

Shape the Future

Canyon Chatter

Friends of Madera Canyon

September 2024



Mexican Passion Vine, *Passiflora mexicana*, two blooms and an ant.
Photography Doug Moore

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Web Site Announcements

Photography

We now have an Instagram page where you can share your photos of Madera Canyon. To contribute photos to Instagram, share them with **#friendsofmaderacanyon** from your account. We have also loaded new Photos of the Months to our Flickr page for July and August. <https://www.flickr.com/photos/198518361@N07/albums/72177720319785029>
The August photos were taken after some of the Monsoon rain. <https://www.flickr.com/photos/198518361@N07/albums/72177720319767436>

Education

The Education page and content are undergoing a major revision. We will be sending out an announcement in the next month or so, and you will find it exciting. In addition to new Education content, we will also introduce a new "Search" function that will enable you to more easily find topics of interest.

VISIT OUR WEBSITE

<https://friendsofmaderacanyon.org/>

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

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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:

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From the President

Making a Habit of Helping

A few years ago, during the changing of the guard, Rusty Lombardo, past President, the Board of Directors, as the incoming President, I created a new category of membership in the Friends, Youth Naturalist Groups. The idea was to bring into the circle of volunteers and friends groups of young people who would become part of the cadre of women and men whose volunteer efforts are the backbone of what the Friends do.

Scout Troop 247 was the first. Sometime after the troop became members, their Scoutmaster, Terrence (Terry) Donnelly, was elected to the FoMC Board. Even before Terry, joined the Board, though, troop 247 was demonstrating that they have a well-developed habit of helping like doing litter patrols that softened the task of the FoMC Monday Clean Up Crew aka “the ashers and trashers”. They even voted to change the numeration of the troop to 247 to reflect their commitment to helping 24 hours a day, seven days a week.

The troop’s “formal” accomplishments as FoMC members in the Canyon began with their work on two projects. With oversight by Rusty Lombardo, President Emeritus and under the watchful eye of Terry, fellow Scout leaders and chaperones the first was to replace the plexiglass covering two bulletin boards—one at Proctor and one at Wrightson Picnic area—that had deteriorated over time to the point where anything posted was hard to read. The second was to replace some of the slats on benches along the Proctor accessible trail that had broken for various reasons.

Coincident with those efforts was the removal of graffiti from boulders in the Canyon, a task led by one scout for whom the work might lead to an Eagle Scout project.

The most noticeable work accomplished by troop 247 is the stucco and paint work performed on the Visitor Information Station. Weather had taken its toll, particularly on the east side of the building. Following Forest Service expectations in terms of materials and paint, the troop’s accomplishment filled a need that had existed for some time.

Next up: there are information signs at intervals in the Proctor parking area where the posts holding the signs are showing signs of deterioration and rot. When the weather cools, our Youth Naturalist Group Troop 247 will get to work replacing the posts.

So, when you are enjoying the Canyon, you just might be benefiting from the fruits of Troop 247 making a habit of helping.

If you did not know, the name Boy Scouts of America after a 114 year run was rebranded this year as Scouting America welcoming all (genders). Scout Troop 247 is comprised of primarily of young women.





The Birding Report

POISONOUS BIRDS?!

Bob Pitcher

Last month, I wrote about the Yellow Grosbeak (*Pheucticus chrysopheplus*), a rare Mexican species seen occasionally in Madera Canyon and other places in southeastern Arizona, mostly in the summer. In the course of researching that piece, I came across a source which indicated that the Yellow Grosbeak belongs on the short but growing list of poisonous birds!

I should say at once that “poisonous” here means bad or dangerous to eat or touch, not venomous, like rattlesnakes or Gila Monsters. So far as is known, there are no venomous birds. Among other things, no bird would seem to have the means to inject or otherwise deliver venom – no fangs, in fact no teeth at all.

The news on the Yellow Grosbeak comes from a study performed by ornithologists in Guatemala, at the southern end of the Grosbeak’s range.¹ Led to it by the bird’s strikingly bright coloration – a frequent sign of poisonous animals seeking to deter predators – and after interviewing locals that told them the Grosbeaks “tasted bad,” the scientists prepared an extract of Yellow Grosbeak feathers suspended in methanol, and tested it on brine shrimp, a species known for its tolerance of methanol. A lot more brine shrimp exposed to the extract died than those that were exposed to methanol without the extract, and the study concludes that the Grosbeak feathers contained a toxic substance, and that the birds were “chemically protected.” It also notes carefully that no birds were hurt by the experiment.

This study didn’t go further; there was no attempt to determine the nature of the toxin or if, the birds manufacture it themselves or derive it from their diet. The study does conjecture that the poison may serve to deter ectoparasites such as birdlice as well as potential predators of the Grosbeaks – such as, evidently, hungry Guatemalans.



The authors also conjecture that two other bird species in the area might perhaps benefit from the Grosbeak's toxicity and coloration. Those are the Spot-breasted Oriole (*Icteria pectoralis*) and the Streak-backed Oriole (*I. pustulatus*). These are the common orioles of the area, closely related to one another, but in a different family from the Grosbeak. Both are brightly colored orange and black birds, and roughly the same size as the Grosbeak. The study suggests further research might indicate these birds' plumage may be the result of mimicry of the Grosbeak. (For what it's worth, I think this is far-fetched. While it's possible that these orioles may closely enough resemble the Grosbeak in predators' eyes to derive some benefit from the fact, both conform to the basic bright orange and black patterning of nearly all the other New World orioles.)



Streak-backed Oriole, *Icterus pustulatus*, el Coco Beach, Costa Rica. Photograph by Emmanuel Miranda-Steiner.

The original uploader was Emmanuel Miranda at English Wikipedia., CC BY-SA 2.5 <<https://creativecommons.org/licenses/by-sa/2.5>>, via Wikimedia Commons

Forty years ago, no poisonous birds were known – to science, anyhow. The first to be discovered, and still evidently the best known, is the Hooded Pitohui of New Guinea (*Pitohui dichrous*), a medium-sized forest bird colored somewhat like a New World Oriole, and with a reputation among local New Guineans as a bird not to be eaten – or not without “special preparation,” say some sources. And no wonder: the Pitohui has been found to store in its skin a poison very close to that found in the deadly Poison Arrow Frogs of South America! Pitohuis are nowhere near as dangerous as the frogs, evidently, but the similarity of the toxins, and the fact that the birds seem to come by their poison through eating a certain type of beetle, leads to speculation that the frogs might derive their poison from a similar source.



Hooded Pitohui (*Pitohui dichrous*) YUS Conservation area on the Huon Peninsula, Morobe Province, Papua New Guinea. By Benjamin Freeman.

By Benjamin Freeman - Published with author's permission, CC BY 4.0, <https://commons.wikimedia.org/w/index.php?curid=89364943>

Discovery of the Pitohui's toxicity in 1992 has led to investigation of other birds with either bright colors and a reputation for tasting bad or with some anecdotal indication of toxicity. The list of further discoveries has grown to at least twenty,² and these belong to extremely varied species and



geographical areas. Among them are several more New Guinea perching birds, the Spur-winged Goose of Africa (*Plectropterus gambensis*), several species of Bronzewing Doves (genus *Phaps*) in Australia, and the Eurasian Common Quail (*Coturnix coturnix*). Some of these birds are poisonous only seasonally, due to variation in their diet. This seems to be the case with the Quail, though the dietary link remains mysterious. So does coturnism itself – that is, poisoning by quail -- which, although rare, is sometimes fatal, and has been reported since ancient times – by Greek and Roman authors, and in the Bible. See Num. 11:31-35.

So far, only two poisonous birds other than the Yellow Grosbeak are New World species. These are the Red Warbler (*Cardellina ruber*), a striking Mexican species, and the Ruffed Grouse (*Bonasa umbellus*), widely distributed in this country. The latter's toxicity is both dietary – stemming from birds eating the buds of Mountain Laurel (*Kalmia latifolia*) – and seasonal. It's said that regulated grouse hunting has eliminated whatever problem there may have been in this respect, since the legal hunting season doesn't fall during the winter when the birds can be toxic.

Will more poisonous birds be found? Almost certainly, particularly if the term is extended to all those that are “chemically protected,” that is, that taste bad to predators or parasites or both. Let me suggest one such species, which brings us back very near where this began. Closely related to the Yellow Grosbeak is the Black-headed Grosbeak (*Pheucticus melanocephalus*), very common in Madera Canyon during the warmer months. At some seasons the Black-headed has been observed eating Monarch butterflies (*Danaus plexippus*). Few other birds will eat Monarchs, which feed primarily on milkweeds, which are toxic, and from which the butterflies derive a dietary toxicity. The same observations of the Grosbeak, however, indicate that after a good meal of Monarchs, a Black-headed will desist



Spur-winged Goose (*Plectropterus gambensis*) between Swellendam and DeHoop Nature Reserve, South Africa

By Dick Daniels (<http://carolinabirds.org/>) - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=12014090>



The Red Warbler has had toxins extracted from its feathers. Photo by Francesco Veronesi.

<https://photos.google.com/photo/AF1QipNFcSMQf0eyj42O13nl8ID-0DJEjRkVxGdwW4hBO> Francesco Veronesi from Italy, CC BY-SA 2.0 <<https://creativecommons.org/licenses/by-sa/2.0/>>, via Wikimedia Commons



from eating more of them for eight days, presumably to let it flush out the poison it's accumulated. During that time, is the bird "chemically protected" from predators and parasites – that is, poisonous?



Flowers of the Mountain laurel. This tree is widespread in North America and considered an ornamental plant. Yet, virtually all parts of the tree contain cyanide. Cytisine is the main alkaloid in the plants of the Faboideae sub-family of the Fabaceae . Mountain Laurel and its relatives contain cyanogenic glycosides. These compounds are hydrolysed by an enzyme to produce hydrogen cyanide (HCN). In intact plant material the cyanogenic glycosides are separated from the enzyme, and it is only when they come into contact as a result of grinding, chewing, crushing, wilting, freezing or digestion of the plant that hydrolysis occurs.

Photo by Arx Fortis at the English-language Wikipedia, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=44941690>

1. E.M. Andrade-Zuniga, *et al.*, "Toxicity of the Feathers of Yellow Grosbeak, *Pheucticus chrysopheplus* (Passeriformes: Cardinalidae), a Chemically Defended Neotropical Bird," *Rev.Biol.Trop.* 66:4, Oct./Dec. 2018. Available on-line here: https://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S0034-77442018000401530.
2. See, R. Ligabue-Brown, *et al.*, "Poisonous Birds: A Timely Review," *Toxicon* 99 (2015), available on-line here: <https://www.sciencedirect.com/science/article/abs/pii/S0041010115000884?via%3Dihub>.



They say that in today's real time world the adage 6 degrees of separation has shrunk and is now 2.

By Rusty Lombardo, President Emeritus

Nothing could be closer to the truth than an experience I had recently. It started simple enough, we received an inquiry through info@friendsofmaderacanyon.com from a fellow interested in purchasing several copies of *The Nature of Madera Canyon* authored by our education director Doug Moore. It so happens that this fellow, Steve Grace, is the grandson of Patsy Proctor, a founder of the Friends. Patsy Proctor wrote the forward for the book. Steve, now a guide for Naturalist Journeys, <https://www.naturalistjourneys.com/>, led a birding trip to SE AZ recently and wanted participants to enjoy a copy of *The Nature of Madera Canyon*. He asked if Doug was still around and if he would be willing to sign the books. Doug was of course very accommodating and so here we go: Doug had taken trips with Naturalist Journeys.

Books ordered, Steve mentioned he now resides in Washington state and would send a check. Well, we lived in Washington for 30 years, so you know my next question. As it turns out, Steve resides in Port Townsend, WA, a favorite sea kayaking area of mine. I mentioned to him that our youngest son was married in Port Townsend on a schooner named Adventuress.



The *Adventuress* was built in Maine in 1913 and for a long time was a workboat for the San Francisco Bar Association and during WWII was commandeered by the US Coast Guard patrolling San Francisco Bay. She wound up in Seattle in the early 1950's and in 1988 began a new life with Sound Experience, a non-profit fostering the Puget Sound biome.

Enter Dan Lombardo, our son, an aspiring marine biologist. Dan chose to give back to the community volunteering aboard, passing his knowledge on to countless young people. Dan went on to graduate at the top of his class in 2014 at the University of Washington in marine science. But this was 2006, he wanted a wedding at sea and Sound Experience granted him the honor of holding the first wedding on *Adventuress*. It was a grand event with sea shanties sung at the rehearsal dinner and a "3 hour tour" pirate wedding on the water, officiated by the bride's father dressed as the Skipper from Gilligan's Island. I could go on and on about the wedding, but let's leave at "conformity is no virtue". We had one of the best times of our lives!

Let's get back to closing the 6>2 degree gap. Steve Grace currently sits on the Board for the non-profit Sound Experience. He mentioned a few of the captains now active both served at the time as deck hands with our son.

He also knew John Lockwood, a kayak designer in Port Townsend that drew the plans for my sea kayak. What a small world!



Steve has re-read *The Nature of Madera Canyon* and with the exception of a few updates from 1999 like birds and plants renamed, found it to be as an excellent resource now as it was when first published.

He shared with me an article profiling the book in the Green Valley News in November of 1999. It is here for you to enjoy (see below).

Steve did return to Madera Canyon after a 20 year hiatus. I was able to join him, his fellow guide Vernie Atkins and a group of birders from the Northeast to walk the Proctor (Accessible Nature) Trail. In addition to some great Flycatcher sightings we were fortunate to see tree frogs along the creek. It was a pleasure to share with them the splendor of Madera Canyon and the contributions the Friends have made to preserve this special place. We reflected at the Proctor Ramada and the Honor Wall. They departed on the remainder of their journey understanding the joys of nature that so inspired Steve's grandmother Patsy,

New book provides intimate portrait of Madera Canyon

**By Kathy Eagle
Green Valley News**

The good news on the local publishing front is that there's a new book coming out on Madera Canyon, published by the Friends of Madera Canyon.

Called "The Nature of Madera Canyon" the book gathers together information from numerous sources and original investigation to provide an intimate and detailed portrait of the canyon and surrounding regions, said Patsy Proctor, president, Friends of Madera Canyon.

The book covers geography, climate and geology, the Sky Island concept, plants, animals and ecology in the canyon, native peoples and recent history.

The text includes 65 color photos, 23 black and white photos and inkwash illustrations and a list of minerals.

There's also a species list of over 550 plants, 240 birds, 80 mammals and 70 amphibians

and reptiles.

It's published in soft-cover and is expected to be available at The Book Shop in the Green Valley Mall or directly from Friends of Madera Canyon the first week in December, in time for Christmas, Proctor said.

The book will be sold at cost with proceeds used for the Friends' educational and service projects in the canyon.

The text is written by Douglas Moore, with illustrations by his wife, Laurie Moore.

"We've been at it for two years," said Proctor, regarding research on the book.

"Doug spent many days and nights in the canyon doing original research and gathering materials from other sources. All information has been checked by experts at the University of Arizona or other prestigious institutions," Proctor said.

Douglas Moore is a professional wildlife illustrator and writer whose previous works include an illustrated book on the

Grand Canyon and other national parks, Proctor said.

"The intent of 'The Nature of Madera Canyon' is to gather together the bits and pieces of Madera Canyon observations and information recorded in many different places and to push the original investigation a little further," Proctor said.

"Though not a field guide, it is intended to broaden the perspective of the casual visitor and serve as a reference point for the specialist."

Proctor said the origin of the book goes back to 1988, when she and FOMC member Betty Lane responded to a request from the Forest Service.

"We met two busloads of school children at the entrance to Madera Canyon. With no equipment and little planning, we shouted canyon natural history to 80 elementary students cued up along the Proctor Loop Trail.

"At the end of the ordeal we hoarsely whispered to each other,

"We have got to get organized!"

That was the origin of the docent program of the Friends of Madera Canyon which resulted in regular, narrated walks for area schoolchildren.

Several years later, the popularity of that program led to a teaching manual, written by Douglas Moore, intended to make the nature walks more valuable for children.

The manual was published in 1996 and given to each teacher prior to bringing a class to a FOMC study tour, Proctor said.

"As a natural outgrowth of requests to buy our teachers' manual, the new book "The Nature of Madera Canyon" omits the lesson plans and activities while expanding the general information," she continued.

"Both the manual and this book have grown out of the experiences of the Friends of Madera Canyon docents, of which...the author Douglas Moore, has been an active and inspirational leader," she said.



a founder of the Friends and the first docent for the youth education program that is still so very active today (she recruited Doug).

The author (right) and Steve Grace.



Steve Grace at the Memorial Wall.





Late Summer Hiking

David Linn

Is it starting to cool down a bit, or is that just my imagination? I hope not. It has been hot enough the last few months to dampen interest in any strenuous activity in the Canyon.

I believe that will soon change, making hiking more comfortable. A hike to consider in the Canyon is the Nature Trail. It is a moderately easy hike, 1.8 miles one way with a five hundred feet elevation gain. Two trailheads make it accessible from either the Amphitheater parking lot (with the new toilet) or the first parking lot in the Round-Up/Wrightson Picnic area.

This hike is distinctive in two ways. The first is that the trail is annotated with many signs identifying local trees, shrubs and grasses. Interesting stuff. The second, and more significant to me, are the magnificent views that it offers of the Santa Ritas. From one view point you can see the entire eastern ridge of the mountains including Mt Wrightson, Mt Ian, and Pine Saddle.

So, check it out. Start early, bring plenty of water and ideally do not hike alone.





Education

Education Director D. Moore

Education Program: August, 2024

Summer weather was a major player in FoMC Ed. Program activities in August. Fears of heat, humidity, and potential thunderstorms affected participation.

On August 2, the annual La Posada Bug Night was cancelled. FoMC/La Posada member Bob Coder & I were already setting up at White House when the cell call came in to “pull the plug”. From La Posada it looked like a thunderstorm might brew up over the canyon. Turned out to be a false-alarm, but better safe than sorry- safety first!

Only one sign up for a White House to Madera Picnic nature walk on Saturday, Aug. 17, so the location was changed to Proctor Nature Loop Trail. Only one more person signed up, but we went anyway. You don’t pass up an opportunity to experience canyon nature during the summer monsoon! As anticipated, the morning was gorgeous and the walk eventful with many interesting plants, birds, butterflies, and many cool “monsoon” insects. NOT a morning to miss!

On Aug. 24, I lead a group of botany enthusiasts on our Arizona Native Plant Society annual canyon plant walk. We started up Super Trail, then took the “middle fork” of Madera Creek up into the pine/oak woodland. The wildflower show and overall plant diversity was spectacular! The group identified dozens of species of plants, from tiny flowering annuals to towering canopy trees. Among the many highlights, succulent rosettes of Bartram’s Stonecrop- one of Madera Canyon’s particularly special plants- were located in habitat. The birding was good too! Always a joy to go out with the enthusiastic AZNPS crew who know their plants!





1) Bartram's
Stonecrop, *Graptopetalum bartramii*



2) Coral Bells, *Heuchera sanguinea*, in
full flower amid moss and lichen





A New Sky Island Tarantula from the Chiricahua Mountains

The Chiricahua Mountains in southeastern Arizona are renowned for their exceptional biodiversity and high levels of endemism. Chris Hamilton from the University of Idaho and colleagues (2024) discovered a remarkable new tarantula species from the Chiricahuas. *Aphonopelma jacobii* inhabits high-elevation mixed conifer forests, a habitat shared with *A. chiricahua*—a relative of the *Marxi* species group. Both occur in mid-elevation Madrean evergreen oak and pine-oak woodlands. This is the first documented case of syntopy. That is, two species share the same habitat at the same time. The two tarantulas in the Madrean Archipelago add to our knowledge of this threatened region’s unmatched tarantula diversity in the United States. The DNA analyses reveal that *A. jacobii* is more closely related to *A. marxi*, a species primarily distributed on the Colorado Plateau, than to *A. chiricahua* or the other Madrean Sky Island tarantulas. The new species raises the number of US tarantula species to 30. The discovery provides the evolutionary framework for a better understanding the region’s complex biogeographic history and the conservation of these interesting spiders. JCM

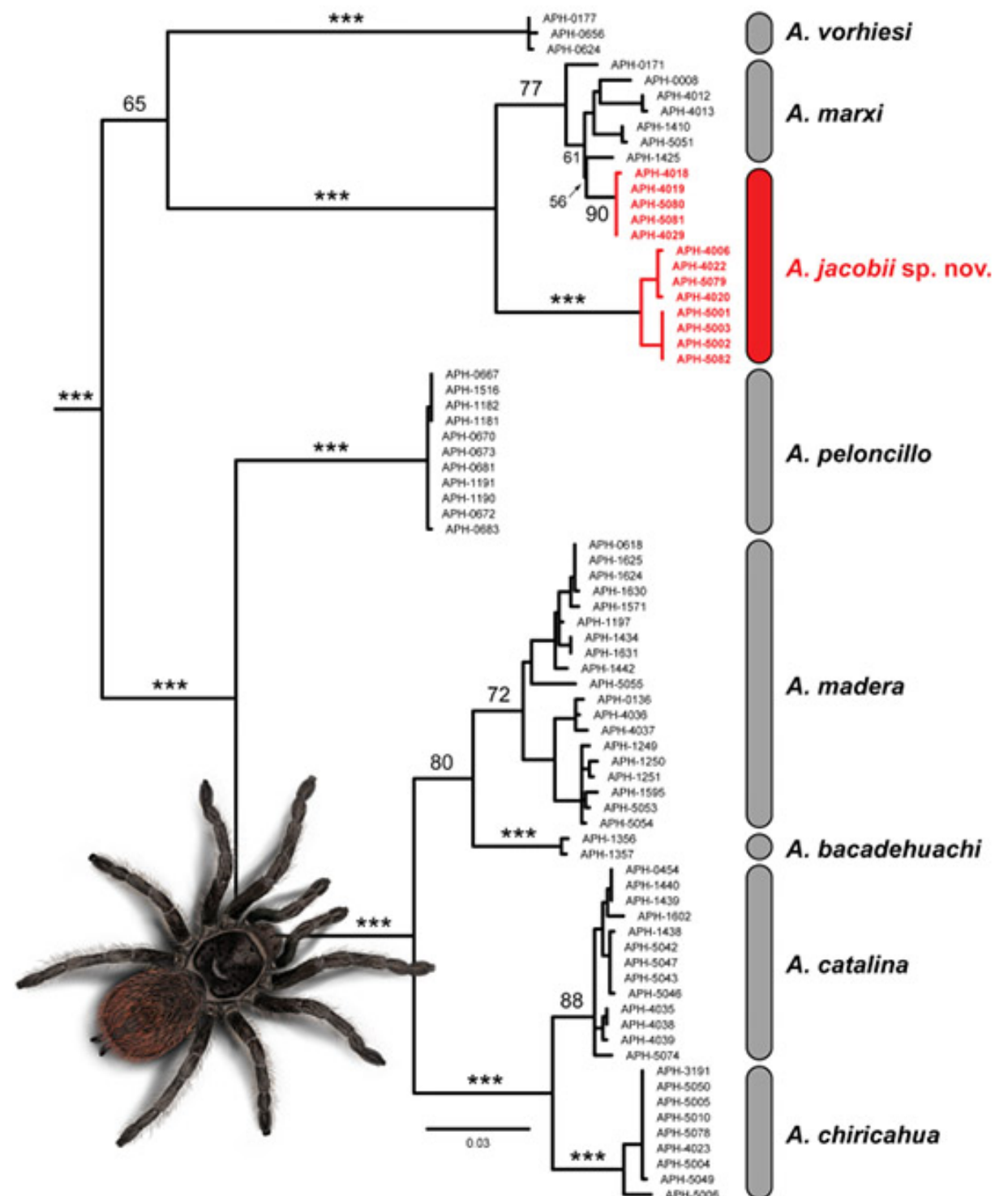


Figure from Hamilton et al. Maximum likelihood phylogeny of the *Marxi* species

group based on the mitochondrial gene cytochrome oxidase c subunit I (COX1). The red clades highlight the diphyly of *Aphonopelma jacobii*. Bootstrap node support values are indicated along branches of interest (***) indicates branches supported with values ≥ 95).

Citation

Hamilton, C.A., Hendrixson, B.E. and Bringas, K.S., 2024. Discovery of a new tarantula species from the Madrean Sky Islands and the first documented instance of syntopy between two montane endemics (Araneae, Theraphosidae, Aphonopelma): a case of prior mistaken identity. *ZooKeys*, 1210, pp.61-98.



The Editors' Desk

The Predicament

"Do not put faith in traditions, even though they have been accepted for generations... Do not believe a thing because many repeat it... Believe nothing merely on the authority of your teacher and priests." Be aware and seek oneness with nature.

The Buddha

Environmental literature often romanticizes the idea of humans as an integral part of nature, suggesting that everything we do is inherently positive and natural. This perspective, while appealing, is deeply flawed and simplistic, as it fails to acknowledge the complex dynamics of human dominance and the ongoing conflict with the natural world. The prevalent human identity is characterized by a sense of entitlement and superiority, fostering a worldview where humanity sees itself as the rightful ruler of the planet.

This anthropocentric mindset, bolstered by advances in technology and innovation, has allowed humans to not only reflect on their perceived exceptionalism but also to amplify their capacity to exploit and subjugate the natural environment. The narrative of human supremacy has dire consequences, manifesting in climate change, habitat destruction, and the accelerating extinction of species. The dominant human is, paradoxically, both a product of nature and increasingly alienated from it, moving on a trajectory that diverges from the natural world. To mitigate the existential threats we face, it is imperative to critically examine and deconstruct this dominant human identity that is driving ecological destruction.

Placing climate change as the sole or primary issue often distracts from the broader and equally pressing crisis of mass extinction that is rapidly unfolding. By reframing our approach to environmental issues and prioritizing the protection of the natural world, we can begin to align human activity with the processes of ecological recovery. This shift in perspective is essential if we are to truly reintegrate ourselves with nature and chart a sustainable future. Only by contracting our impact and working in harmony with nature's rhythms can we hope to transcend our destructive tendencies and forge a new path toward a more balanced and integrated existence within the natural world. JCM

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2nd Annual

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Wind Scorpion, *Eremobates angustus* Muma 1951
(Family Eremobatidae)

Wind Scorpions also go by the names sun spiders and camel spiders, but they are neither scorpions nor spiders. They are solifugids. The holotype of the species *Eremobates angustus* is a male from Santa Cruz County, Arizona - Madera Canyon, Santa Rita Mountains. It was collected on 16 July 1940 (Gertsch and Hook collectors). The species' US distribution is in Arizona, New Mexico, and Texas. About 2 inches long, these fast-moving arachnids have the largest jaw size-to-body ratio of any animal. They are not venomous but have a remarkably powerful bite. Often hunting at night, they have poor eyesight and navigate mostly using a pair of pedipalps. They are solitary creatures, coming together only to mate, the male using his pedipalps to transfer sperm to the female. A clutch of 50 to 200 eggs is buried in the ground. The female stays with the young until they are mature enough to hunt and defend themselves, feeding and caring for them. Species of the genus *Eremobates* are generally found in Canada, the western United States, and south into Mexico. Photo JCM

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

