistry and Physiology, 16(1), 103–119.

The Last Page



The precipitation difference from the average for this past winter (Dec-Feb 2023-24) (on the left) and the geographic pattern of precipitation expect for this past winter based on past El Niño winters from 1952-2022. The precipitation pattern for this past winter is a reasonably good match to the El Niño pattern. NOAA Climate.gov image, based on analysis by Nat Johnson.

A strong El Niño occurred this winter, as NOAA had forecasted since issuing an El Niño Watch in April 2023. El Niño is considered unofficially "strong" when the Oceanic Niño Index (ONI) exceeds 1.5 °C (2.7 °F), and the ONI value for this past December – February was well above that threshold at 1.8 °C. **For more on the 2023-2024 climate** **see this article by Nat Johnson.**

Send comments, articles, & announcements to:
Friends of Madera Canyon Chatter Editor
email: FOMC.Chatter@gmail.com