



MCDOWELL  
SONORAN  
CONSERVANCY

# Mountain Lines

MAGAZINE OF THE MCDOWELL SONORAN CONSERVANCY

FALL 2020



**The McDowells**  
Myths and Mysteries

**Nature as Therapy**  
Take a Hike

**Education**  
A Brave New World?



Justin Owen, CNAP

There is no doubt that 2020 continues to be an unusual year for all of us. I am proud to say that the McDowell Sonoran Conservancy has continued its work both inside and outside of our homes while adjusting to our rapidly changing world. We have turned obstacles into opportunities, as is reflected by our evolving youth education program that I will tell you about below. We are monitoring guidance daily, working in close partnership with the City of Scottsdale, and remaining agile and adaptable. Once it is safe, we will resume our regular in-person programming and events. In the meantime, one opportunity I would like to highlight

is the launch of our online youth programming, Conservancy Kids Online. We have created educational videos and lesson plans to support youth, teachers, and parents while schools have been closed. The lesson plans are also provided to schools to print and send home for students who do not have internet access so they, too, can learn about the importance of our environment and our place in it. These lessons span from wildfires to geology to bats to water and beyond. Although designed for youth, people of all ages can enjoy and learn from these materials. To view and share with others, please go to [https://www.mcdowell-sonoran.org/education/conservancy\\_kids](https://www.mcdowell-sonoran.org/education/conservancy_kids).

None of us know what the future holds; however, we will continue to seek opportunities to grow our impact. In addition to Conservancy Kids Online, we are shifting some of our in-classroom STEAM youth education programs online while schools remain restricted. This will enable us to reach more youth around the valley and beyond.

Although COVID-19 comes with many challenges, it has also provided us with important lessons and opportunities to expand our creativity and reach.

We appreciate your continued support of the Conservancy. Stay safe, and I look forward to seeing you out on the trails soon. ▲▲

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# Myths and Mysteries of the McDowells

Len Marcisz,  
McDowell Sonoran Conservancy Legacy Steward

The McDowell Mountains are not the most famous mountains in Arizona, nor even in Maricopa County, where the Superstitions and their associated legend of the Lost Dutchman Mine draw international curiosity. But mountains, like people, don't need to be famous to be interesting. Our McDowells have their share of myths, mysteries, legends, spooks, and curious happenings.

In March 1972, Scottsdale City Parks and Recreation Director L. B. Scacewater issued an unusual plea to pilots flying in the vicinity of Scottsdale Airport. He requested their help locating the base camp of an elusive "old time prospector" seen leading a pack animal in the McDowell

foothills. Per Scacewater, picnickers reported seeing a "shadowy figure" but were unable to get near enough to identify either the man or the animal. "Oldtimers" living near the McDowells theorized that the mysterious prospector might have been seeking the Lost Dutchman Mine. Scacewater later concluded that either the prospector was a "figment of the imagination" of the picnickers or a local engaged in unauthorized mining activity. Subse-



Tom's Thumb. Photo by Dennis Eckel

quent to the initial reports, the "illusive" ghost was never seen. Did you know that there is a prominent feature in the McDowells that cannot be named on U.S. Geological Survey maps because its namesake, rather than being a ghost, is very much alive? At an elevation of 3925 feet, Tom's Thumb

is a rock climber's paradise. First ascended on September 19, 1964, by local mountaineer Tom Kreuser, the granite outcropping cannot be officially named for him because the U.S. Board of Geographical Names does not honor living persons. No doubt Tom is in no hurry for the official recognition. There might be ghost cows at Brown's Ranch. At least that has been suggested by Lynn Kelley, owner of Summerwind Marchadors. A lover of the McDowell Sonoran Preserve, she

### McDowells Ghost Illusive

City Parks Director L. B. Scacewater said today he will ask airplane pilots to help him try to identify the ghostly figure seen roaming the vicinity of Cholla Park in Northeast Scottsdale.

Scacewater said he will ask pilots, taking off and landing at Scottsdale Airport to scan the landscape in an attempt to locate a possible base camp for what might be an oldtime prospector who has been seen leading a pack animal in the nearby foothills of the McDowell Mountains.

He said that picnickers have reported seeing the shadowy figure approaching the park but have not been able to get close enough to gain a description of the man and his animal.

Scacewater said that some oldtimers have informed him there is a possibility that the prospector has located what could be Jacob Walz's Lost Dutchman

mine which thousands of prospectors have been unable to locate in the Superstition Mountain area where legend has had it buried for years.

Scacewater said he also will ask security guards at the airport to scan the foothills at night and report to him any strange campfires they might spot.

Scacewater theorized that a recent Progress story about the ghost "which I believe to be a mirage or a figment of the imagination of the picnickers" may have spooked the mysterious figure and he is now taking every precaution not to be seen by anyone.

The parks director said that he had not received reports on a sighting since the story appeared Monday. He asked persons to telephone him at his city hall office if they have any ideas or theories on the mysterious roamer.

Article appearing in Scottsdale Progress on March 16, 1972.

## About Us

Our goal is to empower awareness and actualize global preservation through science, research, learning and teaching. Through the work of our scientific team and the dedication of more than 700 tireless volunteer outdoor advocates, we care for and study the McDowell Sonoran Preserve.

Connect with us:



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emotes on the quality of the Whiskey Bottle and Bootlegger trails and urges equestrians to ride the trails because “there are lots of stories about ghost cows at Brown’s Ranch—your horse may see one on the trails here!” McDowell Sonoran Conservancy stewards have not reported ghost cows in the area. Perhaps Marchador steeds retain a keener spiritual awareness.

Brown’s Ranch does, however, have some eerily coincidental history surrounding its principal cattle brand, the DC, from which Scottsdale’s development DC Ranch takes its name.

For many years, local historians erroneously attributed the creation of the DC brand to a Doc Crosby, or Doctor William B. Crosby—a person who never existed. The Brown family further mythologized the origin of the brand by maintaining that it stood for Desert Camp or Dad’s Cows. Some years ago, the Conservancy’s PastFinder stewards discovered the real Doc Crosby—but that was only the beginning of a spooky

set of coincidences.

The real Doc Crosby was a military surgeon, William Dorr Crosby, who served at Fort McDowell during 1884–1886. He registered the brand but never used it because he was transferred to another military post. Crosby attended Beloit College, a small school in Beloit, Wisconsin, located in Rock County.

Crosby’s brand changed hands over the years and was eventually acquired by E. O. Brown in 1917.

Brown had come to Scottsdale from Janesville, Wisconsin, in 1904. Janesville is located less than seven miles north of Beloit in Rock County. Upon E. O. Brown’s death, ownership of the DC brand passed to one of his sons, E. E. Brown. E. E., needing financial support, acquired a business partner, Kemper Marley, who eventually acquired sole rights to the brand. A close associate of Marley’s was convicted of organizing the bombing assassination of Arizona Republic reporter Don Bolles in 1976. Bolles

had been investigating Marley’s associations with politicians and criminal elements.

The Bolles murder drew national attention to political graft in

Arizona. Although Marley, a prominent Arizona businessman, was never indicted for the murder, public opinion reduced him to pariah status. As his business holdings were liquidated over the years, the DC brand eventually found its way to the development company of DC Ranch.

And what of the murdered Don Bolles? He is memorialized today as an honored alumnus at his alma mater—Beloit College. In one of those strange manifestations of historical coincidence, the DC cattle brand came to be created, owned, and eventually ended, over a period of a century, while passing through the lives of three individuals from the same small county with a small private college 1700 miles from the McDowells.

### **There’s a ghost that runs through Brown’s Ranch. It is not a cow; it’s a military road.**

The Stoneman Road, constructed in 1870, marked the first U.S. use of what is now Preserve land during the Westward Expansion. It was an Army supply route that ran through the pass between Brown’s Mountain and the low butte north of it. The military presence it brought allowed mining to flourish along its route from Cave Creek into the Bradshaw Mountains. It became one of the first major commercial roads in the region. Much of the road here fell out of use and disappeared with the closing of Fort McDowell in 1890.

Prior to the summer of 1870, soldiers at Camp McDowell on the Verde River traveled a 175-mile route



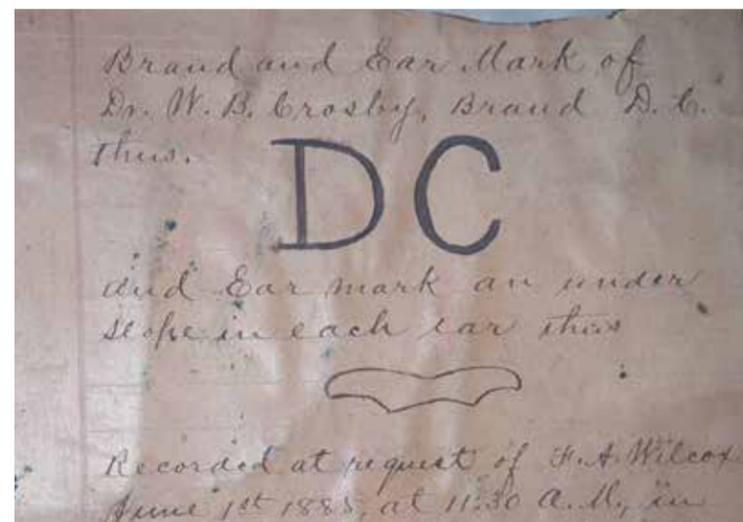
Flora Banghart and John Marion. Photo courtesy of Sharlot Hall Museum.

in order to reach military headquarters at Fort Whipple, near the town of Prescott. The indirect network of roads that constituted that route ran southwest from Camp McDowell, along the Salt River, through Phoenix, to Wickenburg, then north through Skull Valley and eventually into the Prescott Valley.

During the summer of 1870, brevet Major General George Stoneman ordered the development of a shorter 95-mile route between Camp McDowell and Fort Whipple. On October 1st, while inspecting troops at Camp McDowell, Stoneman decided to personally check the condition of the new military trail. At 4:00 p.m. that afternoon, he left Camp McDowell heading northwest with a dozen troops, a wagon, and a journalist. That night, the party camped near what is now the intersection of Dynamite and 136th Street. The following day they reached Cave Creek.

The journalist, John H. Marion, described travel over the trail as rough. Unimpressed with the desert that would eventually become the McDowell Sonoran Preserve, he described it as “poor country.” That casual disrespect must have raised the ire of the McDowell Sonoran spirits.

Three years after penning his derogatory description, Marion married Flora Banghart, a young woman of considerable physical beauty. The smitten



DC brand registration, dated June 1, 1885.

Marion described her to readers of the Prescott Miner as “God’s best gift to man...with her we hope to glide down life’s rugged pathway in a pleasant way.”

In 1884, Flora glided right into the arms of the district attorney, Charles Rush, who was Marion’s best friend. The two departed the territory, abandoning their spouses and four children. Crushed, Marion devoted the remainder of his life to newspaper work and politics.

In 1891, while carrying a bucket of water from his well to his house, Marion stumbled and died of a heart attack. No doubt the spirits of the McDowells had their revenge, arranging for Marion to literally kick the bucket.

Evidence of either fraud or incompetence is readily available to hikers along the Gateway Loop. Those mine diggings and tailings visible to the south of the Gateway Loop are the remains of the Paradise Gold Mine. PastFinder, steward, and McDowell Mountains mining authority Larry Levy tells the tale:

The promoters of the Paradise Gold Mining Company organized in Arizona in 1916 and, thereafter, went about building mining improvements, digging adits and shafts, and otherwise conducting business in an apparent effort to look like successful miners. Indeed, two of the founders were listed in the Phoenix directory of the period as being consultants, or “mining experts”.

As a public company, they were allowed to sell shares of stock in their

venture. The one annual report— incomplete at that—they filed with the Arizona Corporation Commission in 1919 shows they had “Amounts Capital Stock Paid Up and Invested” of \$22,561.76. That was a lot of money for the time.

The owners supplied their promotional information to the publisher of Mines Handbook saying they had “...2 parallel veins 300 feet apart, traceable at surface for 3,000 feet, 45 feet wide at depth of 100 feet, and averaging about \$5 in gold. Sinking shaft to 200 feet level in 1917. Stock offered to the public at 25 cents.” Beyond this, no records exist of any gold ever having been produced from this mine.

Then, in 1923, and despite the earlier appearance of serious mining activity at the mine site, the Arizona

Corporation Commission began legal proceedings to revoke public company status of the Paradise Gold Mining Company for failure to file annual reports and pay fees. A Maricopa County deputy sheriff was dispatched to serve summons on the corporate agent and officers but reported that he could not find them. Curiously, city directories from the period show some of these people living in Phoenix for years before and after this time, including the designated agent for the corporation, who also happened to have been a deputy U.S. Attorney.

And so hikers along the Gateway Loop are blessed with the view of an abandoned mine that was both a myth (no gold) and a mystery (owners who disappeared, apparently in plain sight).



A fence around Paradise Mine provides a buffer of safety around its vertical shaft. Photo by Len Marcisz



Lost Dog Wash. Photo by Dennis Eckel

The Lost Dog Wash area has its own curious history and mystery, beginning with the origin of its name.

There is the original lost dog, of whom we know nothing—not its name, not its owner, not even its fate. The pooch from the past serves only as an apocryphal reminder of the dangers facing

those who fail to obey Scottsdale Revised Code, Chapter 21, Article II, Section 21-12, Paragraph 28—requiring all dogs within the Preserve to be on a lead.

The wash earned its name recently and unfortunately when, in mid-July, 2017, three hikers took a pit-bull for a late morning walk on Lost Dog Wash Trail. The

Scottsdale Fire Department received an urgent call at 12:15 p.m. indicating the hikers were in “heat distress.” By the time they reached the trio, the dog had died. The hikers were issued citations. And, thanks to human carelessness, the wash now had a real-life canine victim to justify its name.



In 1993, the Ancala Fire burned 2,000 acres that flank Lost Dog Wash. Unofficially it's referred to as the TP Fire.

Photo by Len Marcisz

Some tragedies are tragicomic. The 2,000-acre burned area that flanks the Lost Dog Wash Trail provides proof that no good deed will go unpunished.

In 1993, a survey crew was working in Lost Dog Wash, assessing the site for a diversion dam. One of the surveyors was beset by the need of lower intestinal relief and

stepped off into the desert brush to make a deposit. At the conclusion of the act, he found himself with used toilet paper. Ecologically sensitive, he decided to burn the material and, ironically, "leave no trace." It was a breezy day. The burning paper cartwheeled along the desert floor and through its dry grasses. Two days and

2,000 charred acres later, the fire was extinguished.

Officially, this burn is known as the Ancala Fire. Unofficially, local fire personnel refer to it as the TP Fire.

Yup, not all mountains can be famous, but they sure can be interesting.... ▲▲



## Discovering Bats in the McDowell Sonoran Preserve

Jessie Dwyer  
Graduate Student, Arizona State University

A tree-roosting species, Western yellow bats use native plant species as well as non-native palm trees. They may spend their days hanging from a leaf or nestled against the tree trunk. Photo by Randall D. Babb

Last summer, the McDowell Sonoran Conservancy partnered with Dr. Jesse Lewis' lab at Arizona State University to conduct a pilot research study on bats in the Scottsdale McDowell Sonoran Preserve. The goal of the study was to gain fundamental knowledge about bats by determining which Arizona bat species are present in the Preserve.

To detect the presence of bats, we used passive, stationary acoustic monitoring to record bat echolocation calls at three sites along the Gooseneck Corridor. The sites were surveyed for two weeks in September 2019 from sunset to sunrise. We then

used species identification software to identify the species visually based on their unique call characteristics. We confidently identified 12 bat species, bringing the total number of recorded plant and animal species in the

McDowell Sonoran Preserve to more than 1,000. WOW!

The following 12 species of bats were detected in the Preserve: western mastiff bat (*Eumops perotis*), big/pocketed free-tailed bat (*Nyctinomops sp.*),



Most bat calls are too high-pitched for people to hear. That doesn't mean we can't study them, though! Each bat species produces a unique echolocation call that we can detect with acoustic monitors and interpret via spectrograms, such as these.



Silver-haired bats typically roost in trees. These relatively-slow flyers eat a variety of insects, typically feeding in mid-flight. Photo by Randall D. Babb

Mexican free-tailed bat (*Tadarida brasiliensis*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western red bat (*Lasiurus blossevillii*), silver-haired bat (*Lasionycteris noctivagans*), western yellow bat (*Lasiurus xanthinus*), California myotis (*Myotis californicus*), western small-footed myotis (*Myotis ciliolabrum*), cave myotis (*Myotis velifer*), and canyon bat (*Parastrellus hesperus*).

Research like this pilot study in the Preserve is essential for understanding and conserving bat populations. The fundamental knowledge gained in this study provides a foundation for future research in the Preserve, such as long-term monitoring. Long-term bat monitoring would enable researchers to detect changes in populations over time and act quickly if conservation efforts are needed.

Along with continuing research, it is crucial to increase public under-



Pallid bats are highly maneuverable and are one of the few species that can glean prey from the ground. Their large ears are so sensitive that they can even detect insects' footsteps on the ground! Photo by Randall D. Babb

standing of bats and the importance of allocating resources towards conserving their populations. Bats are mysterious, and widely misunderstood, creatures of the night. So what exactly makes them so special?

For one, bats are the only mammals that have evolved true flight. Bat wings are composed of elongated hand and finger bones connected to their bodies by a thin, elastic membrane. The structure and function of bat wings support flight strength, speed, and maneuverability.

Furthermore, most bats can echolocate, or interpret their surroundings by emitting sound waves that reflect off objects in the environment. The characteristics of echolocation calls vary by species and activity, such as commuting, approaching prey, or socializing.

The unique adaptations of flight and echolocation have allowed bats to survive and diversify greatly, with more than 1,400 species of bats worldwide. One in 5, or 20%, of all mammal species in the world are bats! The state of Arizona has 28 species of bats, one of the highest numbers in the United



Although pallid bats are insectivorous, they may occasionally sip sweet nectar from plants such as saguaros. Pollen on these bats' faces give away their recent sweet-tooth satisfaction. Photo by Scott Sprague

States, second only to Texas.

Bats are important ecologically and economically, playing essential roles in ecosystems around the world, such as pollination, seed dispersion, and predation of nocturnal insects. For example, aerial insectivorous bats, such as the Mexican free-tailed bat, are the largest predators of nocturnal flying insects, a natural pest control that saves the U.S. agriculture industry billions of dollars annually.

One of the bat species we discovered in the Preserve, the pallid bat, performs an ecological role that Arizona residents may greatly appreciate. Pallid bats are trawling insectivores, which means they prey on ground-dwelling insects, such as beetles, centipedes, and scorpions. Pallid bats are one of two known bat species immune to scorpion venom!

As we learn more about bats, they become less mysterious and more fascinating, with each answered question leading to more curiosity. We need only to follow this curiosity to discover that bats are unique, interesting, important to this world, and, yes—even adorable! ▲▲

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## Nature as Therapy

Toni Vallee, McDowell Sonoran Conservancy Master Steward and  
Katy Lindberg RNC/COGNP, McDowell Sonoran Conservancy Lead Steward

**F**razzled by the COVID-19 pandemic? Getting casita fever (but not from the virus)? There are proven ways to improve your physical and mental health during difficult times or everyday life. Over the last 20–30 years, innovative scientific research, aided by the miniaturization of tools to test human biomarkers, has enabled scientists to tease out whether being in nature can improve a person's overall health. The verdict is in: being in nature has measurable positive impacts on your physical and mental well-being.

Many people notice feeling better after a walk, a run, or a bicycle ride. Scientists have sought to answer the question of whether it is being out in nature or exercise that improves well-being. Many creative experiments have been developed to answer that specific issue. Scientists have used biomarkers and psychological tests to determine if there is specific value in being out in nature separate and distinct from exercise. How do you get access to these benefits? Using your senses and doing an activity we call "nature walking" can demonstrably improve both your physical and mental health.

Using your sense of smell to breathe in the pleasant scent of flowers or the creosote bush has been shown to reduce stress hormones in our bodies by up to 57%. Blood pressure has been reduced by up to 5–7%—the equivalent of many blood pressure



*The sense of smell is key to truly sensing the desert. Find time to identify the sources of those amazing scents as you enjoy nature. Photo by Jennifer Maggiore*

**Enjoy the amazing views within the McDowell Sonoran Preserve while also benefitting from the calming impact of fractal images.**

*Photo by Dennis Eckel*



drugs. Many plants contain antibacterial aromatic volatile compounds that boost our immune system Killer T cells to help fight illness and fatigue.

Hearing the sounds of nature, specifically the musical sounds with high trills of song birds, has been shown to relax people. Seeking quiet places outside, where you can hear song birds, while away from noise pollution, can help improve many aspects of physical and mental well-being.

Touch, the sense that includes our largest organ, our skin, enables us to be more mindful. Take some time to feel the sun on your skin, the wind through your hair, the texture of a plant leaf, or the bark of a tree. Mindfulness has been shown to help relieve stress, treat heart disease, lower blood pressure, reduce chronic pain, improve sleep, and alleviate gastrointestinal

difficulties. Another aspect of touch, allowing your body to physically touch the elements of the earth, including the ground, plants, rocks, etc. without any intervening elements like rubber soles, has been shown in National Institutes of Health published research to improve sleep, reduce pain and stress, and speed wound healing. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4378297/>

A sense of awe, although not a physical human sense, is defined as “an overwhelming feeling of reverence, admiration, fear, or wonder produced by that which is grand, sublime, or extremely powerful.” Awe is the only one of the core human emotions that has shown a reduction in chronic inflammation levels linked to depression, stress, and poor muscle repair. Cultivating a sense of awe while out in nature is easy to do. Seek out



Add grounding and the sense of touch during your time in the Preserve. Could this improve sleep or reduce pain? Photo by Jennifer Maggiore

a beautiful tree, a hummingbird darting about, or the blooms of a saguaro.

Vision: Taking in the beauty of nature is a pleasure of life to many people. Looking at a mountainscape, cloud, or tree is very calming. When looking at a palo verde, it doesn't seem to have any order. But there

is a trunk that splits into branches, which split into leaves. These types of patterns are called fractals. Human brains respond to fractal images, and those images calm us. Humans can recover from stress 60% faster when viewing fractal images common in nature. Fractal images enable the production of the alpha waves of a relaxed state of mind. These scenes are easy for humans to process and may also trigger natural opiates in the brain.

We can access many of these benefits by sitting outside or looking at images. But nature walking, while using one's senses, adds even greater benefits. Nature walking is mindful and is not about raising heart rates to improve fitness.

Nature walking has been shown to improve memory. It increases divergent creativity, better known as thinking outside the box, with little to no effect on convergent or executive function—enabling people to find solutions to issues or problems causing stress. Walking mindfully helps reduce negative thoughts as blood flow is reduced to that area of the brain. Viewing fractal images, while walking, quiets the brain circuitry involved in self-wallowing.

Should you walk alone or with others? Yes! Walking with others boosts mood and reduces depression and anxiety. But if you want to solve problems in your life or jolt your creativity, it's best to go alone, in areas you feel safe. Walk at a moderate pace, always looking forward for any hazards that could precipitate a fall while using your distant and peripheral vision to see nature's beauty.



Relax while being awed by nature. Photo by Dennis Eckel

To access the benefits of nature, here's a prescription:

- ✓ Daily: get out into your neighborhood
- ✓ Weekly: go to a regional green space such as Scottsdale's

McDowell Sonoran Preserve  
 ✓ Monthly: visit a national park or preserve  
 ✓ Annually: try a longer, more intense experience  
 For another way to achieve these

benefits, try these walking regimes:

- 30 minutes a day, five days a week, for a short tonic to get rid of the blahs
- OR -
- Three hours a week to lessen depression and increase sociability and self esteem

Toni and Katy have created a public walk called Nature as Therapy to demonstrate these techniques. For information, please view <https://www.mcdowellsonoran.org/events/list>. This experience can also be provided as a private hike.

To create this walk, they used information from *The Nature Fix* by Florence Williams, *Your Brain on Nature* by Eva M. Selhub, MD and Alan C. Logan, ND, *Forest Bathing* by Dr. Qing Li and *The Biophilia Effect* by Clemens G. Arvay. ▲▲



Although rare, sightings of wildlife enhance the positive impacts of being in nature. Photo by Dennis Eckel



Online teaching poses the unique challenge of conveying information in a way that keeps the learner engaged, despite the lack of in-person feedback. Conservancy Kids blends entertaining, informative videos with interactive activities students can do at home.

## Education: A Brave New World?

By Nicole Kallman,  
McDowell Sonoran Conservancy Education Coordinator

Since March, we have all experienced changes to our routines, jobs, living situations—pretty much all aspects of life have been affected by COVID-19. It has been a period of both challenges and opportunities, providing us with the chance to reevaluate both our societal systems and priorities. Educators faced a unique challenge in the beginning of March when schools physically closed. Teachers, parents, and students were required to quickly adapt to a new and

uncharted learning situation.

Switching from traditional in-person learning to online posed substantial obstacles. Teaching in an online format requires a completely different approach, and teachers had to develop a new plan rapidly. They had to consider numerous factors, such as how to maintain student attention in online classrooms and provide support virtually. The lack of student access to what many consider “basic” technology demonstrated the inequality many

children face in our current learning system. Parents were thrown into the completely unexpected roles of secondary educators. In addition to normal parenting tasks and their own jobs, they stepped up to support their children and teachers.

Despite the difficulties of the new situation, teachers, parents, and the community rose to the occasion. Teachers banded together on a global level, with educators in China and Italy (the countries who first faced the

shift to online learning) providing resources and support for their counterparts in other countries just entering the virtual education space. Similarly, parents formed online communities with other parents, sharing tips and resources and offering encouragement. Organizations stepped up, supplying students in need with laptops and school supplies. Informal education organizations quickly developed online learning resources for both teachers and students. The past six months, while challenging, have brought about incredible innovation, creativity, and comradery in the education space.

In order to support the incredible work teachers and parents are doing, the McDowell Sonoran Conservancy developed Conservancy Kids Online, a weekly video newsletter that blends science with outdoor-based inquiry and exploration for elementary school children and their parents. The goal of the newsletter is to supplement material being taught by educators while providing parents with a resource that is both meaningful and accessible. During the spring semester, Conservancy Kids Online developed engaging educational videos about different Sonoran Desert related topics and paired them with inquiry-based lesson plans that were designed to be easily usable by anyone, regardless of whether they had formal education training. Because parents had to quickly step into an instructor role at home, we created Conservancy Kids Online as a resource focused on engaging, educational activities. Parents are the facilitators of lessons, but students drive the actual exploration and questioning. Empowering students to take leadership of their learning creates ownership and inspires confidence. During this period of educational challenges, empowering students to self-direct their learning is more important than ever.

As COVID-19 continues to impact us all, we are likely to see a blend of in-person and remote learning. However, there will also be incredible opportunities to reevaluate and improve learning and teaching systems for the benefit of our students. We have the unique chance to take the innovations developed out of necessity, evaluate and improve them, and use them to transform education. The Conservancy is excited and committed to supporting teachers, parents, and, most importantly, students as we navigate a brave new educational world.

To view Conservancy Kids Online please visit [https://www.mcdowellsonoran.org/education/conservancy\\_kids](https://www.mcdowellsonoran.org/education/conservancy_kids). You can also sign up to receive our Conservancy Kids Newsletters. ▲▲

### Traveling Back In Time (Archaic Peoples)

People started living in the Sonoran Desert thousands of years ago. They didn't have electricity, air conditioning, or grocery stores, but they were able to successfully survive in this extreme environment. We call these people the “archaic” peoples and they were the precursor to the Native American tribes that emerged about 2,000 years ago. Join Franco and Len as they take us on a journey of what it was like to live in the Sonoran Desert 7,000 years ago!



Although Conservancy Kids centers on the Sonoran Desert, the overarching themes of outdoor exploration and environmental stewardship speak to viewers across states and ecosystems. We have viewers in Arizona, Colorado, Wisconsin, and beyond!

### Pollinators—They're Pretty Neat!

Why are flowers so pretty? Why do they smell nice? They're trying to attract pollinators! We can thank pollinators for almost all of the plants we see and eat. Plants rely on pollinators to transfer their genetic material (in the form of pollen) to other plants of the same species. Plants have some tricks up their sleeves to attract these pollinators. In exchange for stopping by, plants offer rewards like sugary nectar, oils, and even the pollen itself. Pollinators are a really important part of any ecosystem



Topics for our weekly Conservancy Kids include geology, animals, human history, and more with a focus on encouraging viewers to embrace their role as stewards of the Sonoran Desert.



# What is This Exclusive All Trails Club and How Do I Join?

By Jakki Casey,  
McDowell Sonoran Conservancy Chief Operating Officer

Early morning starts provide a unique perspective of the Preserve, plus help accomplish longer routes. Photo by John Zikias

Scottsdale's McDowell Sonoran Preserve is a place of wonder and beauty, drawing people from all over the world to explore its 225 miles of trails. Some individuals have pursued a goal of traversing every inch of those trails, entering an elite group known as the All Trails Club (ATC).

In 2014, steward Laurie Jones came up with the great idea of recognizing those who cover every segment of every trail in the Preserve. She worked with Kathy Dwyer, our former Director of Steward Operations, to launch this fun challenge with a

certificate at the end to mark the achievement. Laurie thought this would encourage more people to try new trails. As the mileage of trails has grown over the years, so, too, has the challenge to complete them.

So what drives people to join? We gathered input from a handful of steward ATC members and noticed several similarities among their stories, including "had I known then what I know now," "if you want something badly enough, you will do it," "so proud to be a member," and "what better way to learn the trails."

Many of us share a sense of wonder when out hiking and look forward to seeing what is around the next curve. How many of us, though, go back to the same trails time and time again? ATC members share the joy at finding new memorable places within the Preserve that might not otherwise have been seen. Each year, our stunning desert gifts us with different and amazing things to accompany us on our miles.

One steward member took in a rescue along the way. On a challenging route to complete the remote trails



For many of our ATC members, reaching the top of Thompson Peak is a "one and done." Those views, though.... Photo by Kara Allen



The views you can see while completing ATC make those long climbs well worthwhile. Photo by Art Ranz



Native thistles made an amazing appearance this year during wildflower season, making hikes even more scenic than usual. Photo by Jakki Casey

on the back side of Bell and Windgate passes, he came across a jogger who seemed dazed but said he was okay. An hour later, he met the jogger again, this time sitting under a tree. This turned into a 911 call, running a quarter mile to an accessible spot to grab the attention of a passing helicopter, and leading the crew back to the patient. The helicopter completed the rescue, and the jogger later reported he was fine and expressed his appreciation. Can you imagine the huge adrenaline

flow knowing you may have helped to save a life on a hot and lonely trail? Each time the City of Scottsdale announces new trails are coming, more people dash to complete their ATC before those trails are added to the list. Although not required, many existing ATC members complete the new trails soon after they are released, so they can happily report having completed every segment of every trail.

While on the trails, many of our stewards carry equipment to undertake

minor trail maintenance needs they may come across. One steward reported that he not only covered all the trails but also trimmed vegetation on approximately 80% of them. His goal is to trim 100%!

People can complete

the ATC by hike, bike, or horseback—or any combination of those. In 2015, a steward completed 95% of the trails by bike in three days. He completed the remainder on foot over the next few days. We think this is the fastest completion, but some people think there should be three clubs: one for those who complete only on foot, one for biking and hiking, and a third for equestrian and hiking. This debate continues!

Are you interested in joining this elite club? You don't need to be a steward to join the club. The best tips for completing the ATC—find some similar-minded friends who will go to remote spots, put in the mileage with you, spend time poring over the maps to plan routes with the least duplication, help you have fun, and, of course, celebrate with you when you finish!

Want to join? Check out <https://www.mcdowellsonoran.org/all-trails-club>.

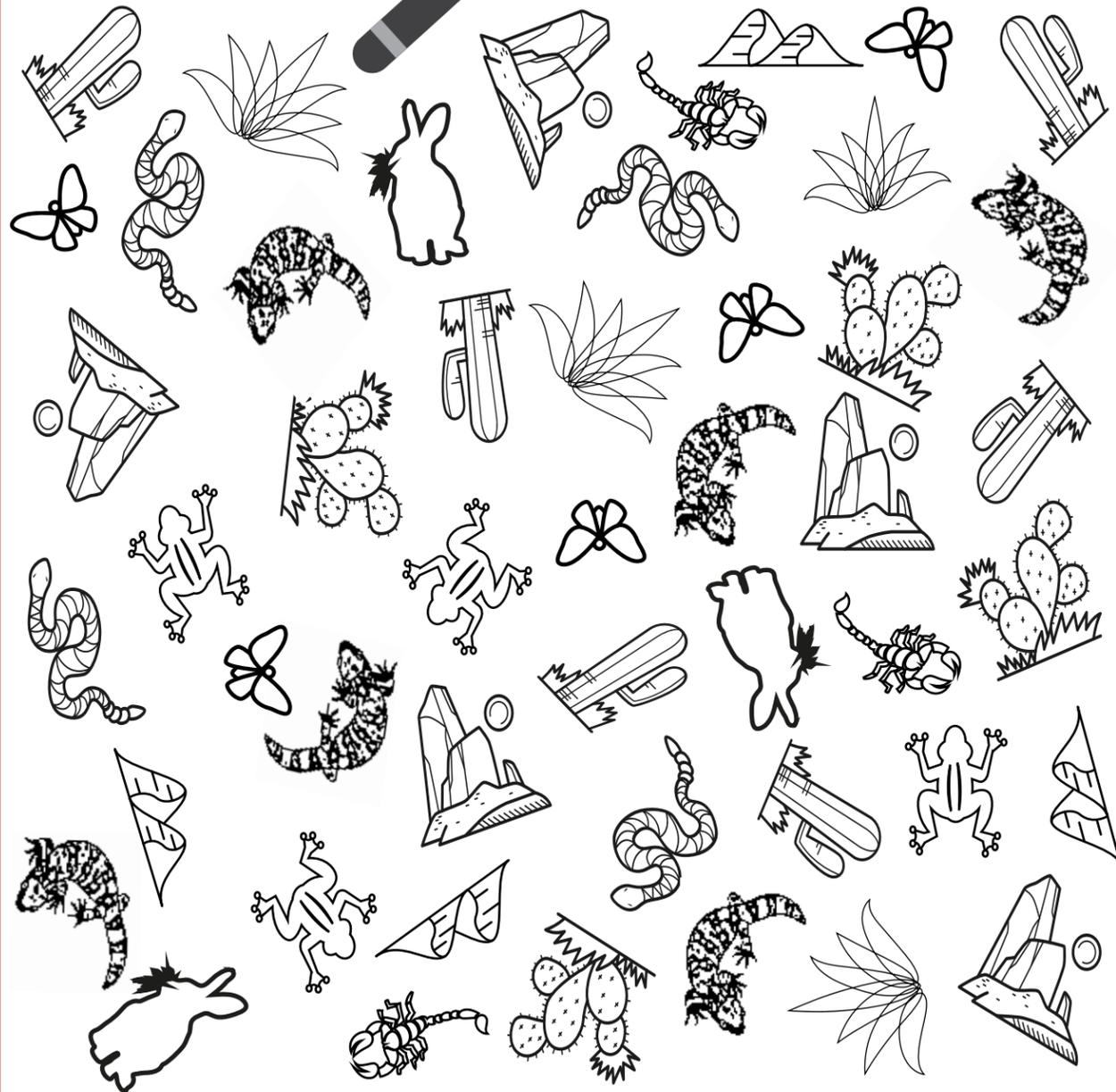
With thanks to the following stewards for sharing their tales—Jeanine Allsup, Steve Coluccio, Sharon Fitts, Won Fogel, Art Ranz, Paul Staker. Plus Laurie Jones and Kathy Dwyer for establishing this club! ▲▲



It is important to make sure you are prepared for changing weather conditions. Photo by John Zikias



# I SPY!



**CAN YOU FIND THE OBJECTS?  
LOOK CLOSELY FOR THE NUMBER OF  
OBJECTS NAMED TO THE RIGHT!  
YOU CAN EVEN COLOR YOUR OBJECTS!**

- |                              |                    |
|------------------------------|--------------------|
| <b>6</b> Saguaro Cactus      | <b>3</b> Rabbit    |
| <b>5</b> Rattlesnake         | <b>3</b> Scorpion  |
| <b>6</b> Gila Monster        | <b>4</b> Agave     |
| <b>4</b> Prickly Pear Cactus | <b>5</b> Butterfly |
| <b>5</b> Butte               | <b>4</b> Mountains |
| <b>4</b> Toad                |                    |

## Focus on a Foundation – Thunderbird Charities

Tim Crum,  
McDowell Sonoran Conservancy Chief Development Officer

Thunderbird Charities is a non-profit organization formed in 1986 to distribute monies raised through the Waste Management Phoenix Open golf tournament. The Thunderbird Charities Board consists of 15 members from varying professional backgrounds. The mission of Thunderbird Charities is to support organizations that assist children and families, help people in need, and improve the quality of life in the Greater Phoenix metropolitan area. The organization's giving is directed toward organizations based or with a significant presence in Arizona.

Since 2017, Thunderbird Charities has awarded McDowell Sonoran Conservancy three grants totaling \$50,000. These grants have supported our Sonoran Discovery Academy, which provides opportunities for elementary-age learners to explore the Sonoran



This year, we welcomed 630 students to the McDowell Sonoran Preserve for an interactive day of lessons, tied to their school curriculum. Photo by Lynne Russell



The Next Generation Science Standards based lessons engage the students in place based learning to help them understand the importance of our ecosystem and their place in it. Photo by Lynne Russell

Desert through the lens of scientific research and observation. The program creates innovative STEM and STEAM-based learning opportunities for students of all ages.

Along with a number of other donors, Thunderbird Charities' investments have allowed us to provide opportunities for students to develop claims-based observations of nature, complete interactive experiments, and learn about the interconnectedness of desert species.

- The 2017 grant supported indoor/outdoor lessons allowing Title I students from 43 classrooms to visit the McDowell Sonoran Preserve for a guided interpretive walk and the 2018 Junior Citizen Science Festival. A subsequent in-class lesson about food webs and ecosystems reached 23 classrooms.

- The 2018 grant supported the 2019 Junior Citizen Science Festival, a half day exploratory field trip, serving 430 3rd through 5th grade students and 27 teachers from Phoenix, Scottsdale, and Fountain Hills, with the majority coming from Title I schools.
- The 2019 grant supported 2020 Expedition Days, a half day learning experience based on the new Arizona Next Generation Science Standards serving 630 3rd grade students, with more than half of those students coming from Title I schools.



Students from across the valley experienced the McDowell Sonoran Preserve. For many, it was their first time in the natural desert. Photo by Lynne Russell

The McDowell Sonoran Conservancy appreciates the financial support of Thunderbird Charities, whose funding helps us impact a growing number of youths. ▲▲



A white-winged dove sipping nectar from a saguaro flower is a common sight in the Preserve. Doves time their migration into the Sonoran Desert so they can take advantage of the life-giving nectar the flowers provide. Photo by Dennis Eckel

## White-Winged Dove and Saguaro Tied by Time in the McDowell Sonoran Preserve

Jerry Holden,  
McDowell Sonoran Conservancy Lead Steward

Scientists with the National Park Service have reported that saguaros may be disappearing from the Sonoran Desert because of climate change. One negative impact climate change may have on saguaros is phenophase mismatch between the cactus and its pollinators. Since 2017, the McDowell Sonoran Conservancy Parsons Field Institute has been recording the phenophases of nine

saguaros (*Carnegiea gigantea*) at three sites in the Scottsdale McDowell Sonoran Preserve. To explore if a pollinator phenophase mismatch is or will occur, the white-winged dove (*Zenaida asiatica*) was added to the project in 2020.

Phenology is the study of the timing of plant and animal life cycle events, called phenophases, such as migration, pollinating, flowering, and

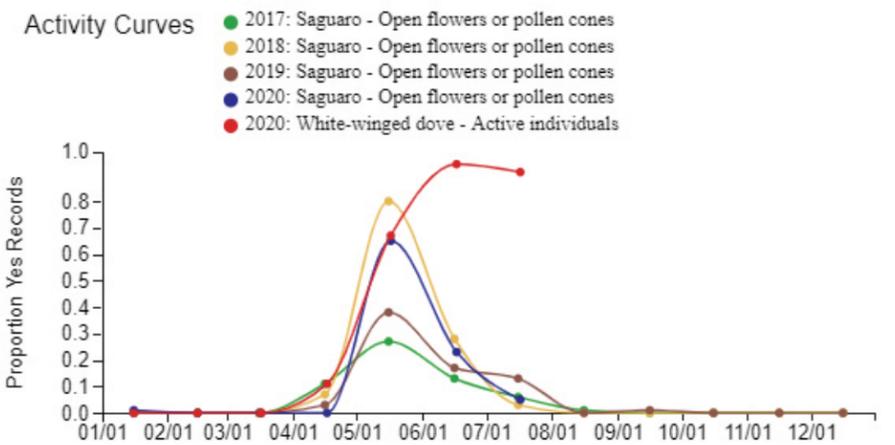
fruiting. When the phenophases of two species that rely on each other are synchronized, both species benefit. If a phenophase shifts in time for one of the species but not the other, the result is a phenophase mismatch, which may be detrimental to one or both species.

White-winged doves and saguaros are one example of species that depend on each other—a classic plant/pollinator relationship. The dove is migratory and

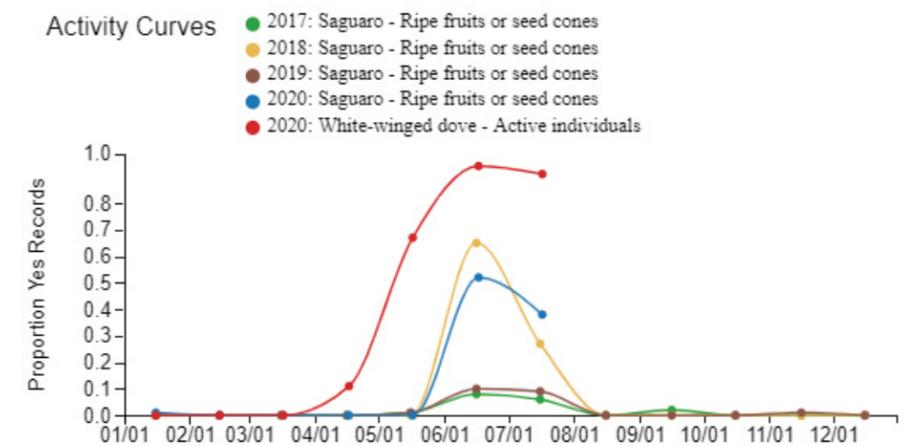
relies on saguaros almost solely for food and water during its breeding season. In turn, the saguaro can only be fertilized by cross-pollination, that is pollen from a different saguaro. To obtain this pollen, the saguaro produces a profusion of creamy white flowers that attract doves and other pollinators. The doves move from saguaro to saguaro, sipping nectar from the flowers and pollinating the plant. Once the flowers ripen into fruit, the resulting seeds provide the doves with a new food source. Seeds ingested by doves are destroyed in the birds' powerful gizzards and will not germinate to produce new saguaros.

Using protocols developed by the USA National Phenology Network, twice weekly, the Conservancy's Phenology Team has been recording the phenophases of both the dove and saguaro. To determine if these respective phenophases are in sync or out of sync, we compare the dove phenophase of "Active," meaning one or more doves are seen in the vicinity of the cactus, to the saguaro phenophases of "Open Flowers" and "Ripe Fruit." The best way to compare these phenophases over time is through their activity curves, which show when the phenophase starts and ends, as well as when it peaks.

From the activity curves, we see that the saguaro's Open Flower phenophase is first observed around mid-April, peaks around mid-May and is gone by the end of July. Subsequently, the Ripe Fruit phenophase is first observed around mid-May, peaks around mid-June, and is gone by mid-August. In this first year of monitoring doves, we found that the active dove phenophase first appeared around mid-April and looks



USA National Phenology Network, www.usanpn.org



USA National Phenology Network, www.usanpn.org

Activity curves are a useful way to compare timing of phenophases within and between species. Over time, the start, end, and peak of phenophases may shift earlier or later as a result of environmental pressures, such as climate change. These early results from saguaro and white-winged dove phenophases in McDowell Sonoran Preserve will provide a baseline with which to compare future data. Graphs courtesy of the National Phenology Network.

to be peaking around late June. This shows that, in 2020, the dove was in the Preserve when the saguaros were flowering and producing ripe fruit.

From the limited observations to date, it appears that the phenophases of the saguaro and white-winged dove in the Preserve are currently in sync. Additional observations, however, of both saguaros and white-winged doves over the next five to ten years

are needed to filter out year-to-year variation and reach a more definitive conclusion. Continued monitoring beyond that will help us determine effects of climate change on these closely tied species.

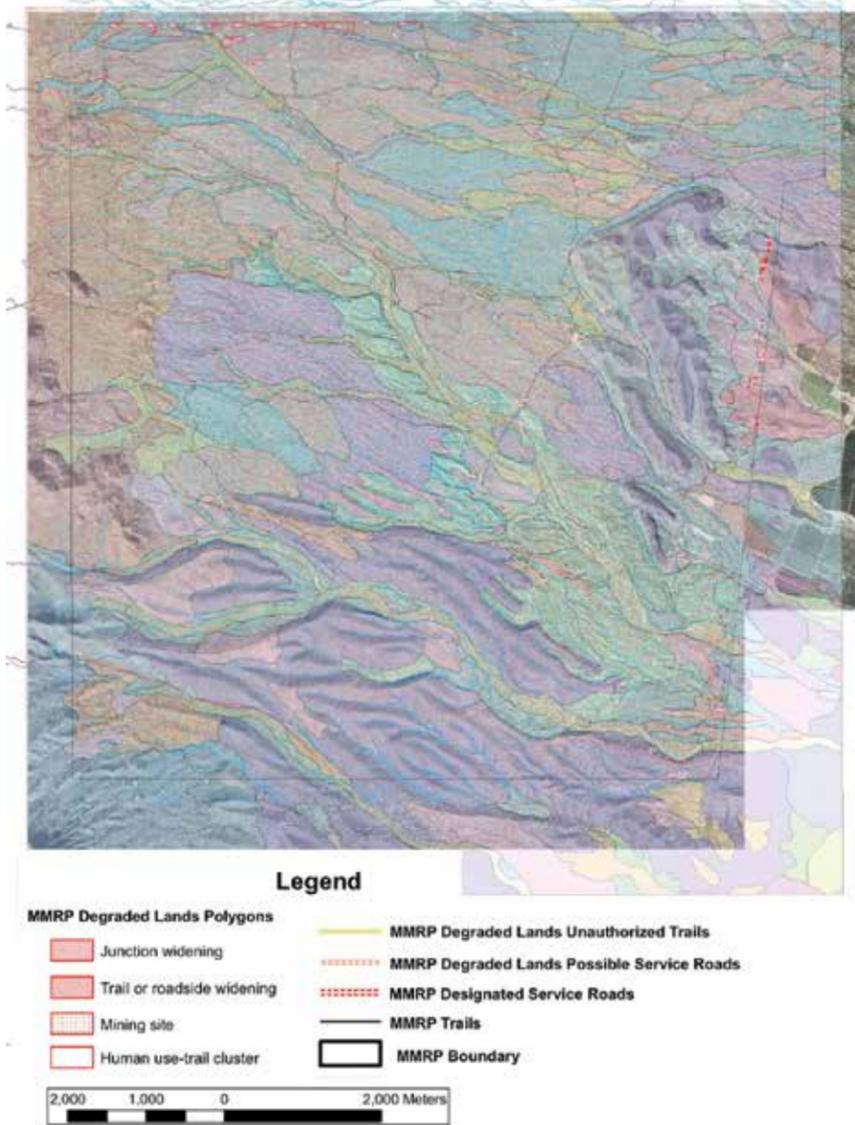
If you would like to learn more or join the Conservancy's Phenology Team, please contact the author at [plantmonitor@mcowellsonoran.org](mailto:plantmonitor@mcowellsonoran.org).



# Restoration of Degraded Lands—A Digital Approach in Unprecedented Times

By Alexe Raguindin, NAU intern and Mary Fastiggi, McDowell Sonoran Conservancy Parsons Field Institute Coordinator

Potential Restoration Areas MMRP  
McDowell Mountain Regional Park



Prioritizing sites in the Sonoran Desert for restoration can be challenging and time-consuming for busy land managers. To help with the process, the McDowell Sonoran Conservancy Parsons Field Institute created a comprehensive procedure to identify, map, and recommend seed lists for degraded lands within the Scottsdale McDowell Sonoran Preserve—and now the regional parks. In 2018, we recommended 26 acres of previously unidentified degraded sites for restoration to the City of Scottsdale. Our citizen-science driven approach consists of first remotely mapping degraded areas with satellite imagery, then creating site-specific native seed menus for restoration use. You can learn more about the process and our Preserve results in the Spring 2019 Mountain Lines edition (<https://bit.ly/Spring2019ML>).

Based on the success of the 2018 project, we entered into a partnership with Maricopa County Regional Parks and Recreation to map McDowell Mountain Regional Park and White Tank Mountain Regional Park. We could not have predicted that this project would be an ideal citizen science endeavor during the COVID-19 crisis. Social distancing precautions meant reduced citizen science participation for much of our spring fieldwork. However, the degraded lands mapping process lent itself to virtual training. We were able to offer a remote internship opportunity and welcomed Northern Arizona University student Alexe Raguindin to assist with the review process. Alexe enjoyed her summer internship, saying, “It is an honor to work with the McDowell Sonoran Conservancy, especially in a time of such disarray. I have

been able to expand my knowledge of Google Earth Pro, ArcGIS, and Excel systems; lead web seminars; and sharpen my time management, organization, and professional skills.” She worked collaboratively with Dan Gruber, Legacy steward, to facilitate remote webinar training sessions for stewards and to produce the final maps for the County. In a time with limited internship opportunities, Alexe has gained Geographic Information System (GIS) experience and learned what it’s like to work on an applied research project.

Additionally, the virtual nature of this project allowed us to test hosting webinars for citizen science opportunities. We have successfully hosted three webinars to train teams of stewards to scan satellite imagery and move this project forward. Learning how to adapt in the time of COVID-19 opens opportunities for communication, including online workshops, educational videos, and a suite of other resources. After being trained remotely, stewards identified more than 125 potential sites in McDowell Mountain Regional Park, including an interesting land feature that is likely a clay mining test site from before the land was designated a regional park. We defined “degraded areas” either as dirt areas generally greater than 100 m<sup>2</sup> with no or limited vegetation and likely to have been caused by human use or as concentrated clusters of unauthorized human trails. After initial scans were complete, Dan and Alexe worked in parallel to eliminate

false positives and reduced the final list to 61 potential restoration sites. An additional 24 potential unauthorized trail features were included in the final assessment. Following the mapping process, Alexe created comprehensive site-specific native plant lists using Ecological Site Description codes associated with soil types within the parks provided by the Web Soil Survey of the U.S. Department of Agriculture.



The Conservancy seeks to educate and inspire. Internships are a great opportunity to do so, as Northern Arizona University degraded land maps intern Alexe Raguindin can attest. Photo credit: Alexe Raguindin

Currently, our stewards and Alexe are working to complete this process for White Tank Mountain Regional Park. Reports for both parks are being developed and will be shared with our partners at Maricopa County Parks and Recreation, then more generally. This project demonstrates our stewards’ unstoppable dedication to conservation, despite new challenges. As we continue to live in a socially distanced world, we can learn from the successes of digitally managed projects like the degraded lands mapping initiative. ▲▲

## Four Easy Ways to Support the Conservancy



Shop from the comfort of your home and earn rewards for the McDowell Sonoran Conservancy using AmazonSmile. To link your Amazon purchases to the Conservancy, visit [smile.amazon.com](https://smile.amazon.com) and select “McDowell Sonoran Conservancy” from its list of approved charities.



Now you can support the Conservancy when you shop at Fry’s by joining its Community Rewards Program. Join the program by visiting [frysfood.com](https://frysfood.com) and selecting “Fry’s Community Rewards” under “Community” at the bottom of the page. Select “McDowell Sonoran Conservancy” from the list of eligible organizations.

## Facebook Fundraising

You can create a Facebook fundraiser in support of the Conservancy. Just log into Facebook and click “Fundraiser” under “Create” in the left column. Click on “Nonprofit” and then search for “McDowell Sonoran Conservancy.” from the dropdown list under “Nonprofit.” Share your fundraiser with friends and family and let them know why you support our mission.



The McDowell Sonoran Conservancy is proud to announce that it’s now a part of the Target Community Giving Program known as Target Circle. List the Conservancy as your non-profit partner and Target will direct a charitable donation each time you shop and use the Target Circle app.



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CONSERVANCY

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Connect with us:



The Scottsdale McDowell Sonoran Preserve is owned by the City of Scottsdale and is managed through a unique partnership between the City of Scottsdale and the McDowell Sonoran Conservancy. Our shared goal for the Preserve is to maintain it in a natural state while providing appropriate recreational and educational opportunities for this and future generations.

# Hats On.

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