MCDOWELL SONORAN CONSERVANCY

Mountain Lines

MAGAZINE OF THE MCDOWELL SONORAN CONSERVANCY SUMMER 2021

FROM THE CHIEF EXECUTIVE OFFICER

Justin Owen, CNAP

Each day, week, and month, we learn new things. Immersive education, augmented reality, virtual reality, and artificial intelligence were something many of us just read and dreamed about. The pandemic accelerated these types of initiatives and made us all reassess how we think about the future. Many of us consider ourselves life-long learners, and our journeys make us realize everything is connected and always changing. As we have all become familiar with Zoom calls, Team meetings, and virtual learning, the demand for simple, meaningful, and hands-on learning has never been more evident. We are revisiting all of our educational content and offerings to see how we can make it more hands-on and accessible for all. Join us on this wonderful journey!

The McDowell Sonoran Conservancy is delighted to have the ability to partner with others in the community to push the boundaries. We are currently working with Intel to explore whether artificial intelligence can help us identify key invasive non-native plants remotely. This would improve safety and our ability to control those non-native plants, which are the primary fuel load for wildfires. We treasure the ability to partner with experts who help us expand the possibilities. The Intel team are all volunteers who fit this around their full-time jobs. We learn so much from these experts and thank them for their dedication and commitment! We also thank Intel for supporting their staff to facilitate these types of community partnerships.

We all have a role to play in protecting and treasuring natural open space for future generations. We appreciate your continued support of the Conservancy and appreciation of what we do.

Stay safe, and I look forward to seeing you out on the trails soon.

About Us

The McDowell Sonoran Conservancy preserves and advances natural open space through science, education, and stewardship. We create a culture that ensures, preserves, and values natural open spaces for all to enjoy.

Connect with us:

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Cover photo: A decomposing saguaro has taken on the shape of a artistic picture frame. Photo by Dennis Eckel

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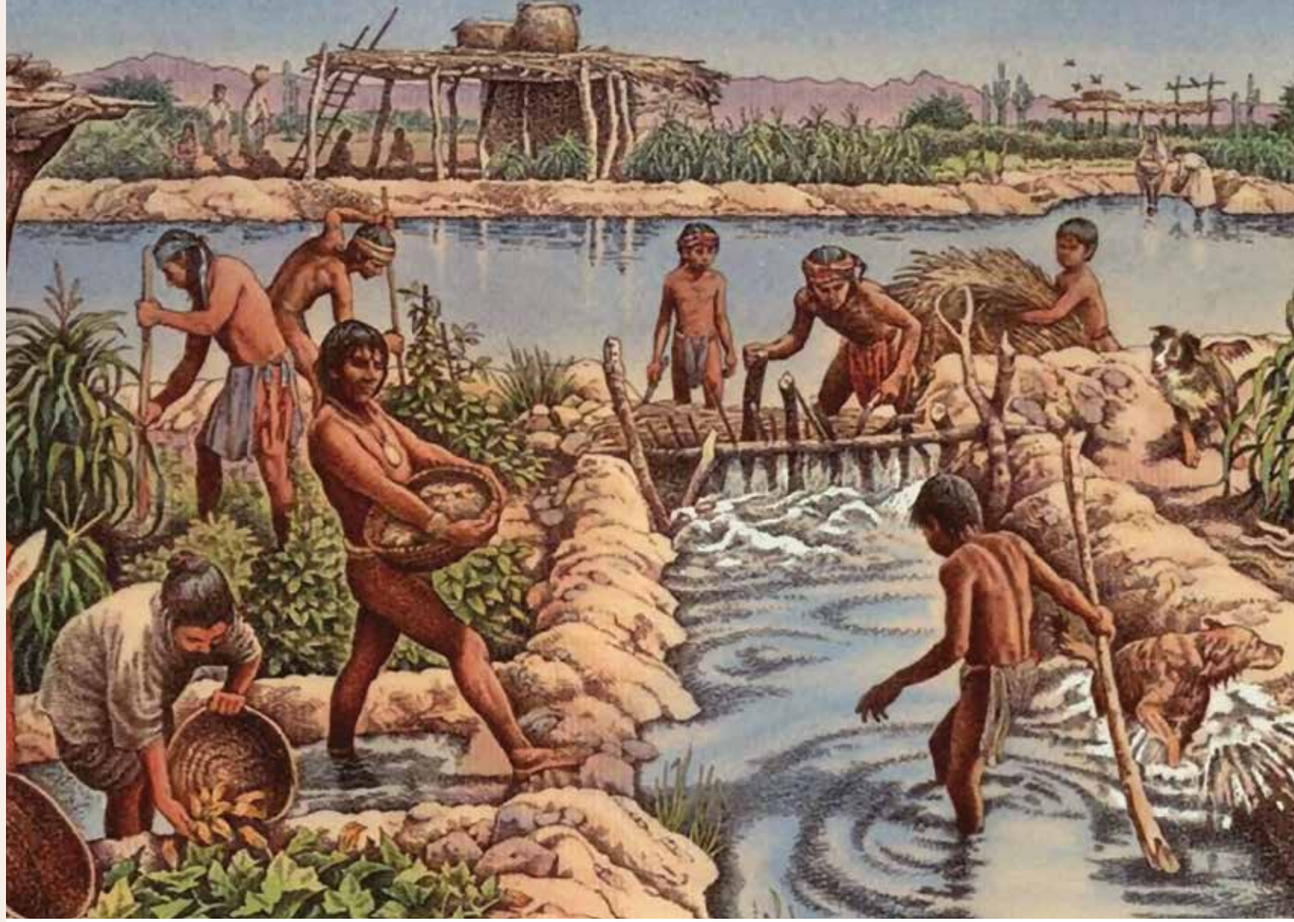


The Hohokam used extensive canal systems for both agriculture and to bring water to their villages. Photo courtesy of polizeros

AZH2O: Water and the Human History of the McDowells

By Len Marcisz,
McDowell Sonoran Conservancy Legacy Steward

Part 2: Water and Early Cultures

Hohokam.

For most Arizonans familiar with Southwestern history, that name conjures images of extensive canal systems and a civilization that disappeared mysteriously. Few people think of the Hohokam as living away from their canal systems in terrain such as the desert foothills and mountains of the McDowells. Yet they did. Successfully.

At the conclusion of the previous article in this series, we discussed the Archaic culture that passed through the McDowells beginning circa 5000–3000 B.C. Evidence of that culture began to fade around 1 A.D. and vanished by 500 A.D. Whether it was replaced or absorbed by the Hohokam culture is a matter of some debate; however, there is no doubt that the Archaic use of small check dams in desert washes to support primitive agriculture was replaced by the Hohokam development of extensive canal systems along major rivers bordering the McDowells.

Major rivers bordering the McDowells?

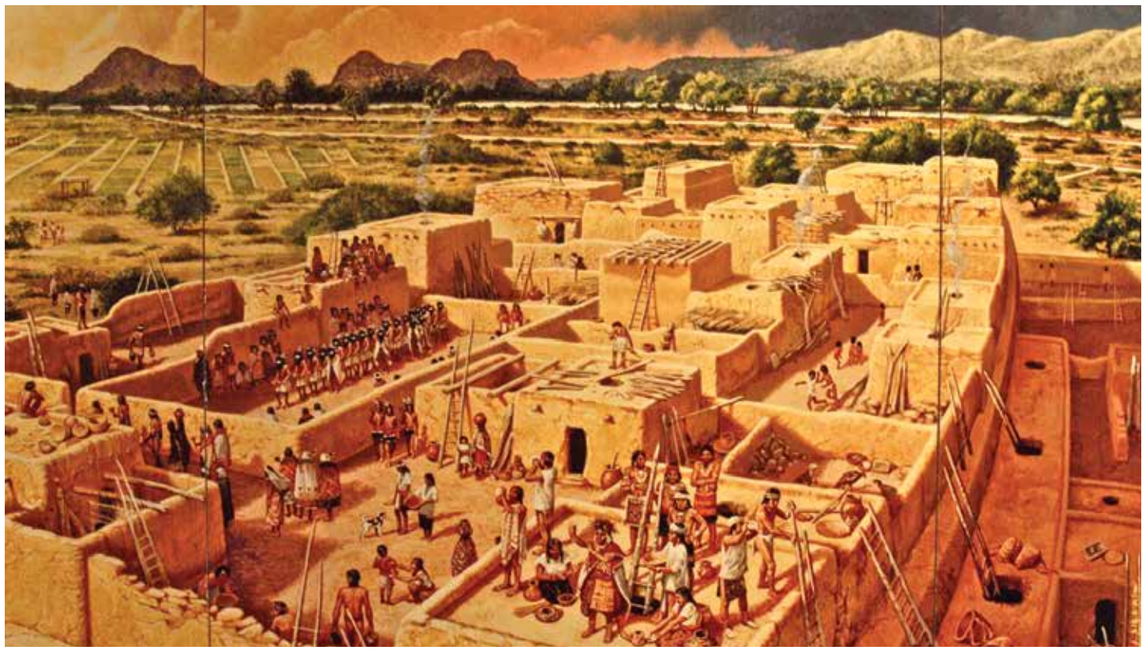
As desert dwellers we do not customarily think of the McDowells in a riverine context. And yet, here is how local archaeologists have defined the extent of the McDowell Mountain watershed: Rio Verde on the east; south to the confluence of the Rio Verde with the Rio Salado (Salt River) at Red Mountain; all of the bajada area north of the Rio Salado and south of the McDowell Mountains; as far west as Indian Bend Wash; and north to Granite Mountain.

As you can see from the foregoing, rivers account for three of the watershed boundaries. Add in Cave Creek to the north and what emerges is a desert mountain range easily within a day's hike of free-flowing water in any direction. This is important in understanding the Hohokam era in our mountains.

So who were these Hohokam? To begin, there are at least two types of Hohokam.

Archaeologists have identified the river dwelling canal builders as Riverine Hohokam. These are the people who constructed hundreds of miles of canals and irrigated thousands of acres of cropland, raising corn, beans, squash, and cotton. They established large pueblos such as Pueblo Grande and Casa Grande.

The Riverine Hohokam get all the good press. The scope of their physical accomplishments is impressive, and we are reminded of them when we view the remnants of their civilization. And yet, they do not get the full credit they deserve for their genius at harvesting water for agricultural purposes. In addition to their canal systems, they employed many other water collection techniques. They used rock piles to trap rainfall moisture around individual plantings such as agave. Like their Archaic predecessors, they used check dams in desert washes to trap moisture in the loose sand where seeds were planted. They used contour terracing on hillsides and bajada slopes to trap sheet runoff of rainwater. Seeps and springs were also utilized for small scale irrigation, as were wells and catchment reservoirs. In short, they did their best to harness every drop of water. They were, in a way, the first locals to alter their environment on a substantial scale to build residential developments in the desert.



The Riverine Hohokam constructed canals and irrigated crops near villages like this one on the Salt River. Photo courtesy of Pueblo Grande Museum

But not everyone lived in Hohokam riverine villages. There is another Hohokam subculture designated as Upland Hohokam by archaeologists. This designation applies to those Hohokam who either resided in or temporarily visited the surrounding mountains, such as the McDowells. This upland culture seems to have focused its activities on hunting and gathering, much like the Archaics who preceded them.

It is not unusual to find Archaic artifacts in proximity to Hohokam artifacts at hunting venues in the McDowells, sometimes along with 20th century shotgun shells or spent cartridges. Over the centuries, all hunters have read a landscape the same way and have positioned themselves to best advantage when pursuing large prey. It is also not unusual to find Archaic stone points refashioned for reuse by Hohokam.

Where did the Hohokam reside in the McDowells? Pick a spot near water, and you'll find evidence.

There are petroglyphs and unexplained boulder "cupule" mortars near the spring at Dixie Mine. There are bedrock mortars near Ochoa Spring. Similarly, there are bedrock mortars at the Brown's Ranch rock shelter, where archaeologists have found evidence of three successive cultures. Why there? It is hard to imagine, given our current 20+ years of drought, but in truly wet years the low spot at the northeast base of Brown's Mountain transforms into a small, shallow wetland, complete with bullrushes. This site may have been repeatedly used over the centuries. Archaeologists have recovered 8,100 artifacts, 11,000 pieces of faunal bone, and 1,800 ceramic sherds there. Much of what we know about Archaic and Hohokam activity in the McDowells is derived from research at that site. Stewards familiar with the area know that it is prime desert habitat for gathering seeds and fruit, and the landscape is littered with deer sign.

These "cupule" mortars help archaeologists identify evidence of three successive cultures. Photo by Len Marcisz and Larry Levy

There are two locations in the McDowells that are intriguing when it comes to the Upland Hohokam and water.

The springs near Pinnacle Peak once supported a settlement of 100 pit houses that existed circa 300–1150 A.D. It is known among archaeologists as Pinnacle Peak Village.

Frazier Spring was also home to a dispersed Hohokam settlement that was occupied intermittently circa 750–1300 A.D. It consisted of about a dozen structures Aaron M. Wright described in the Journal of the Southwest as "a mix of above ground stone buildings and semi-subterranean pit houses with associated rock piles and roasting pits," bespeaking perhaps the use of the area to cultivate agave. It almost certainly was a locus for gathering seeds and desert fruit. Potsherds in the area suggest that some pottery making took place there. Why not? Clay and water are abundant in the area. Other artifacts in the area suggest that residents traded with Hohokam settlements along a canal system in what is now south Scottsdale.

History offers us lessons on the nature of impermanence—and the impermanence of Nature. And so it is with the Hohokam, whose civilization begins to fade in the early 1400s and disappears circa 1450. The fading of their culture is attributable to several

factors, the principal of which are related to water. Intensive irrigation over centuries may have exacerbated soil salinity, thus reducing crop yields over time. Evidence of extensive droughts lasting decades would have a similar effect. Cataclysmic flooding (imagine the Salt River running a mile wide for a week or more) would wreak havoc: canals would be destroyed, fields would be rendered useless, and homes constructed of adobe would disintegrate from their clay foundations and crumble.

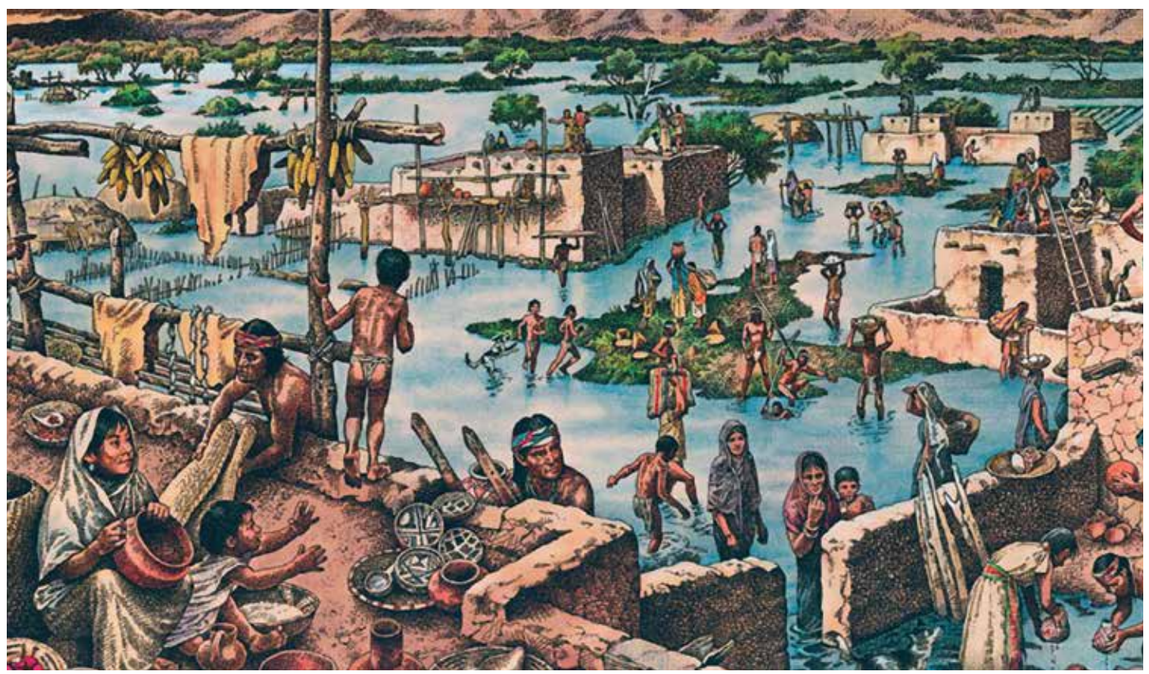
Today, we consider ourselves a sophisticated society. Yet Hurricane Katrina and its impact on New Orleans demonstrated that civilization can indeed crumble when confronted by epic flooding events. Perhaps this is what occurred with the Hohokam.

There may have been other factors leading to the Hohokam decline. Remember our mountain dwelling buddies, the Upland Hohokam? Evidence of their presence in the McDowells fades in the 1300s—a century and a half before the Riverine Hohokam. What would have caused them to abandon or forsake visiting the mountains?

Coincident with the Hohokam decline, archaeological evidence indicates an influx of hunter gatherer peoples from the Pacific Northwest, Athapascan speakers now known as the Apache. Contemporaneous with their appearance, a Yuman speaking hunter gatherer culture known as the Yavapai also appeared in central Arizona. These invading cultures, like most throughout history, followed… rivers.

And so, water, a boon to the Hohokam, may well have led to their cultural demise.

Note: Readers are reminded that cultural sites in the McDowells are protected by Scottsdale city ordinances and, in certain cases, by federal laws. Cultural artifacts discovered while visiting the McDowell Sonoran Preserve must be left where they are found. Please help us preserve the cultural history of the McDowells.



Extensive flooding could help explain why the Riverine Hohokam left the area. Photo courtesy of Pueblo Grande Museum

Snowbird humans, Terry and Helen, and snowbird horses, Moe and Trigger, all from Colorado, enjoy winter months in Scottsdale exploring the McDowell Sonoran Preserve. Photo by Dennis Eckel

We Have Snowbird Horses Too!

By Gina Clark,
McDowell Sonoran Conservancy Lead Steward

Every spring, we experience the natural ebb and flow of snowbirds departing the area for their summer homes. Our population dwindles—people, pets, and, yes, even horses head for cooler climates. Snowbird horses are not as unusual as you might think. With 225 miles of horse-friendly trails, Scottsdale's McDowell Sonoran Preserve is a prime snowbird destination for equestrians from as far as Canada, Mississippi, Utah, Oregon, Iowa, Colorado, California, and Washington.

For the past several years, friends Terry Yates and Helen Rajewich have visited the Scottsdale area during the winter months with their horses, Moe

The Preserve's trailheads offer exclusive parking areas for equestrians that include ample space for trailers, signage describing desert safety precautions for horses and riders, and descriptions of popular trail routes. Photo by Dennis Eckel

and Trigger. Terry and Helen drive 10 hours from Grand Junction, Colorado, with an overnight stop in Flagstaff.

Terry is an Arizona native and is familiar with the many equestrian trails in the area, although she says the Preserve is her favorite place to ride in Arizona. "We enjoy the diversity of trails in the Preserve and how well cared for the trails are. The footing is so nice for horses, and the parking areas are excellent for horse trailers. I also appreciate how courteous mountain bikers are, especially when they give us warning that they are on the trail," says Terry.

Adds Helen, "The Preserve is a great place to ride our horses in the colder months. The trails at Granite Mountain are well maintained, and everyone is courteous. I enjoy the scenery in the Preserve."

Riders enjoy views of large boulder outcroppings and the Mazatz Mountains in the far background. Photo by Dennis Eckel

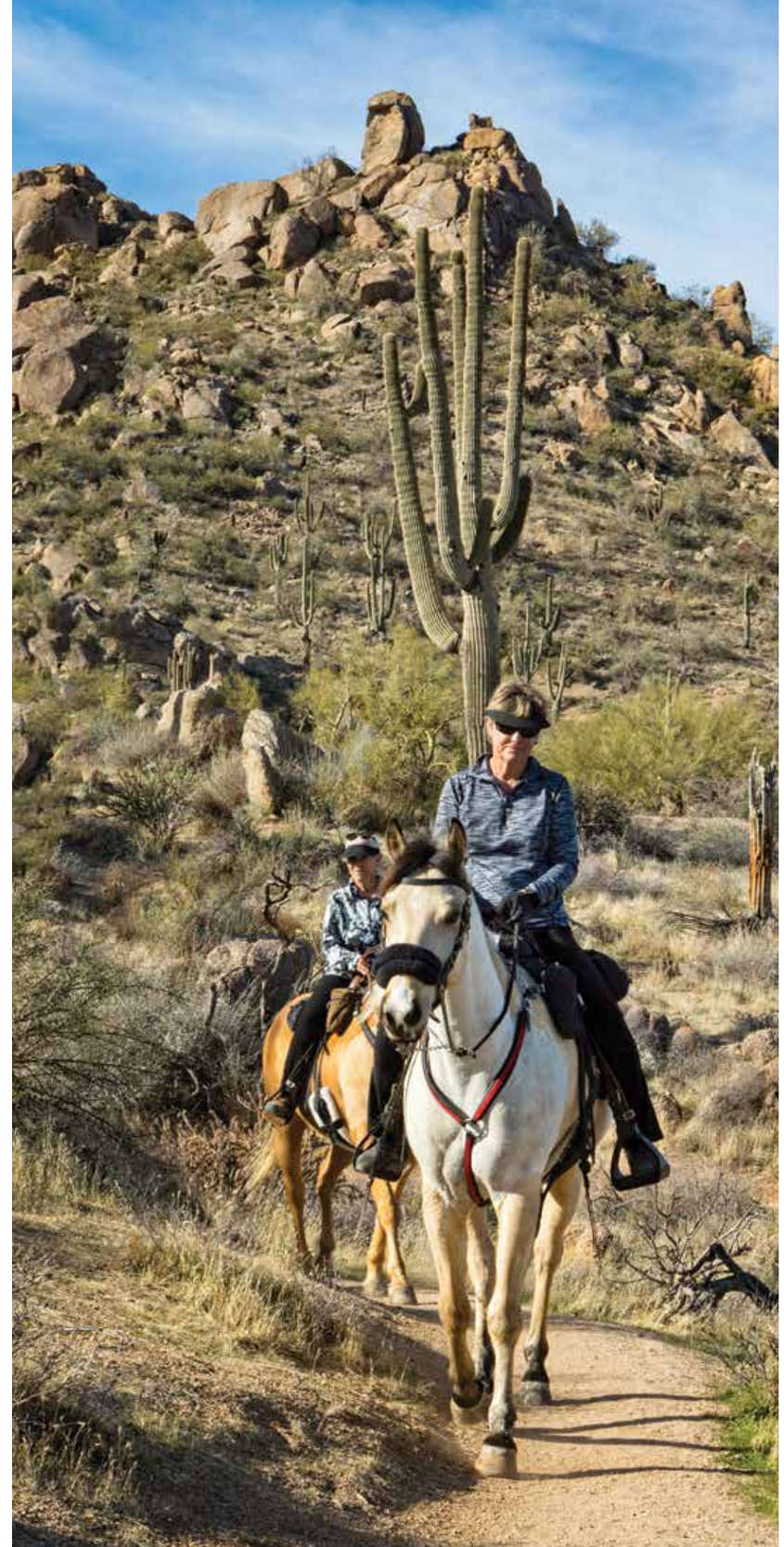
When visiting, Moe and Trigger, half-brothers who are half Quarter Horse and half Arabian, are stabled locally at the Stewart Ranch in Cave Creek, where they have access to services such as farriers and veterinarians. Lissa Stewart, owner of the family-run Stewart Ranch, has many repeat snowbird customers. "Visitors stay for two months and even the entire winter," explains Lissa. "Our weather is the big draw to the area, but people also travel here for horse events, roping competitions, and horse training."

Another equestrian snowbird, Karen Lieman, travels from Beaver Creek, Oregon, with her horse, Dash O'Splash, a 17-year-old chestnut Arabian, to enjoy the trails in the Preserve. The 1,340-mile trip from home happens over four days in a living quarters horse trailer that is divided into separate quarters for equestrians and their horses.

Dash competes in endurance riding, so his Preserve trail rides can be distances of 25–30 miles. Karen enjoys Brown's Ranch because she can water Dash at the trailhead, and she also carries water for Dash while riding. "The Preserve is a phenomenal riding option, especially for long rides, because of the connecting trails. I always remind friends to bring extra water for their horses and a large comb and pliers in case of cholla encounters. Riders need to be cautious of the desert surroundings and not let their horses nuzzle a cactus," says Karen.

When visiting, Karen and Dash have stayed at the Lost Cowboy Ranch because of its proximity to the Preserve and the Tonto National Forest. Susan Bowers, owner of the Lost Dog Cowboy Ranch, explains that visitors like to take advantage of both the horse facilities and RV sites available on the ranch. "We have visitors that come back year after year. They become part of our extended family, even helping with chores around ranch," explains Susan.

Although Moe, Trigger, and Dash are back home now enjoying cooler summer temperatures, you can be sure that they will be back in the Preserve next winter, where they can ride trails to their hearts' content.



Hikers and bikers on Preserve trails should always yield to horses and ask the riders if there are specific behaviors they should or shouldn't do around their horses. Photo by Dennis Eckel

Being Fire Wise!

By Barb Pringle,
McDowell Sonoran Conservancy Master Steward

Wildfires have the potential to damage vast areas. The McDowell Fire last year came within 0.25 miles of the Preserve.

Most agree that 2020 was one of the most challenging years on record for people all around the globe. Adding insult to injury, the hot, dry summer of 2020 also had a devastating impact on our native flora and fauna. There were several significant wildfires in our area, including the human-caused Bush Fire, which burned 193,455 acres. It scorched wildlife habitat of many species, including javelina, mule deer, and desert tortoise. A significant number of iconic saguaros were badly burned, and few may survive.

Scottsdale, home to the McDowell Sonoran Preserve, saw a 30% increase in vegetation fires during the normal brush fire season (mid-April through September) in 2020 compared to 2019, according to the Scottsdale Fire Department. Fire officials expect another dangerous fire season this year due to dry vegetation and low rainfall.

Fortunately, the fire department pro-actively plans for wildfires. Its Firewise community safety program teaches residents and neighborhoods how to reduce wildfire danger. The recently-added Community Wildfire Mitigation Coordinator will aid in the development of a fire plan for the Preserve, as well as continuing to educate the community.

Tips for protecting your family, home, and neighborhood from a wildfire:

- Learn to identify invasive plants and remove them to reduce fire danger. The worst offenders are fountain grass (*Pennisetum setaceum*), buffelgrass (*Pennisetum ciliare*), and stinknet (*Oncosiphon piluliferum*).
- Create and maintain a 30-foot defensible space around your home by removing dead branches and vegetation and thinning overgrown plants.
- Trim lower branches on trees, ideally up to six feet from the desert floor, and eliminate branches that hang over your home's roof or patio.
- Remove leaves and other debris from eaves, gutters, and roofs.
- Trim grass and bushes around and under trees to reduce the danger of "ladder" fires.
- Don't stack wood or store other flammable items within your defensible space.
- Don't neglect potential fire sources such as fireplaces, BBQ grills, and briquettes.
- Keep a garden hose connected and ready to use in case a spot fire occurs.

The Scottsdale Fire Department conducts Firewise assessments, which include advising home owners' associations on creating natural fire breaks. Photo by Steve Coluccio

The McDowell Sonoran Conservancy's efforts to reduce fire danger center on invasive plants.

Invasive plants increase the risk of a catastrophic wildfire and push out native Sonoran Desert plants, thus damaging important wildlife habitat, as well as robbing precious water from riparian areas. The Conservancy has a number of active programs to address this problem:

- **Distribution mapping of non-native plants.** Stewards have been trained to use a mapping app that helps pinpoint the location of invasives in neighborhoods, common areas, trails and roadsides, and natural areas for later eradication efforts.
- **Non-native plant treatment and removal.** This long-term project focuses on studying the most cost-effective treatment options for controlling buffelgrass and fountain grass in the Preserve, while protecting the native plant community. Each spring, stewards and staff work with botanists to survey the plant community in plots set up in Quartz Wash and on Brown's Mountain. Treatments that include a combination of pulling, cutting, and spot herbicide are then conducted, and the treatment efficacy is monitored.
- **Community outreach.** Beginning in 2018, the Conservancy launched a series of programs designed to educate residents about the dangers of non-native plants. One such program was a plant swap in which residents could swap their non-native fountain grass for a native grass. Another included stewards speaking to homeowner associations about removing fountain grass from yards and common areas. We also partnered with the Scottsdale libraries to promote awareness about non-native plant dangers. Although 2020 forced a pause, we hope the future allows for a renewed outreach effort.

To learn more about what you can do to prevent wildfires and protect your home, go to Scottsdalefd.com.

Some useful links:

Firewise program: City of Scottsdale Fire Ordinance (COSfirewise)
Wildfire readiness:
City of Scottsdale - Wildland Fire Prevention (COS wildland prevention)

The McDowell Sonoran Conservancy uses a tiered approach to tackle non-native plants, including researching the best removing techniques and physically removes invasive non-native plants. Photo by Tiffany Sprague

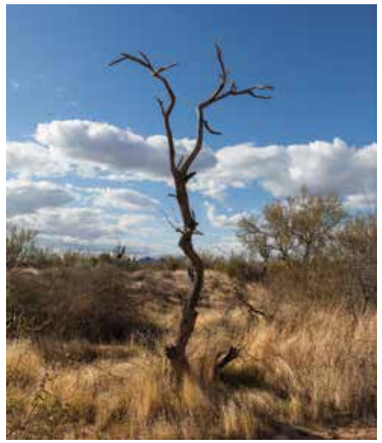
Sculpture in the Sonoran Desert

By Dennis Eckel,
McDowell Sonoran Conservancy Steward

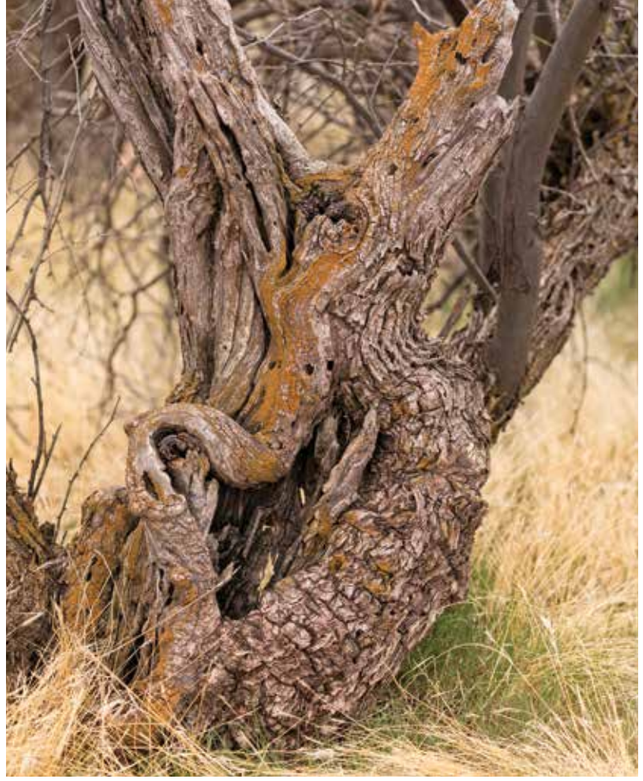
A saguaro cactus takes on a new art form as it begins its death cycle. Its armor-piercing thorns appear like sculpture adornments. Photo by Dennis Eckel

Nature has provided a living palette and, with the passing of time, has sculpted some of the most interesting shapes imaginable. Bending and twisting as though an artist had controlled its movement, trees and cactus take on a new life after death, as they begin to decompose and reveal their inner beauty. Time and climate can reveal texture and intricacies of trunks and branches that were once invisible.

A hiking experience can be so much more fulfilling when you just take the time to really look around and notice things. There is beauty everywhere if we just make an effort to really see it. Take in the grand view but be sure to notice all the details, too. Notice shapes, patterns, colors, and also appreciate how the light affects them. Being observant is one of the benefits of being a photographer, and also one of the skills that will improve your photographic images.



Trees often take on artistic sculptural shapes as they reach the end of their life cycle. Take time to observe and appreciate their beauty. Photos by Dennis Eckel



The mixture of online learning and self-driven experiments provides youth with a novel way to explore and learn. Photo by Lynne Russell

Empowering Future Change Makers!

By Nicole Kallman,
McDowell Sonoran Conservancy Education Manager

In March, the McDowell Sonoran Conservancy successfully launched Expedition Days Online with more than 70 teachers and 1,800 students participating during spring semester. Expedition Days Online combines multimedia learning with student-led exploration of the natural world. This online unit enabled us to reach classrooms despite the virtual constraints of the year-long pandemic. However, although the pandemic created an immediate need for this curriculum format, the overarching instructional practices integrated into the unit are ones that align with the new direction of public education in Arizona.

The creation of a universal schooling system in the United States started in the early 1800s to provide children with basic reading, writing, and math skills. This meant grouping students into large grade-based classrooms where teachers taught discrete topics that students were expected to memorize and replicate. Because these classrooms were so large, teachers did not have the capacity to cater instruction to each individual child and, instead, the system relied on regular and frequent testing to ensure students were learning what was expected. The idea of universal schooling marked an incredible shift in how society viewed the value of widespread education. However, the education system we see today is almost identical in its instructional practices and structure to its birth 200 years ago.

In the past decade, we have seen a shift in mindset about student instruction. Rather than focus on rote memorization and performance on standardized tests, educators and policymakers are working to foster more abstract skills like critical thinking, problem-solving, experimentation, and creativity. In the age of technology, anybody can look up the chemical equation of photosynthesis. But it takes a creative mind to look at photosynthesis and apply it in new ways, such as solar energy. This type of out-of-the box thinking starts at a young age and can be supported through our school system.

Expedition Days Online is the first installation in our spiraling K-12 curriculum that supports students as they question, explore, and experiment with the world around them. Each of the five modules of Expedition Days Online facilitates students as they investigate complex societal and environmental problems. For example, in the Urban Desert module, students compare the differences between how plants and animals have adapted to the Sonoran Desert with how humans have leveraged technological advancements to allow us to live in this extreme environment. Students explore graphs comparing the change in temperature between Tombstone and Phoenix over the past 100 years. Using their knowledge from earlier in the module, students make connections between growing city populations and the increasing average temperatures we are experiencing in places like Phoenix.

In the Urban Desert's culminating mini project, students are asked to take inspiration from one or more of the plant and animal adaptations they have studied to design something new that would help humans survive in the Sonoran Desert and lessen the impact humans have on the ecosystem. The point of this activity is not to lead students to one correct, predetermined answer; instead, this is an opportunity to foster students' problem-solving skills and creativity.

Expedition Days Online encourages students to do science by exploring, questioning, and investigating the natural world in their communities to understand the connection of people to the Sonoran Desert ecosystem. Photo by Lynne Russell

Each module aligns with multiple science, social studies, math, and language arts state standards, but the broader goal of Expedition Days Online is to inspire students' creativity, curiosity, and caring about the natural world. Allowing students the freedom to explore, question, and create empowers them to be the change-makers of the future.

Heat islands in the city and increasing temperatures across the Sonoran Desert are complex problems with no easy answers. Expedition Days Online helps students build their understanding about these types of "wicked" problems and begin creatively designing their own solutions. Photo by Lynne Russell

Early graduations were family affairs at Greasewood Flats. Former Scottsdale mayor Mary Manross presented at the graduation ceremony for Class 6 in November 2004.

The McDowell Sonoran Conservancy "Then and Now" Celebrating our 30-year Journey through Photos

Thirty years as a volunteer organization have provided us with so much history and so many milestones. It would be impossible to celebrate them all, so we have selected four then and now comparisons to demonstrate the evolution of the McDowell Sonoran Conservancy. We thank all of our stewards and supporters for facilitating this growth and appreciate your ongoing support as we continue our journey.

Our first steward classes began in 1998. Initially, these were offered once a year in partnership with Scottsdale Community College and were called "How to 'Exercise' Your Love of the Land." Class 1 graduated our first stewards in November 1998. Graduation ceremonies were held at Greasewood Flats.

Today, we graduate 20 stewards per month from September to March each year. The classes are now held at Gateway Trailhead (which didn't exist when our classes started!). The culmination is now a formal class photo as we celebrate the start of these new stewards' journeys.

From the early days, our founders realized the importance of our stewards being recognizable. This helps visitors know whom to look for when they need some help, as well as marketing the myriad of things we do. Our early apparel included a pale blue steward shirt and fundraising t-shirts that featured McDowell Sonoran Preserve critters and their tracks.

We welcomed Class 84 in January 2020. These new stewards start together, but their journeys take them in different directions to different programs, depending on their individual interests.

Throughout our history, our "uniforms" help visitors recognize people who can help them stay safe and enjoy their visit, including these early versions worn by co-founders Jane Rau and Chet Andrews.

Although the style of our blue shirts has changed a bit, they are still synonymous with friendly welcomes and assistance with a wide range of questions and safety tips.

Today, our distinctive blue shirts continue to help visitors identify and recognize us. When in the Preserve, remember to say hello to our stewards, who are volunteers and there for your safety. Among other things, they act as trailhead and roving ambassadors on the trails; ensure the trails remain in great condition; lead free public hikes and bike rides; teach youth and multi-generational groups about ecology, natural history and human history; and partner with our scientists to perform ecological research.

Outreach remains an important way to highlight how each and every one of us can be stewards of the land. Scottsdale has protected more than 25% of its land in perpetuity, a huge investment that requires stewardship from us all to ensure it remains the jewel in our backyard. Outreach is the best tool to help emphasize this commitment.

Participation in the Parada Del Sol Parade in Old Town Scottsdale, Scottsdale Public Art's Canal Convergence, and Spring Training 2020 provides the Conservancy with a multitude of ways to share the message about stewardship. Our phenomenal stewards not only work tirelessly in the Preserve, but they also attend a wide range of events to help get the message out to locals and visitors, youth and adults. Natural open space has never been so important, and we all have a role to play in helping protect it.

Ever wonder why the trails in the Preserve are in such great condition?

The Conservancy has been a frequent presence at Parada Del Sol, from the early days when we were highlighting the need to protect the desert and mountains with riders wearing our early logo.

No, it isn't the trail fairies working their magic during the night. It is due, to a large extent, to steward volunteers continuing the commitment that began in the early years to maintain the trails. In 1996, the Conservancy began a trail building program in the Preserve in collaboration with the City of Scottsdale. Nearly 90 volunteers cleared the first public access trail, a five-mile loop used initially for the March Cactus Cup mountain bike race that attracted 2,600 bike riders.

Then, as now, stewards used a variety of tools to maintain trails: picks, shovels, iron bars, wheelbarrows, and more. Their indispensable tool was and still is the McLeod. Half rake and half hoe, the combination tool was created in 1905 by Malcolm McLeod, a US Forest Service ranger in the Sierra National Forest. This two-in-one friend eliminates having to carry two tools to a trail maintenance location.

Over the past 30 years of growth in steward numbers and changes in uniform, outreach venues, and trail crew projects, and many more aspects, the Conservancy has consistently maintained its core commitment to stewardship of the Preserve and the enjoyment and safety of its visitors. We can't wait to share our ongoing story over the next 30 years and beyond!

Outreach today includes so many different occasions, from the Children's Learning and Play Festival to Spring Training to Conservation Expos. These provide great opportunities for us to help people understand the role they can all play in being stewards of our land.

The early days of trail building saw us partnering with the City of Scottsdale to create and maintain great trails for the visitors. Today that strong partnership remains, and our stewards contribute more than 3,500 hours per year toward trail maintenance.

Enjoy Our Raptors

By Rick Pearce,
McDowell Sonoran Conservancy
Master Steward

Harris's hawk: These hawks may be seen in family groups of three or more. Photo by Dennis Eckel

A large bird soars above on widespread wings. Someone says, "Hey, that's a raptor!" Perhaps you think, "Uh, it looks like a hawk to me. What's a raptor?"

A common definition of raptor is a bird of prey, meaning a bird that takes living animals as prey. Raptors have acute eyesight, a hooked bill, and strong, sharp talons. Hawks, eagles, falcons, and owls are examples of raptors. Of the hundreds of species of birds that exist in the Sonoran Desert, only a small number are raptors. Four of them are described below.

The red-tailed hawk (*Buteo jamaicensis*) is probably the best-known raptor. Widespread across much of the US and Canada and extending through Central America, it is frequently seen soaring on broad wings.

The adult has a brown back and outer wings and is generally light and streaked in front. There is color variation among red-tailed hawks, with lighter and darker "morphs" occurring.

The "red-tail" has a call that sounds either thrilling or chilling, depending on your perspective. The call may be heard as two hawks circle overhead. It may also be heard on movie or television soundtracks, where the intent is to invoke a sense of the wild. This hawk will prey on anything it can catch, primarily rabbits or rodents. It builds its nest in tall structures, cliffs, or trees, including saguaros in Arizona. It will build a large stick nest or take over an abandoned one.

Red-tailed hawk: A large hawk with a distinguishing rufous (red) tail. Photo by Dennis Eckel

The Harris's hawk (*Parabuteo unicinctus*) is a rich dark brown with chestnut shoulders and leggings and white at the base and tips of the tail. The legs, feet, and base of the bill are yellow. Interestingly, they hunt in a pack. One bird may watch from a saguaro as others fly low over the ground, flushing prey into the open.

The Harris's hawk occurs in the southwestern US, Mexico, and Central America. It preys on rabbits, rodents, snakes, and lizards. It may build a stick nest or use an abandoned one, frequently among the arms of saguaros. As many as three or four adults will care for the nestlings.

The American kestrel (*Falco sparverius*) is our smallest falcon, the size of a mourning dove. The male has colors of slate blue, brown, and white with black accents. The female lacks the slate blue. Both sexes have black and white facial markings, including a "mustache" characteristic of falcons. The wings are long and pointed.

Great horned owl: This raptor's eyesight, which is adapted to low light, and its acute hearing mean it can locate prey in extreme darkness. Photo by Dennis Eckel

The kestrel is a cavity nester, using holes in trees or saguaros, or sometimes using abandoned nests. Its range includes almost all of North America, with those from the north migrating south in the winter.

American kestrel: This raptor hovers to locate prey, typically large insects but sometimes small rodents or lizards. Photo by Dennis Eckel

As with many raptors, the kestrel female is larger than the male. The reason for this is not certain, but it seems to offer advantages. The female and male may take prey of different sizes, thereby reducing competition for food. Due to its larger size, the female may be better able to protect the clutch through incubation.

The great horned owl (*Bubo virginianus*) is our largest owl. Its range extends from far northern Canada and Alaska through Argentina. Unless disturbed, it is nocturnal. Special wing feathers provide a silent approach when hunting. Their diverse prey consists primarily of rodents, rabbits, and birds.

Like other owls, it can turn its head 270 degrees in either direction. It cannot move its eyes from side to side so must turn its head to cover a wide field of vision.

Nesting and incubation start earlier than with many other raptors, typically beginning in January or February in our area. The nest may be an abandoned hawk nest in a saguaro or tree, on a ledge, or in a building.

If this article leaves you wanting more, watch for "Raptors – Part 2" in a future edition of *Mountain Lines*.

Animals like these quail might be attracted to water sources in your yard. Be sure to clean any water sources frequently to minimize risk of spreading disease. Photo by Lynne Russell

Protecting Wildlife at Your Home

By Tiffany Sprague,
McDowell Sonoran Conservancy Parsons Field Institute Manager

If you're like me, you are thrilled when you see wildlife around your house and dismayed when you find a dead or injured animal nearby. As a wildlife biologist, I'm frequently asked why that animal died and what can be done to prevent it. Thankfully, through some simple solutions, you can help protect animals in your area and make your yard a safe haven for wildlife.

First and foremost, don't feed wildlife! Although it seems like you're helping them, feeding wild animals is dangerous for the animals and for people. Human foods can lead to malnourishment or death for wild animals. It also attracts critters to risky situations, spreads disease, and causes them to lose their fear of humans – posing a threat to those animals and to public safety. Feeding wildlife is illegal in Maricopa, Pinal, and Pima counties. To limit unintentional consumption of human foods or other items (such as wrappers), secure your trash well and feed your pets indoors.

Speaking of pets, keeping your pets indoors goes a long way toward protecting wildlife as well as your companion animals. Every year, cats and dogs kill billions of native animals, and hundreds of pets are killed by wild animals. Keeping pets indoors, supervising them when outside, and keeping dogs on a leash when in natural areas reduces these negative interactions.

Have a pool? Use simple floating tools to prevent animals from drowning. Make your own or purchase ready-made ones, such as the FrogLog (https://froglog.us).

Have windows? Put decals or non-reflective lining on them to prevent bird strikes. Collisions with windows and other structures is a leading cause of death for birds.

Got pests? Avoid using kill traps, which affect unintended species. Sticky traps are particularly gruesome and should be avoided at all costs. Birds, snakes, lizards, and mammals all get caught by them, resulting in prolonged, painful death. Bug lights and zappers also don't discriminate, either. Plenty of other options exist to keep pests away, including natural repellents, blocking access points, properly storing foods, etc. (e.g., http://bit.ly/3oBVk3k).

*Up to 1 billion birds, including this verdin (*Auriparus flaviceps*), die every year from colliding with windows and other human structures. Use decals and non-reflective surfaces on your windows to help reduce these deaths. Photo by Mary Fastiggi*

*Say no to sticky traps! Non-target animals, such as this Western diamondback (*Crotalus atrox*), get caught by them, often leading to a long, painful death. If found in time, rescue is possible but is difficult, time-consuming, and can be dangerous for person and wildlife alike. Photo by Jason Myrand*

Avoid using chemicals as much as possible, including most commercial herbicides, pesticides, fertilizers, and cleaners. Every year, millions of animals die from direct contact with these substances or through consumption of plants or animals that have been treated. Recently, Southwest Wildlife Conservation Center took in two orphaned mountain lion kittens after their mother died from rodenticide poisoning. These chemicals have unintended consequences that ripple through the ecosystem. Plenty of environmentally-responsible alternatives exist; shop around and see what works for you.

Finally, be careful when maintaining landscaping. The vegetation around your home provides important habitat. Birds and bats are commonly killed or displaced when trees are pruned, and other wild animals are affected by landscaping management. Research wildlife-conscious landscape maintenance and talk with your landscaping company if you use one.

These are just some of the many things you can do to help protect wildlife around your home. There are plenty of other ways you can provide a safe haven for wild animals – as well as to attract them responsibly, if you desire. See https://bit.ly/3nu47TK and https://www.azgfd.com/wildlife/livingwith for more ideas. One of the most important things you can do for wildlife is to help spread the word. Educate your neighbors on how they can provide a responsible living situation for people and wildlife alike. We often use wildlife's home and hope they'll make it hospitable for us. Let's return the favor!

Other ways you can help wildlife

- ✓ Keep as much natural open space as you can
- ✓ Leave wild animals alone
- ✓ Never release captive animals
- ✓ Plant native species
- ✓ Create diverse habitat structure
- ✓ Minimize outdoor lighting
- ✓ Watch for animals on neighborhood streets
- ✓ Reduce, reuse, recycle

When no steward is around to advise you, the new color-coded trail routes give you great suggestions for trails to explore during your visit to the Preserve.

Check Out the New Trailhead Route Signage

By Jakki Casey,
McDowell Sonoran Conservancy Master Steward

When you arrive at a trailhead in Scottsdale's McDowell Sonoran Preserve, how do you decide where to hike, bike, or ride your horse? Pre-COVID-19, you would often be greeted by our trailhead ambassadors who would help ensure you are prepared from a safety perspective and also give you suggested tips and routes. However, since COVID-19 made us pause these activities, we started to think about how we could best provide some of this assistance without physically being there.

Our solution, in partnership with the City of Scottsdale, was to create route maps for each of the three main users—hikers, bikers, and equestrians. For each of these groups, we created suggestions for easy, moderate, and difficult routes. These were then color-coded and plotted on new large format maps that were installed at the trailheads in February 2021. These new maps make it very easy to pick the level you are looking for and follow the route.

How many of us travel the same routes all the time or have just a couple of favorites? I, like many others, am guilty of this at times. Working on this project with our trailhead ambassadors has helped me understand others' favorite routes and try some new ones. So how did we decide on routes? This was by far the toughest part of the project, as the 225 miles of trails in the Preserve provide so many amazing opportunities. Each of the trailhead leads worked with their teams to create a shortlist of potential trails for inclusion. We then made sure we had a good selection for each category and plotted them. After a few rounds of edits, we ended up with what we think is a great variety of options for every user. So next time you visit the Preserve, check out the route signage and maybe try one of our favorite routes!

Four Easy Ways to Support the Conservancy

amazonsmile

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 and select "McDowell Sonoran Conservancy" from its list of approved charities.

Fry's Food & Drug Stores Community Rewards Program

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 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.

circle

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.

MCDOWELL
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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.