



Shape the Future

Canyon Chatter

Friends of Madera Canyon

April 2025



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On the cover. The Pipevine Swallowtail or Blue Swallowtail, *Battus philenor*, is occurs in [North America](#) and [Central America](#), and is black with iridescent-blue hindwings. Caterpillars are often black or red and feed on compatible plants of the genus [Aristolochia](#). They are well-known for sequestering acids from the plants they feed on to defend themselves from predators. The stored acids make the insect poisonous when consumed. The adults feed on the nectar of a variety of flowers. Some species of [Aristolochia](#) are toxic to the larvae, typically tropical varieties. While enthusiasts have led citizen efforts to conserve Pipevine Swallowtails in their neighborhoods on the West coast, the butterfly has not been the subject of a formal conservation program or protected in legislation. The butterfly is a species of "Special Concern" in Michigan, on the Northern limit of its range. Photograph, Ed Freedman.

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:

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Links

A NEW MEMBERSHIP - RENEW A MEMBERSHIP
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From the President

Another Endowment in our Future?

The Friends of Madera Canyon should build another endowment. Some years ago, Bud and Mary Gode established the first endowment for the Friends, the one that supports the Gode Scholarship Fund. Now we need to consider an endowment big enough so that the operations of the Friends, perhaps even including specific projects, can be funded from the Friends' own resources.

Over the time the Friends have existed, federal funding for the Forest Service operation in the Coronado National Forest, which includes Madera Canyon, has fluctuated, depending upon the political climate in Washington D.C. Currently, it is safe to say, there is vast uncertainty about the federal budget, but one outcome so far is that, for all of the Coronado, there is only **one employee** whose job focuses on recreation.

When the Friends are awarded grants for projects like the replacement of the fire grills, it is Forest Service personnel who supervise the installation rather than someone hired with grant money to do so. Fewer Forest Service personnel who work with the Friends on projects has a negative effect on what the Friends can do. Can we envision a time when, because the Friends have their own revenue stream from interest earned on an endowment, projects can proceed because the Friends have the funds to provide the service once contributed by the Forest Service?

My experience as Board President and the experience of some of my predecessors is that, to be an effective President, a person needs to expect to spend an average of 55-60 hours a month on Friends' business. This is in addition to the accounting work done on behalf of the Canyon and the monitoring of membership and gift contributors. Other non-profit organizations like the Friends have addressed their needs by paying for services now done by volunteers. Furthermore, there is a trend felt by most every non-profit of fewer volunteers being available. How do we ensure that the Friends will be able to meet the goals of its Strategic Plan which, of course, are focused on activities supporting the "preservation, conservation, and restoration" of the Canyon?

The Friends have benefited from the generosity of corporations and foundations whose funds have enabled us to caretake the infrastructure of Madera Canyon that the Forest Service, because of its unpredictable levels of funding year to year, finds difficult to do. It is hard to find a place in the Madera Canyon Recreation Area that has not been improved as a result of Friends' activities. What happens when other aspects of the infrastructure, like bridges over Madera Creek, need work? Who will fund? Who will supervise the work?

Building our own endowment allows the Friends to continue its work in support of the Forest Service on behalf of Madera Canyon in the face of uncertainty about federal, corporate, or foundation funding.

Getting started: Develop a plan. Among our membership, there are people with successful experience in planning and operating a campaign. That expertise will be useful to us. Our plan will use the Mission Statement and the Strategic Plans as lodestars for our efforts and establish the case for endowment. If you have experience and would like to add your ideas, please do not hesitate to contact me.

Past experience tells us that giving will come in a variety of forms: cash gifts; gifts of appreciated stocks; contributed Required Minimum Distributions; life insurance policies; provisions in trusts and wills; charitable remainder trusts; and so on.

Building another endowment is ambitious. There is much work to be done to be ready to ask for such support. Will we succeed? We won't know until we try.

Dan White
April 2025

Help is needed on EASTER!!!

Help is needed on EASTER!!! It's the busiest day of the year in the Canyon, and often it gets so full that we need to close access for part of the day. So we do things very differently on Easter, and this year, because of the government cuts, we don't have the Forest Service personnel we usually have to help.

We need people who can help park cars for two hours in the Proctor lot from 7:30 a.m.-10:00 a.m., 10-12 and 12-2 p.m. This involves being on your feet and moving about most of the whole 2-2.5 hour shift. If you can help, please contact Anita Woodward via text or voicemail at 216-631-1852, or by email at awoodw3369@aol.com.

Awards

2024 Volunteer of the Year

Each year, the Board of Directors selects a volunteer to receive the Bud Gode Volunteer of the Year Award. For 2024, they selected Rusty Lombardo. Below is part of my introduction of Rusty at the Volunteer Appreciation Breakfast on March 22.

Rusty's involvement began with volunteering at the Visitor Information Station which he still does as a fill in. He became a member of the Board of Directors, then Vice President, then President for four years. His leadership brought the Friends through COVID, and we know the impact the pandemic had on many organizations. Rusty championed going to an electronic format for notices, events, the Canyon Chatter, and balloting.

The last accomplishment of his term as President was the restoration of the hill above the Roundup or Wrightson Parking Lot, an effort that involved 40 separate non-profit and for-profit entities to complete. That work continued the proud history of the Friends being stewards of the Canyon in significant ways.

He's not through. If you receive an eblast, he's the blaster. If you read NABUR notices about the Friends, he's the author. He works with Terry Donnelly and the scouts of Troop 247, with me on the project to replace benches between Proctor Road and the Madera Picnic Area, with Bob Proctor on the Protection Initiative, and he co-chairs the Honor and Memory Wall Committee. He's any President's dream predecessor because he is always available when I have a question. I have often quoted a comment he made as he and I left a 247 meeting, one that captures his love of Madera Canyon and his wisdom about what any of us can do to improve our world. "We may not be able to make a noticeable difference on the planet, but we can make a profound difference in the four miles of our beloved Madera Canyon."



FoMC President Dan White and Volunteer of the year Rusty Lombardo.

Other Nearby Friends

Mike Foster, the interpretive host at the Carr House Visitor Center in Carr Canyon, south of Sierra Vista, spoke at the Volunteer Appreciation Breakfast on March 22 about “Edible Plants in the Coronado National Forest.” Most of us in attendance were surprised at how rich the Sky Islands and Sonoran Desert are with natural food sources. Of course, this fact is well-known by the indigenous people who came before us.

Mike has invited FoMC members to arrange visits to the Carr House Visitor Center to facilitate interaction between the Friends of Huachuca Mountains and FoMC. The Friends of Huachuca Mountains sponsor potlucks in the Spring as gatherings of their supporters, and Mike has extended an invitation for FoMC to participate.

Synchronistically, Hilary Hamlin made contact at the Tucson Festival of Books with the Friends of Ironwood National Forest Monument. They, too, have invited interested folks from FoMC to visit Ironwood for a tour.

Interactions between Friends groups, each dedicated to their own piece of SE Arizona nature, holds promise as a great way to discover others who share with us a love of the land. We will be sure to pub-



Mike Foster from Carr House Visitor's Center

Volunteer Positions Open **STOP! LOOK! LISTEN!**

Now recruiting a two-person team to fill BROCHURE BOXES in the Canyon; on Friday; every eight weeks. A piece of cake.

You and your partner pick up the Brochures in the VIS; check and replenish the WELCOME, BIRDS, and HIKING holders at 15 stops in the Canyon; then home in time for breakfast.

Again . . . a two-hour mission, once every eight weeks. You can do it!

Two teams open.

Those interested should contact Joe Wolowsky at jwolowsky@gmail.com.

Plant and animal research draws dozens of citizen scientists to remote aquifer area in Rosemont Valley, northern Santa Rita Mountains

Contact: Andrea Hoerr or Dave DeGroot at *SouthArizonaDave@Gmail.com*

Until recently, the ancient, underground aquifer in Barrel Canyon was a secret known only to pioneer ranchers in Rosemont Valley, recreational target shooters, and a foreign mining company determined to pump out its water to support the Copper World Mine project.

Now dozens of citizen scientists, including Friends of Madera Canyon members, are noticing that Barrel Canyon supports a wealth of plants and animals, including tall trees hundreds of years old and vibrant plant and animal communities in the trees' understory. What's more, events happening at Barrel Canyon – 11 1/2 miles from Madera Canyon as the crow flies – will probably impact Madera Canyon itself.

On March 23, dozens of concerned environmentalists converged on Barrel Canyon. During a three-hour period they collected more than 400 plant and animal "observations" that were uploaded to a computer program that is available free to the public. To date, the app's statistics for the Barrel Canyon effort are as follows: 416 individual observations by 43 observers, resulting in the identification of more than 162 species.

Observers included many who are regarded as experts in the fields of entomology, botany, herpetology, soil science, ecohydrology, and ornithology - individual observers were members of organizations such as Arizona Master Naturalists, Coalition for Sonora Desert Protection, Save the Scenic Santa Ritas, Friends of Madera Canyon, Great Old Broads for Wilderness, Patagonia Area Resource Alliance, and Living Desert Alliance. The event itself was hosted by the local chapter of Great Old Broads for Wilderness.

Event organizers are now preparing a master list of plants and animals that will be distributed to educators, government leaders, and politicians.

"We want people to know more about Rosemont's Barrel Canyon," say event organizers Andrea Hoerr and David DeGroot. "It's still a relatively healthy ecosystem, but as the Highbay Mining Company steps up the construction of huge open pits immediately above the canyon, water will be pumped out of the aquifer and toxic materials will drift downward.

"The large animals are already leaving, small animal populations will decrease, and the wonderful tall trees will start dying off," Hoerr and DeGroot say.

Some of the species studied on March 23 include the following:

Rainbow Cacti, *Echinocereus rigidissimus*, are little beauties in the grassy hillsides overlooking Barrel Canyon. Like miniature, solitary barrel



Instructions and detailed maps were provided by Andrea Hoerr at the check-in table



Participants were welcomed into the 1.5 mi long BioBlitz area on Forest Road 231 by Dave DeGroot. Temporary numbers indicated observation locations.



Keeping track of the participants was labor intensive

cacti, they stand erect at 4 to 12 inches with unexpected, bands of pink, red, and white decorating green trunks.

The Walking Stick Cholla, *Cylindropuntia imbricata*, is an unusually tough customer among a family of tough customers. Unlike many kinds of chollas, its segments stick tight to stem systems in the plants. Its spines are so sharp and strong that they punch through gardener's gloves. Over the last century they've migrated to Australia, where they're known as "Devil's rope cacti."

Coues Whitetail Deer, *Odocoileus virginianus coues*, a small and slender version of a whitetail, which at first glance seems underweight and underfed. But that's a misperception. In fact, they are super athletes in the world of North American mammals. Some animal experts rank this particular variety of whitetail as the second-fastest land animal in North America, just behind pronghorn antelope.

The Emory Oak Tree, *Quercus emoryi*, is famous for being an "evergreen" oak, for acorns that support a variety of desert animals (deer, javelina, wild turkey, squirrels, quail), and for being an important Native American resource. One particular giant old Emory oak in Barrel Canyon is probably 200 years old. It is almost ten feet in circumference and 45 feet tall - making it impressively large. Like other large trees in the area, it draws water from the ancient aquifer under Barrel Canyon, which will be tapped to supply some of the new Copper World Mine's thirst for 2 billion gallons of water per year.

The Elegant Tree Lizard, *Urosaurus ornatus*, is currently emerging in Barrel Canyon after a long, dry winter. It is a rock star in some scientific circles. Males of this species are born with a couple of different skin colors on their throats, much to the delight of researchers who have discovered that the coloration creates class distinctions (hierarchies) in their social groups.

An Acuna Cactus a.k.a. Red Pineapple Cactus was discovered on a hillside in Barrel Canyon. There is a chance that it may be *Echinomastus erectocentris* var. *acunensis* which is an endangered species. We're currently looking for more of these solitary little cacti, to decide whether it is indeed the endangered variety or possibly a close relative. The habitat - granitic soil, direct sunlight, nearby desert scrub bushes - all fit the bill.

The ancient Barrel Canyon aquifer in Rosemont Valley still supports a wealth of plant and animal life, but it was obvious to those who came to the canyon on Mar. 23 that the area is being damaged by careless recreational users and now, potentially, severe destruction that will accompany the new Copper World Mine.



Participants were assigned areas of approximately 100 x 100 yards to make observations. These were later uploaded to iNaturalist.

Education Report

Doug Moore, Education Director

Education Program: more Spring 2025

Despite a dry winter and rollercoaster morning temps in the canyon, the FoMC Education Program continues to provide educational outdoor field trips for local students in Madera Canyon.

For the second year in a row, Catalina Foothills School District Outdoor Program brought a mixed grade-level group of students up for an exploratory walk around the Proctor Nature Loop Trail on Feb. 21. Despite the early date, the “spring” weather proved spectacular! Three groups, guided by Ed Director Doug Moore & experienced docents Julie Porter & Dave DeGroot, received a “full-Proctor” experience- including seeing multiple deer, a variety of migrant & resident birds, & a recent Mountain Lion kill, in addition to learning about Sky Island life zones and the five plant communities surrounding the loop.

Mt. View Elementary School from Rio Rico visited the canyon for the first time since before COVID! The three-class field trips started the last week of February and ended with the final class trip at the end of March due to school scheduling & spring break. No matter the time spread, it was great to finally walk in the canyon with the Mt. View “Lions” again! Thank you, Mt. View 4th-grade teachers, Mrs. Lyons, Ms. Valenzuela, and Mrs. Apodaca, for making the field trips happen & preparing your students so well!

The last week of March and the first week of April will see Sahuarita HS Biotech and Walden Grove HS AP Environmental Science students travel to Proctor for what has become an annual field trip for both programs. Teachers Gavin Lehr (SHS) and Emily Petersen (WGHS) are enthusiastic supporters of Madera Canyon field trips and the importance of getting students out of the classroom and into nature for an actual outdoor education/conservation experience!



1) Catalina Foothills S.D. Outdoor Program Walk



2) Docent Julie Porter with her Catalina Foothills group

April also brings a Sahuarita homeschool group mixed-grade birding walk on the first Thursday & Montessori de Santa Cruz will bring the whole student body up to the canyon for activities on 4/17. The K-2nd grade students will do nature activities at the Whitehouse Ramada with staff & docents, while the older grades will take a docent-led Nature walk around the Proctor Nature Loop Trail. This is the 2nd year for MdSC to visit the canyon in the spring; like last year, it should prove to be a very active, but thoroughly enjoyable morning!

One final note- The FoMC Education Program has always prided itself on serving all the schools & students from the Santa Cruz Valley & Tucson that have requested to participate in our activities. We are inclusive and have provided nature walks & school visits for public elementary schools, public high schools, private charter schools, Christian academies, multiple homeschool groups, & classes with special needs students. Most often now, the classes we see are of mixed ethnicity with a high proportion of Hispanic students. The FoMC Education Program will continue to serve ALL our participating students to the best of our abilities, because we believe they each & all deserve a chance to go outside & learn about Madera Canyon. We do this because this is what the United States looks like, and it is what caring citizens do to help educate their children. Photo credit: Catalina Foothills School District (all 3 photos).



Docent Dave DeGroot leads his Catalina Foothills

The Birding Report

Bob Pitcher

NAMESAKES

This is about some of Madera Canyon's most familiar birds, but about an aspect of them that may not be so familiar: their namesakes, the people these particular birds are named for. Most birds are named for some physical characteristic – as the Bridled Titmouse and Yellow-eyed Junco – or their range or habitat – as the Arizona Woodpecker or Rock Wren. Some names in the former class have been criticized for difficulty observers have in detecting the characteristic chosen -- the Northern Beardless Tyrannulet, for instance, in which the beardlessness refers to the absence of tiny bristles around the minuscule bird's minuscule bill. Similar points have been made about names supposedly denoting a bird's range or habitat: the Nashville Warbler neither breeds nor winters in Tennessee, and Prairie Warblers aren't found on prairies. But then some bird names have nothing at all to do with the birds themselves, but with a particular person, sometimes the one who first discovered the bird, or described it. This naming convention has also been subject to criticism of late -- for political reasons, mostly, that I'll not get into here. Instead, how about looking at some of the personages for whom birds are named, and whose namesakes are regularly found in the Canyon.

A Couple of Hummingbirds

Rivoli's Hummingbird is the big hummingbird reliably found at the feeders at the Santa Rita Lodge and less often throughout the oak-pine woods of Madera Canyon. In 1983, The Bird Authorities renamed the Rivoli's the Magnificent Hummingbird, but since 2017, it's Rivoli's again. The bird was indeed named after a man, but he in turn was named for a place or, more precisely, a battle. The Battle of Rivoli was fought in northern Italy in 1797, between the French, led by Napoleon, and the Austrians. Of course Napoleon won. When several years later Napoleon made himself emperor, he made one of his marshals, Andre Massena, the first Duke of Rivoli. His son, the second duke, Francois Victor Massena, was an important ornithologist of his day, collecting more than 12,000 specimens, many of them from the American tropics. A friend of the duke's, Rene Lesson, describer of the hummingbird, named it for Rivoli. Lesson also described other hummingbirds, and named another one Anna's, for Rivoli's wife, Anna. Anna's Hummingbird is also regularly found at the Lodge feeders in Madera, and lower down in the Canyon as well. The Anna's Latin name, *Calypte anna*, also reflects its namesake. The Rivoli's Latin name is *Eugenes fulgens*, but although *Eugenes* looks like a personal name, it's Greek for well-born.

Two Vireos

One knows spring is back in the Canyon when one hears the song of the Bell's Vireo, *Vireo bellii*, most dependably at the Proctor Road stream crossing. There's no mistaking the song, though one much less frequently sees the singer, a small bird, greenish gray, that likes to stay in the brush. Audubon named the bird for a friend, John Graham Bell (despite appearances, no relative of the telephone Bell) who went with Audubon on a collecting trip up the Missouri River in 1843, and who much later in life taught Teddy Roosevelt how to stuff animals. Bell's Sparrow, not found in the Canyon, and only rarely anywhere in Arizona, was also named for this Bell.

Unlike Bell's, Hutton's Vireo, *Vireo huttoni*, is found in the Canyon year-round, mostly in oaks, and sometimes associating with other small birds in a mixed flock. More often, though, one sees this bird



On the left Andrea Massena; (6 May 1758 - 4 April 1817), was a French military commander of the French Revolutionary Wars and the Napoleonic Wars. He was one of the original eighteen Marshals of the Empire created by Napoleon I. By Edme-Adolphe Fontaine / After Antoine-Jean Gros - "L'album de l'Empereur", Max Gallo, éditions Robert Laffont, 1997, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=29417579>. Male (top right) photographed by Alan D. Wilson. https://web.archive.org/web/20250317125403/https://www.naturespicsonline.com/galleries/Nature28/_mg_3669.htm. Female (bottom right) Rivoli's Hummingbird photographed by Alan Schmierer from southeast AZ, Both birds photographed in Madera Canyon. <https://commons.wikimedia.org/w/index.php?curid=74776156>

singly or with a mate. Hutton's is even more nondescript than Bell's Vireo, and birders have a dickens of a time telling it from a Ruby-crowned Kinglet. The Hutton here was William Rich Hutton, who spent some time in California as a young man – there is a subspecies of the Vireo there – surveying and drawing. Later in life, he was employed as an engineer on waterworks and railroad bridges in the Washington, D.C., and Baltimore area, and in upgrading the Chesapeake & Ohio Canal. The several subspecies of Hutton's Vireo are perhaps distinct enough that the species will be split, which will involve some re-naming.

Three Warblers

Lucy's, Virginia's, and Grace's Warbler weren't named for anyone even moderately famous, but for

the relations of those who had a hand in finding the birds or at least knew someone who did.

Like Bell's Vireo, the return of Lucy's Warbler, *Leiothlypis luciae*, to the lower Canyon desert grassland is a sure sign of spring. Lucy's is the smallest of the warblers, gray overall, with yellow – and, in the male – rufous trim. As for its namesake, Lucy was the daughter of Spencer Fullerton Baird, who spent many years as the Secretary of the Smithsonian and was largely responsible for the great expansion of the museum's collections during the latter nineteenth century. Among other things, Baird insisted that military expeditions sent to explore the West or fight Indians include a naturalist among the party, and that those naturalists collect what they could and send it back East to Baird for curating at the Smithsonian. So Baird had a role in describing a great variety of new species. Baird's Sandpiper and Sparrow are named for him, and are found in Arizona, though not in the Canyon. As for Lucy, she seems not to have married little is known of her. Wikipedia has a picture of her with her parents.

Virginia's Warbler, *Leiothlypis virginiae*, is closely related to Lucy's, and looks and sounds much like it, but is found a little higher up in the Canyon, in chaparral or similar brushy areas, where it tends to keep out of sight. This bird was also named by Spencer Baird, for Virginia Anderson, daughter of army surgeon W.W. Anderson, who first discovered the warbler at Fort Burgwin near Taos, New Mexico, in 1858. Or perhaps Virginia was Anderson's wife; on this point, the sources, as they say, are in conflict. I know nothing more of either her or W.W. The tongue twister *Leiothlypis* just means plain in Greek, which these warblers are -- compared to a Painted Redstart.

Grace's Warbler, *Setophaga graciae*, is almost always found high up in a pine tree, often giving its trill of a song. Grace was Grace Darling Coues, sister of Elliott Coues, who discovered the bird in the Rockies in 1860 and, dutifully sending it back to Spencer Baird for description, asked that it be named for Grace, who was then 17. Grace went on to marry Charles Albert Page, who made a splash as a war correspondent during the Civil War, was appointed U.S. Consul in Switzerland, and later made a fortune in condensed milk. He and Grace had four children, and she outlived him by half a century. The name *Setophaga*, the genus that now includes most of our warbler species, means moth-eating, probably true of many warblers, when they can catch them.

Elliott Coues became quite famous later in life. In the latter 1800s he led early geological surveys in Arizona, headed the U.S. Geological and Geographical Survey of the Territories, and founded the American Ornithologists Union. My grandmother once heard him speak, and was immensely impressed. What's now the Greater Pewee, found in upper Madera Canyon, used to be Coue's Flycatcher; and the subspecies of the Cactus wren that is Arizona's state bird is *Campylorhynchus brunneicapillus couesi*. The deer so often seen in Madera are Coue's White-tailed Deer, *Odocoileus virginianus couesi*.

And a Flycatcher

Say's Phoebe is found in Madera Canyon at all seasons, and is one of the few flycatchers to be seen here regularly in the winter. In the Canyon, look for Say's around the Proctor road parking area, where a pair often nests in early spring. The bird was named for Thomas Say, an early American naturalist. He was born in Philadelphia in 1787, the great-grandson of John Bartram, who, with his son William Bartram, was of major importance in exploring the botany and zoology of America. Say went on to explore various parts of the United States and Mexico for their natural history, and is credited with founding American descriptive entomology and conchology. Say doesn't appear to have discovered the Phoebe; it was named in his honor by Charles Lucien Bonaparte.

Bonaparte too is worth a mention. He was Napoleon's nephew, and a French prince. He spent only a few years in this country during the 1820s, but had a lasting influence on the development of American ornithology. It is possible he overdid it a bit in naming the Phoebe for Say, however. Not only is the English name Say's, but the Latin name of the bird is *Sayornis saya*, or Say's Say-bird.

I haven't space here for some of the other namesake bird's in the Canyon – Cooper's Hawk and Bewick's Wren for two – they'll have to wait.

Tuesday, April 8, 11 am–12 pm

Birding Madera Canyon in the Spring and Summer with Luke Safford

Green Valley Recreation, Las Campanas Center ([MAP](#))

One of the most iconic birding locations in the nation, Madera Canyon, is right in our backyard, can you believe it?! From the desert grasslands of Proctor Road through the oak woodland and into the Madrean-evergreen forests, the canyon's beauty can be overwhelming and the variety of birds adds excitement and intrigue. Join Luke Safford as we discuss how to get the most of your Madera Canyon birding experience this spring and summer. We'll have limited special opportunities for birding with Luke in Madera Canyon available for folks who attend this talk in person.



The Editor's Desk

Butterfly Declines

Humans alter the environment in many ways. They change the structure of the environment by changing landscapes, removing plants (cutting trees, adding species, removing species, changing the chemistry of the soil, and removing or adding animals that are grazers, browsers, or frugivores so that the composition of plant communities differs from what it was).

Removing animals and plants from their habitats removes their genomes, reducing the genetic variability in the populations. Introducing invasive species adds competition with native species, and they may introduce new parasites or pathogens.

Insects may be susceptible to human alterations. After all, they evolved closely with flowering plants, and human activity often reduces or changes the flowering plant communities of a given location.

In a paper published in [Science](#) March 6, 2025 by Collin Edwards of Washington State University, Vancouver, WA, 32 other authors assembled a systematic, decades-long butterfly monitoring dataset within the lower 48 states and Washington, DC) from 2000 to 2020. Data sources included every available multispecies butterfly monitoring program on a state, regional, and national scale in the contiguous US and several that target individual species, totaling 35 programs. The monitoring programs differ in their data collection methods, and one of the challenges addressed was integrating the available data while appropriately accounting for heterogeneity across programs. Data for 12.6 million individual butterflies comprising 554 species were accumulated from 76,957 surveys of 2478 unique locations.

Declining insect populations have received widespread media attention, but evidence for declines has been variable across regions and taxonomic groups. Edwards et al. examined trends in the most surveyed taxon: butterflies. Combining data from 35 citizen science programs across the continental US, the authors found declines in overall butterfly abundance over the past 20 years across almost all major regions. Two-thirds of the species studied showed declines of more than 10%. Many insects have the potential for rapid population growth and recovery, but habitat restoration, species-specific interventions, and reducing pesticide use are all likely to curb population declines.

Numerous declines have been documented across insect groups, and the potential consequences of insect losses are dire. Butterflies are the most surveyed insect taxa, yet analy-

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The American Snout, *Libytheana carinenta*. Photography by Ed Freedman.

ses have been limited in geographic scale or rely on data from a single monitoring program.

Insects make up half of all multicellular species and have roles in terrestrial ecosystems, making declines in insect abundance and diversity concerning for many reasons, not only for butterfly watchers. For example, insect declines have been implicated in population declines for bird species whose primary food source is insects. Declines in insects that are available as prey are likely to affect many kinds of predators, from generalists such as birds to specialists such as

parasitoids. However, because insect populations can increase rapidly when conditions are favorable, previous research has focused on ways to control pests and reduce populations during outbreaks, rather than on investigating ways to monitor or reverse broad insect declines.

Many factors have been implicated as causes of insect declines, including habitat loss associated with agricultural intensification or urbanization, increasing pesticide use, and shifts in weather patterns linked to climate change. Butterfly species that require grassland habitats are particularly at risk because natural grasslands face pressures from agriculture and other land-use conflicts and may be more vulnerable to anthropogenic nitrogen deposition than other habitats. Pesticides, particularly neonicotinoids, have been implicated in butterfly declines in California, as well as in declines of many other kinds of insects. Weather anomalies and an increased frequency of drought conditions, are associated with climate change, likely contribute to declines in insect populations in all areas, including at sites without changes in land use (Inouye 2025).

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[Inouye BD. Butterfly populations flutter bye. *Science*. 2025 Mar 7;387\(6738\):1036-7.](#)



The Alfalfa Butterfly. Photography by Ed Freedman

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