

Shape the Future

# Canyon Chatter Friends of Madera Canyon

June 2025



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#### Migrating Birds Visit Madera Canyon.

**On the cover.** Migrating Birds visit Madera Canyon. Bell's Vireo sitting in profile in nest Proctor Trail, Madera Canyon, 5-16-2025. Photos continue on page nine . Hermit Warbler feeding on Mesquite catkins. Madera Canyon April 29, 2025. Photography Doug Moore. Townsend's Warbler in mesquite catkins. Madera Canyon April 29, 2025. Photography Doug Moore. Warbling Vireo perched profile in mesquite flowers. Madera Canyon April 29, 2025. Photography Doug Moore.

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

Links

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# **From the President**

#### June 2025 From the President

We were preparing to move things around in our yard when we discovered the quail's nest—one dozen speckled eggs underneath a workbench. We had seen a female going back and forth in the area, but never dreamed that she could have wedged herself into that small space enough to sit on the nest.

Not knowing how long we would have to wait for hatch day (and that they would all hatch on the same day), we delayed rearranging. Three days later, we saw fluffy balls chasing after a female, a male perched atop the fence above, keeping watch. But we counted only six chicks. When we moved the workbench a few days later, we saw that the other six eggs were still in the nest, intact. Was this partial hatch Nature's response to our dry winter and spring?

Over the next several days, when we investigated the yard, it was hard to miss the frenzied little balls of feathers as they clung close to their mom. It was also hard to forget that the six became five, which then became four, then three, and finally two. When the time to fly away occurred, there was only one little chick going out into the world beyond our yard.

Quail chicks do not have a corner on being cute. The young of many species elicit "so darn cute" from many of us. Quail chicks are not the only cute little things that comprise some of the diet for roadrunners, Cooper's Hawks, and a variety of other critters just needing a meal. Intellectually, we all understand "the Circle of Life," but sometimes the urge to protect the little guys is strong.

We were in the Canyon late last month to work on the bench project. My wife, Judy, is one of Doug Moore's docents, and as we walked Proctor Loop, she took note of aspects of the natural wonders to which the 4th graders are introduced on their field trips to the Canyon that were stressed by the absence of rain. We were in no position to alter the situation—there is no drip system or other way to provide the water needed. All we could do was hope for rain.

It helps to remember that Nature is resilient, accustomed over millennia to ebbs and flows. 2025 is not the first dry year in the history of Madera Canyon, nor will it be the last. As for the chicks, when a pair of parents has a dozen, if they all survive, we would soon be awash in quail. As humans, we can feel emotions about conditions we wish did not exist or the matter-of-fact-ness of predators and prey. So, we are obliged to remember that nature bats last, and that it is up to us to let nature be.

That means we need to leave only footprints and take away photos and memories. That means we need to advocate for the economics of beauty and put in the work required to preserve the wilderness.

These are integral reasons for being a member of the Friends of Madera Canyon. To advance these causes becomes the underlying motivation for why we seek memberships and gifts to sustain our collective cause.

I am confident that, as a species, the Gambel's Quail is likely to survive, and that someday soon, the Creek will be flowing again and the flora will be lush, serenaded by the songs of the myriad birds that call the Canyon home, even if only during migration.

It is our privilege to be advocates for Nature. Thank you for your role in our collective effort.

Dan White



#### **Regional Recognition for the Friends of Madera Canyon**

In May, I was invited to the Nogales USFS office where District Ranger Jorge Enriquez and Pablo Rocha presented me with an award made to the Friends by the Southwestern Region of the U.S. Forest Service. The Region assesses all of the volunteer organizations in the region each year and selects just a few to be recognized for Volunteer Service.

I was surprised and pleased to learn that for 2024 the Region selected the Friends of Madera Canyon to receive the Volunteer and Service Award. (See photo of the award certificate below.)

This award acknowledges all of the volunteers, from the VIS and Ashers and Trashers to the trail crews, marketing volunteers, brochure stockers, traffic counters, campground hosts, ambassadors, docents, to Scout Troop



247 members, and many more. FOMC is many hands helping however they can.

I wrote to the Regional Forester in Albuquerque, Michiko Martin, expressing gratitude for this recognition of the work by FOMC volunteers. As President of this amazing organization, I am grateful every day for the many, and selfless, hours of service dedicated to FOMC's mission. While I know all of us volunteer our time without any thought of recognition, it's nice to be noticed, and to know that the regional forestry folks value what we do.

We work because we know the work needs to be done, and volunteers have done so since 1987 when our predecessors collaborated for the first time on behalf of the visitor experience in the Canyon.

We are a willing partner with the Forest Service because we understand the challenges it faces as an arm of the federal government, and we want succeeding generations to have the chance to experience the wonders of Madera Canyon.

#### **Bench Project in Progress**



The Greater Green Valley Community Foundation granted the Friends of Madera Canyon \$5000 in 2024 for the first phase of replacing deteriorating benches on the Proctor and Whitehouse Loops and between the Whitehouse and Madera Picnic Areas. The project was jump-started by Lauren Atkinson of the Tucson USFS Office who set out one day to assess the condition of all the benches along the route.

Lauren reported her findings to the Friends. A Friends committee then joined Zach MacDonald and Starr Farrell on additional hikes to assess which benches would be restored. Early in 2025, the necessary materials arrived from the manufacturer, and in May, work began on installing the first replacements. Below are pictures of those benches, one at the Metate Station, the other two at the place where two benches face each other.

The initial work has been done by volunteers from the Friends, including several of the Monday Ashers and Trashers who, because use of the fire grills is not permitted during the drought, are able to offer their help. (Photos below.) Later in the summer, people from Wild Arizona (read there, younger and stronger) will be involved in carting the materials to the more physically challenging locations and constructing the benches, again with the help of Friends volunteers.

The Green Valley News in the May 31 edition wrote about a unique aspect of the project: providing the Carpenter Bees, who have been busy creating holes in the old bench boards, with a pine board attached to the back of the composite wood bench. We have called them Bee Boards.

Time will tell if the bees are grateful. Meanwhile, we can all be grateful to the volunteers who have tackled the bench project and enjoy the fruits of their labors in the fall when the project is finished.

Dan White



# **The Birding Page**

## NICHES

#### **Bob Pitcher**

This month's piece is a comparison of Madera Canyon, a place extremely rich in birdlife, with a place which, for various reasons, is impoverished in that respect. I should say to begin with that not only am I not a trained ornithologist, but my experience with the location I compare with the Canyon is comparatively slight. So this column may prove to be little more than ramblings.

The Friends' bird list for Madera Canyon includes over 250 species, and the number grows a little every year. Although the Canyon is only some four miles in length and perhaps, in spots, a mile across, its birds benefit both from a great diversity of ecozones and from, at least part of the year, running water -- Madera Creek and its tributaries.

At least as important is the Canyon's geographical location in the Santa Rita range, one of the border region's famous Sky Islands, a biodiversity hotspot where life forms from the desert Southwest mix with those of the southern Rockies and those of Mexico's Sierra Madre. Plants and animals of a wonderful variety meet in the Islands. Perhaps 150 bird species are resident in the Canyon or breed here, with a hundred others passing through on migration or visiting only occasionally.

Not that Madera has escaped environmental damage – by no means. Starting in the 1870s, there were decades of heavy mining and logging in the Canyon, the first of which left traces visible today, and the second of which may have eliminated all the original timber of any size. But for more than a century now, Madera Canyon has had a degree of protection from its status in the National Forest System and its predecessor agencies. There are no timber sales in the Coronado; almost all bird species are protected under federal statute; and hunting and plant collecting are regulated by both state and federal law. And the Forest Service has removed nearly all the summer residential facilities the Canyon once held. To be sure, collection of insects and other invertebrates is allowed in the Canyon, even encouraged, and the Canyon's heavy visitation, owing to its beauty and its location within a metropolitan area of more than a million, imposes a considerable stress on Madera's ecosystem.

Nevertheless, while it can't be said that Madera Canyon is in pristine shape, it seems fairly likely that its birdlife has recovered in variety, if not perhaps in numbers, from whatever damage may have been done in earlier years. Thick-billed Parrots aren't found any longer anywhere in Arizona, and it may be that in 1850 Aplomado Falcons might have been seen occasionally where Proctor Road runs today, but I can't think of other species that might have been here regularly in the past few centuries and now are gone.

So are all the Canyon's ecological niches for birds filled? Hard to know – many niches only become apparent when they are filled, but (1) introduced species common at lower elevations, such as House Sparrows and common pigeons, aren't reported from the Canyon, and (2) when for some reason a species' numbers in Madera are reduced temporarily, it's readily apparent. For instance, both gnatcatchers and wrens, particularly Canyon Wrens, were scarce following the drought of 2020-21, perhaps reflecting the temporary absence as well of the insects they feed on.

But now the comparison: I've been to Hawaii for the first time, six days on Kauai and five on Hawaii, the Big Island. Of course I took my binoculars, I did my birding homework before I went, and I managed to visit several of the very best spots for birds on those two islands. Hawaii is clearly a Wonderful Place. But its birdlife is severely restricted in variety, and the selection of what there is is decidedly odd.

The guide I used (Jim Denny, A Photographic Guide to the Birds of Hawaii, Univ. of HI, 2010) covers only some 180 species, of which more than a third are wintering waterfowl and shorebirds, not all of them seen annually. Of course, the Hawaii chain is the most isolated in the world. Islands even as close to a continent as Britain show some diminution in species variety; it's to be expected that Hawaii would show considerably more, particularly in land birds.

So maybe Hawaii's 100 or so breeding species isn't so bad after all. But what birds are they? Of those 100, just over half are birds introduced since Captain Cook arrived in the 1770s, and most of



them within the last century or so. The commonest, most noticeable birds where I was – and I believe on the other islands as well – are chickens, the Common Myna, and the Zebra Dove, reminiscent of our Inca Dove. Chickens were brought by the original Hawaiians, and run wild; they are everywhere on Kauai. The chickens in less accessible places on that island are said to be close to the ur-chicken, the Red Jungle Fowl of South Asia.

Most of the land birds, it's clear, were introduced as cage birds, by emigrants to the islands that missed them from home. Some escaped or were released, and have made a home of it. Presumably some introductions didn't do so well. Other species, such as the Barn Owl and the Western Cattle Egret, were introduced to keep down other introduced species, which had become agricultural pests. So in all but a very few places I went, one sees only a few birds that were not introduced more or less recently – and most of those are birds of the ocean or marshes.

Is it odd that so many introduced birds have done well in an environment strange to them? In the case of the Mynas, perhaps not – they're starlings, after all. But for the Mynas as well as the others introduced, the environment may not be strange to them at all. Along with these birds, people have introduced thousands of new plant species to the Islands, and sometimes the insects that go with those plants. Hawaii's beautiful lush green forests, so welcome a sight to Arizonans, aren't original for the most part. (It's not even clear that coconut palms are native to the islands.)

Native forests and their birds haven't done well. They continue to inhabit only limited areas, sometimes in small stands surrounded by lava flows that didn't quite reach them. But at least they keep introduced species out – more or less went to some of those places, and they're wonderful; but even there the variety of bird species is quite small. Most prominent among them in those woods are the Hawaiian honeycreepers, a family descended from something like our House Finch that reached Hawaii perhaps 4 million years ago, and which radiated in an empty environment into a hundred of so species. Two-thirds of those are gone, some from overhunting for the Hawaiians' feather capes -- and rats, pigs, and mongooses had done for the rest, to paraphrase Treasure Island.

In sum, birding in Hawaii was very different from a morning in Madera Canyon. For the first several days, I kept looking for hummingbirds hovering over flowerbeds or at the flowering trees. Weren't any, of course. Nor were there any swallows around the many gorgeous waterfalls, or soaring raptors in those or other places. (Yes, there's an Hawaiian Hawk, related to our Red-tail, but it's restricted to the Big Island, and I didn't happen to see one.) And there are no jays or flycatchers, no woodpeckers, warblers, or vireos. What might be their niches in Hawaii's extensive forests of introduced plants, the wide grasslands of the Big Island, and the rainy mountains of both islands, seem, for the most part, unfilled.

I did see birds I'd never seen before – tropicbirds and albatrosses, Red-footed Boobies nesting in trees, and the beautiful White Terns. And, best of all, the spectacular I'iwi (see page 8), one of the few remaining honey-creepers that's still doing well in the Islands. But my experience of Hawaii as far as birdwatching went – the rest of it was delightful! – was oddly unfulfilling.

Since I've returned to Arizona, I've been up in the Canyon several times. It's the height of spring migration. There must be some niches unfilled in Madera, but in the context of North American birdlife, they're not noticeable. The overall impression is of near tropical richness. Of Hawaii's birdlife, for all the chickens, Mynas, doves, and spectacular ocean birds, the impression is of emptiness.

Below: a Red-tailed-tropicbird-4-28-2018-kilauea-lighthouse-kauai-co-hawaii-1-41352684685-688a6c





The spectacular I'iwi is an endemic Hawaiian (found only in the State of Hawaii) forest bird presently found on the islands of Hawai'i, Maui, and Kaua'i. And they're evidently still seen very rarely on both Oahu and Molokai. They are medium in size and average six inches in length. Their bodies are adorned with bright scarlet feathers, black wings and tail, and a small white patch on the inner secondary flight feathers. Their bill is long, deeply decurved, and salmon in color. They are also considered important pollinators to native plants. US Fish and Wildlife Service

#### Volunteer Positions Open STOP! LOOK! LISTEN!

My wife Cheryl, and I, drive to the VIS Friday morning, and load the car with one box each of BIRDS, HIKING, and WELCOME brochures. Fifteen miles and, say . . . thirty minutes from our home in Green Valley. We then travel the inside paved park road, and refill brochure boxes - as necessary - at 13 locations. Return the boxes to the VIS, and . . . Done! Less then two hours by forty miles total. And only six times a year! It's an eight-week rotation. We have a great working, long-tenured Crew, and swap assignments freely. Continued thanks to Sharon Toborg, John and MJ Van Veldhuizen, Joe and Joan MacIssac, and Franz and Doris Schatz. Three shifts open. Come join up!

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



### **Migrating Birds**



Hermit Warbler feeding on Mesquite catkins. Madera Canyon, April 29, 2025. Photography Doug Moore.

Townsend's Warbler in mesquite catkins. Madera Canyon, April 29, 2025. Photography Doug Moore.

Warbling Vireo perched profile in mesquite flowers. Madera Canyon, April 29, 2025. Photography Doug Moore.



# **Education Report**

#### Education Program: May 2025 Geology Hike Doug Moore, Education Director

The geology/formation of Madera Canyon is a complex and fascinating story. On May 8<sup>th</sup> the FOMC sponsored a morning Geology Hike for twelve members on the Nature Trail section from Mt. Wrightson Rec. Area and Amphitheater Rec. Area. Accomplished geologist, and FoMC member, Dinah Shumway, graciously volunteered to lead the participants. Originally, her geologist husband (and FoMC docent) Doug was to co-lead, but recent hip replacement surgery left the hiking questionable. He graciously volunteered to ferry the hikers between parking lots instead!



Geologist & FoMC member, Dinah Shumway, explaining a feature of Nature Trail geology to hike participants. Credit: Douglas W. Moore.

Assembling at Amphitheater and leaving most vehicles, the group shuttled up to Mt. Wrightson Rec Area. The morning proved perfect- cool, bright, and sunny! Dinah provided a geologic map (complete with phone app!) and a brief overview of the canyon before heading out. Then the hikers accessed the Nature Trail from the 1<sup>st</sup> parking lot trailhead, striding off for Amphitheater 1.8 miles away (with 100' of ascent and 600' of descent).

The story of Madera Canyon itself- essentially a "geologically recent" history of breakdown, erosion, and losswould not exist without a several hundred million years preface of ancient stratovolcanoes, cyclic magma surges, and critical tectonic movement that formed (and often reformed!) the very rocks and birthed the mountain range that we see today. Much of this story is actually readily accessible from trailside, if you know what to look for. As the hikers traversed the Nature Trail, Dinah expertly translated what the exposed hillsides, rocks, and scenic views had to disclose.

The original hiking plan was to also check out nature discoveries in addition to geology, but Dinah kept focus on the physical aspects. Several hikers briefly attempted bird watching, only to quickly find themselves playing catchup instead as the group moved briskly from feature to feature. Boulder-strewn side canyons told of historic flash floods and contained rocks of varied age and composition washed down from above. Exposed bedrock outcrops revealed ancient lava flows and solidified subsurface magma batholiths. Trailside quartz and pyrite disclosed molten intrusive events, intense hydrothermal interactions, metals deposition, and crystal formation. Most effectively, Dinah would stop at a rock or other feature to simply ask the group, "What is this? How do you think this formed?", then allowing the group to discuss and form a hypothesis.

As the group ended the hike at Amphitheater, Dinah summarized and reiterated important concepts that had been discussed. A true-blue geologist, she concluded by saying that in our present society it is naïve to think we should not be mining- we absolutely need metals and minerals to sustain our current way of life. She finished with the oft-stated, "If we cannot grow it, then we have to mine it!" This statement is absolutely true! But, after looking out from the high trail amid the verdant slopes of Madera Canyon far across the Santa Cruz Valley to the dominating, desolate, sterile tailings piles of the Duval Mine Complex, most of the participating hikers were left with several additional impressions. First- mining industry practices sorely need to be modernized to minimize/mitigate/ reclamate such permanent destruction of finite land and water resources. Secondly- there are ABSOLUTELY many natural places that are much too intrinsically special and valuable to be mined!



# The Editor's Desk

### Madera Canyon's Missing Parrot

The Thick-billed Parrot, *Rhynchopsitta pachyrhyncha*, is endemic to the temperate forests of the Sierra Madre Occidental in Mexico and is currently considered endangered by both Mexico and the United States. This highly social bird is closely associated with conifer forests and specializes in feeding on pinecones. Thick-billed Parrots are found in flocks, even during the breeding season, and their distinctive calls, resembling human laughter, can be heard from a mile away under favorable conditions. These parrots often forage within a range of 15.5 miles from their nests and roosts, and their seasonal migrations can span hundreds of kilometers. Equipped with long, pointed wings, they possess remarkable flying capabilities and agile maneuvers that enable them to escape predators such as Peregrine Falcons or Northern Goshawks. During extended flights, Thick-bills often



Thick-billed Parrot by Jenni Douglas from Edinburgh, Scotland - Thick billed Parrot Uploaded by Snowmanradio, CC BY 2.0, https://commons.wikimedia.org/w/index.php?curid=10755381

Chiricahua Mountains in the 1980s were unsuccessful.

form V-formations, like those of waterfowl.

Currently, the breeding range of Thick-billed Parrots is limited to the Sierra Madre Occidental in Chihuahua and Durango, specifically in the significant timber-producing areas of Mexico. During the non-breeding season, from late November to April, the species has been observed in the south-central parts of the Sierra Madre Occidental. All documented nesting sites of Thick-billed Parrots have been in forests above 6561 feet ASL. The species also historically occurred in the pine forests of the southwestern United States, although attempts at reintroduction in the

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Thick-Billed Parrots at Twycross Zoo, Leicestershire, England. A juvenile is in front of an adult, both perching on a rope in an aviary. The juvenile has a pale beak and the adult has a dark beak.

While there are no known historic nesting records of Thick-billed Parrots north of the Mexican border, the absence of records could be attributed to a lack of nest searching when the species still regularly occurred in the United States. Also, the species' high-elevation nesting habits and unusually late breeding season may have contributed to the limited documentation (Snyder et al. 1994). However, in the early 1900s, the species was recorded every year in the Chiricahua Mountains of Arizona, strongly suggesting it was a breeding species in that area. Breeding records were obtained from Thick-bill releases in Arizona between 1986 and 1993, indicating the species' capacity to breed as far north as the Mogollon Rim and the Chiricahua Mountains (Snyder et al. 1994). The nearest known breeding population in Mexico is within sight of the Chiricahua Mountains, just 49 miles south of the border.

Declines in the USA population, as well as those in Mexico, resulted in the species being classified as Endangered by BirdLife International and the U.S. Fish and Wildlife Service, and being listed on Appendix 1 of the Convention on International Trade in Endangered Species (CITES).

Several theories exist regarding the disappearance of the Thick-billed Parrot from the United States. One hypothesis suggests that deforestation in northern Chihuahua may have destroyed crucial habitat "islands" neede for the parrot's survival during northward migrations from Mexico. Additionally, residents of Arizona's Chiricahua Mountains recall that the parrots, which used to reside there year-round, were heavily hunted by miners facing food shortages in the early 1900s.

Until September 20, 1986, it seemed unlikely that the Thick-billed Parrot would ever return to US territory. However, on that date, a research team led by Noel Snyder released 13 parrots into Cave Creek Canyon in the Chiricahua Mountains. This moment marked the culmination of extensive efforts by numerous individuals and organizations. It also marked the beginning of an intriguing experiment: could confiscated Thick-billed Parrots from smugglers serve as a foundation for reintroducing the species to its former Chiricahua habitats?

The initiative for the reintroduction project was sparked by Samuel Ojola's question and proactive approach. As a law enforcement agent with the US Fish and Wildlife Service in Los Angeles, California, Ojola was aware that

federal agents in Texas and California had seized numerous smuggled Thick-bills. He contacted ornithologist Dirk Lanning in Albuquerque, who had conducted field studies on Thick-billed Parrots in Mexico in 1979. Together, they sought input from other experts to assess the feasibility of releasing the confiscated birds in the Chiricahuas.

The USFWS played a crucial role in locating confiscated birds across the United States and arranging for their transportation to Arizona. Upon arrival, most of the birds were in good health, although some required treatment for specific issues, such as vitamin A deficiency or feather follicle cysts. The team meticulously examined each bird, repaired their damaged wings using imping techniques, and fitted them with dummy radios to acclimate them to the eventual transmitters they would wear upon release.

The re-wilding stock was kept in large open-air aviaries within Cave Creek Canyon, where they would eventually be released. Their diet consisted of natural foods. The first and second releases went well and are described in detail by Koschmann and Price (1987). Other releases followed: the Pinaleno Mountains, Arizona, Winter 1986– 1987; the Flagstaff area, San Francisco Mountains, Arizona, Summer 1987; the White Mountains, Arizona, Summer 1987; and the Upper Tonto Basin near Payson, Arizona, in the summers of 1987, 1988, and 1989.

Attempts to reintroduce Thick-billed Parrots to Arizona continued until 1993 but proved unsuccessful. However, the Arizona Game and Fish organization continues to actively support the preservation of these vibrant and inquisitive creatures in Mexico, where they also work towards protecting other migratory birds. Before the reintroduction efforts, Arizona's last sighting of Thick-billed Parrots was recorded in 1938. In fact, before the 1920s, these parrots were more commonly found in southern and even central parts of Arizona. Some evidence suggests that parrots may have ventured further north in the past.

Unfortunately, the projects encountered funding issues and ultimately fell apart.

Archaeological records indicate the presence of parrots near Flagstaff as well as other areas in Arizona. Still, it remains uncertain whether these were local birds collected by Native Americans or obtained through trade. The question of whether Thick-billed Parrots ever bred this far north is still unresolved, although no early reports of nests have been found in the United States. However, the remote locations of potential nests within mixed conifer forests at high elevations made it unlikely for them to be stumbled upon during that time. It is possible that parrots were breeding in Arizona, but the absence of discovered nests could be attributed to the lack of professional ornithologists present to document such occurrences.

Historical records confirm that Thick-billed Parrots were targeted by hunters, with many reports ending with flocks being brought down by a barrage of bullets. The reintroduction program made efforts to release 88 thick-billed parrots over a period of seven years. Sixty-five of these parrots were obtained through confiscations by the U.S. Fish and Wildlife Service, while the remaining 23 were bred in captivity.

The initial release of parrots took place in the Chiricahua Mountains. Still, these adventurous birds were soon spotted in other areas such as the Graham Mountains, Tonto Basin, Oak Creek Canyon, and the region between Flagstaff and the White Mountains. However, documented attempts to nest were only observed in the Chiricahuas and the Mogollon Rim.

The reintroduction efforts faced challenges due to the probable lack of a critical mass of released individuals necessary to establish a sustainable flock size. Additionally, a drought during that time may have limited the availability of food resources. Consequently, the high mortality rates and insufficient parrot populations led to the discontinuation of the reintroduction effort. Nonetheless, this did not signify a complete abandonment by the state of Arizona. The Arizona Game and Fish organization continues to support Organización Vida Silvestre (OVIS), a non-governmental organization that collaborates with local communities in Mexico to protect birds.

Parrots prefer to nest high in, dead, twisted trees called snags. OVIS convinces landowners and forestry consultants to preserve these invaluable slices of arboreal real estate. Since there aren't always enough snags for all breeding pairs, OVIS built artificial nesting sites, essentially wooden boxes attached to trees.

Going one step further, they also installed metal sheets at the base of nesting trees to deter bobcats. Bobcats have been revealed as significant predators of parrots. The barriers are working, at least for the birds.

Reports suggest that around 1,000 Thick-billed Parrots breed in five primary nesting sites across northwest Mexico, although the actual number fluctuates and may be slightly larger. The closest breeding site to Arizona is in the Janos Biosphere Reserve in the Mexican state of Chihuahua.

Recently, researchers solved the biggest mystery about the bird's range. They knew that they went further south into Mexico for the winter, but didn't know exactly where. Satellite transmitters on some of these birds have enabled the creation of a map of the parrot migration routes. They fly south along the ridge top of the Sierra Madre Occidental, extending southward into Chihuahua and Durango, and some have even reached Nayarit and Sinaloa.

The Arizona Game and Fish Department (AZGFD) currently has no plans to revive the Arizona reintroduction effort. However, helping our neighbor to the south isn't just an act of altruism. Ongoing drought and increasing wildfires threaten many species across the region, including the parrot and the trees on which it depends.

It's more than just parrot conservation; it's conserving a whole suite of other species that use this habitat. These are Arizona species, which are also shared with Mexico and other countries. So, even though the parrots may not return to Arizona skies, preserving their habitat also helps Broad-billed Hummingbirds, Scott's Orioles, Yellow-billed Cuckoos, Sulphur-bellied Flycatchers, and Summer Tanagers.

So, how is the Thick-billed Parrot linked to the Santa Ritas? Phillips et al. (1964) suggest it was last seen in the Santa Ritas in 1936. Archaeological evidence has revealed the presence of Thick-billed Parrots in the American Southwest, with subfossil remains from ten sites in Arizona and New Mexico. Moretti (2022) notes that previous authors have suggested that these parrots were brought from Mexico for trade and were sought after for ritual purposes. However, many species native to the American Southwest are found in ritual contexts and coexist with Mesoamerican artifacts and influences. Therefore, the mere occurrence of ritual treatment and association with Mesoamerican trade items does not necessarily indicate an exotic or imported status.

Initial analyses of archaeological parrot specimens, combined with historical records of the species in the American Southwest, generally depicted irregular and sporadic movements. The absence of current populations of the parrot has been interpreted as a reflection of ecological incompatibility with the regional habitats, reinforcing the perception of Thick-billed Parrots as exotic and foreign. However, a revised perspective now views the historical records as evidence of a past population that was once regularly present, potentially breeding in Arizona, but ultimately extirpated due to hunting.

Adopting this new viewpoint, it becomes apparent that the historical and reintroduced occurrences of Thickbilled Parrots demonstrate the capacity of conifer forests within specific mountain ranges, particularly those associated with relevant archaeological sites, to support thriving parrot populations. Historical records are primarily concentrated in the Sierra Madre ranges of southeastern Arizona, which aligns with the targeted region for reintroduction efforts due to its abundant diversity of conifer and oak species. Notably, the reintroduced birds initially focused on the Chiricahua Mountains, and their successful occupation of the Pinaleno Mountains in 1986 followed a precedent set by flocks in the early 1900s.

Overall, the archaeological findings, combined with historical and reintroduced occurrences, shed light on the potential breeding capabilities of Thick-billed Parrots in specific mountain ranges within the American Southwest. This highlights the importance of preserving and restoring suitable habitats to support the revival and conservation of this remarkable species. JCM

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# The Last Page

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