

Mountain Lines

MAGAZINE OF THE MCDOWELL SONORAN CONSERVANCY

Summer 2017



Smiling Hosts at Preserve Trailheads

Welcoming visitors with
helpful advice

Butterflies in the Preserve

Fluttering jewels and beautiful
prognosticators

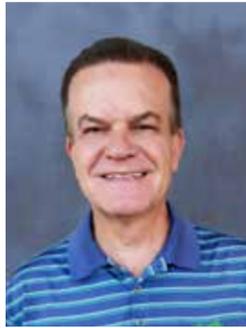
One of the Preserve's Great Hikes

Cathedral Rock in the
northern Preserve



McDowell Sonoran
Conservancy

FROM THE BOARD OF DIRECTORS



Greg Kruzal, Chairman

After celebrating the McDowell Sonoran Conservancy's 25th Anniversary last year, the Conservancy board, stewards, and staff are thinking about how Scottsdale's McDowell Sonoran

Preserve should be cared for over the next 25 years. The citizens of Scottsdale did a wonderful job assembling over 30,500 acres of Sonoran Desert into today's Preserve. Now we ask, "How can the Conservancy ensure continued safe and respectful access to it?" With this in mind, the board began work on the following goals.

First, expand the Conservancy's Board of Directors to better align its membership with the community. Our challenge is to attract the community's young business owners to ensure that the Preserve connects with the next generation of community leaders and Preserve users.

Second, focus on better supporting the steward and core leadership teams. Stewards conduct the large majority of our activities.

We need to provide the infrastructure and support that makes their jobs easier, more fulfilling, and more effective.

Third, work to promote the Preserve and the Conservancy within the Scottsdale community, the Valley, and throughout Arizona. The Preserve is Scottsdale's "best kept secret." We need to do a better job of publicizing the Preserve and the work of the Conservancy.

Fourth, develop a better defined physical and financial partnership with the City of Scottsdale and its citizens. The Conservancy has been providing patrol, pathfinding, and construction and maintenance services throughout the Preserve for many years. Now we need to better formalize the Conservancy's duties and responsibilities, and define how the citizens and the City can support us.

Finally, we need the support of you and your neighbors, friends, business associates, and the entire community. The better we are at communicating our mission and vision for the Preserve, the better we will be at securing both the short- and long-term support we need for the Conservancy and the Preserve.

Greg Kruzal
Chair of the Board of Directors

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On the cover: Cathedral Rock is on the left of the photograph. Brown's Mountain is in the distance. Visitors to this area can enjoy an abundance of interlooping trails and spectacular vistas. Photo by Dennis Eckel.

About Us

The McDowell Sonoran Conservancy champions the sustainability of the McDowell Sonoran Preserve for the benefit of this and future generations. As stewards, we connect the community to the Preserve through education, research, advocacy, partnerships and safe, respectful access.

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Mountain biking is popular in the Preserve. A Pathfinder who is knowledgeable about mountain biking at Brown's Ranch discusses the trails with two bikers. Photo by Lynne Russell.

Pathfinders Program

By Phil Pounds
 McDowell Sonoran Conservancy lead steward

Almost everyone who visits Scottsdale's McDowell Sonoran Preserve knows that Pathfinders from the McDowell Sonoran Conservancy greet visitors at the trailheads. What many people don't know is when the program was established, how it works, or how to join or support the team.

How did the Pathfinders Program get its name? Members of the program considered other names, such as Navigators, Trail Docents, and Trailfinders, but ultimately chose Pathfinders, because these Conservancy volunteers help visitors find their way safely through the Preserve.

Pathfinding is almost as old as the Conservancy. Stewards who started the public hike program in 2003 realized that when the trailheads at Sunrise and Lost Dog were scheduled to open, both the general public and stewards needed to talk with a knowledgeable guide before



One of the amenities at each major trailhead is a large map of the trails in the region. A Pathfinder helps hikers choose the best hiking trail for them. The decision takes into consideration their hiking ability and how much time they wish to spend in the Preserve. Photo by Lynne Russell.

setting off on a hike, bike ride, or horseback ride. So, a group of 14 volunteers created a Pathfinders pilot program for these trailheads during May and June of 2005. Their initial objectives were to provide visitors with information on Preserve trail safety, advance public knowledge about the Preserve, and increase support for the Preserve. But most important, Pathfinders wanted to promote safe and respectful enjoyment of the Preserve. Based upon the success of the pilot program the Conservancy presented a plan for the Pathfinders Program to the City of Scottsdale's Preservation Department in September 2005. City staff agreed that the program would be valuable for all concerned.

Conservancy leadership knew that for the program to be a success, it needed a dynamic, creative, diplomatic, and enthusiastic leader. Their choice was BJ Tatro, a new steward. BJ took the job and served as the Pathfinders Program chair for a record five years. Her efforts were so successful and well-known that the *Arizona Republic* covered the evolving Pathfinders Program in an article titled "Eyes

and Ears of the Conservancy: Pathfinders Help Visitors Find Way through Preserve."¹ The article chronicled the early success of the program in helping visitors enjoy the Preserve, assisting them in planning reasonable hikes, while protecting the flora and fauna at the same time. Tatro reported, "We want people to love the Preserve. We don't want them to love it to death."

The basic principles of the initial Pathfinders Program hold true today, although the scope and coverage has grown dramatically. Pathfinders now serve at four major trailheads—Lost Dog Wash and Gateway in the southern region, Tom's Thumb in the central region, and Brown's Ranch in the north. The main Pathfinders season coincides with the months that produce the most visitors. Service begins in mid-September and continues through mid-May each year. All trailheads are supported from Friday through Monday and have one or two two-hour shifts per day. Two trailheads—Gateway and Brown's Ranch—have Pathfinders on duty seven days a week. The Pathfinders team has grown

¹ Leslie Wright, *Arizona Republic*, Phoenix, AZ, Dec. 28, 2005.

from the initial group of 14 stewards to approximately 150 Pathfinders by the end of May of 2017. Pathfinders working the four trailheads during the 2016–2017 season assisted more than 28,000 visitors in planning bike rides, hikes, or horseback rides, the largest number of visitors ever counted.

Being a Pathfinder can be very rewarding. Several of the initial pilot-program stewards are still working Pathfinder shifts today. That's over 12 years of experience in the field. So, how do you become a Pathfinder and maintain your passion for helping people? First, you must be an active Conservancy steward, take training classes, and complete a two-hour orientation program on the Pathfinders Program. Then, as a Pathfinder in training, you must complete two working shifts with an experienced Pathfinder before working your own scheduled shift. Often, new Pathfinders will elect to work initially with different veteran Pathfinders to learn from their experience. New Pathfinders also want to learn techniques that will give them the ability to assess a visitor's outdoor skills and goals for a Preserve visit. Once acclimated to the job, Pathfinders are encouraged to attend first-aid, CCC (closed-chest cardiac compression), and AED (automatic external defibrillator) classes presented by the City of Scottsdale. Pathfinders also attend an annual Conservancy refresher class to ensure that they remain current on safety, security, and policy changes that might affect their work at the trailheads. Many may take continuing education courses offered by the Conservancy on subjects such as the human history of the McDowell Mountains, or one of the many science classes, such as flora and fauna, offered by the McDowell Sonoran Conservancy Steward Education Program.

What makes a successful Pathfinder? First and foremost is the ability to listen to visitors and enjoy helping them plan a successful visit. Next is knowledge of the Preserve and the trails that are accessible from the trailhead. Finally, are the skills of diplomacy and negotiation, which come into play when visitors need to be cautioned about their choices. Emergency situations generally don't occur because of a hiker's one poor decision, but more often because of multiple

poor decisions. Pathfinders look for inadequate footwear or head gear, inadequate water supply, inappropriate trail selections, and a person not feeling well. These conditions can be the impetus for an emergency situation. Pathfinders will assess the situation, offer alternative plans, advise on the need for more water or equipment, and help visitors avoid problems.

Beyond basic safety, a Pathfinder's job is to educate and motivate people to comply with city policies and procedures while in the Preserve. Some cautions are as simple as obeying no smoking rules or leashing a dog. Others are more involved, such as explaining trail use and etiquette, warning against



Pathfinders give out free trail maps and hiking advice to Preserve visitors at the major trailheads. Material about Preserve plants and animals is also available for a small fee. Photo by Lynne Russell.

interacting with snakes and other wild animals, and advising against removing items from the Preserve. Since Pathfinders have no law-enforcement powers, their use of empathy, education, and motivation are essential for convincing visitors to comply.

The Pathfinders team includes Scottsdale's Preserve staff who have the education and experience to help the Conservancy develop the Pathfinders Program and assist in training. The staff puts Pathfinders on alert when it issues permits for large or commercial groups so that Pathfinders are prepared for the increased traffic, and generally provides Pathfinders with advice and counsel on a variety of issues and incidents.



With over 30,500 acres of Scottsdale's McDowell Sonoran Preserve to explore, Pathfinders at the major trailheads help visitors find their way. Photo by Lynne Russell.



Conservancy supporters and friends enjoyed Dinner Down the Orchard at Schnepf Farms on April 8. This successful fundraising event and enchanted evening featured gourmet dining and wine pairings, presented by Premier Sponsor, Total Wine. As a nightcap, guests were treated to Schnepf's famous, warm homemade peach pie under the starry sky. Mark your calendar for next year's event on Saturday, April 21, 2018! Photo courtesy of Schnepf Farms.

What happens on an average Pathfinders shift? Well, an average shift is rare, because people, wildlife, and weather change each day. Pathfinders have Western diamondback rattlesnakes joining them at the trailhead on occasion. The weather ranges from snow at Brown's Ranch or Tom's Thumb in January to 100-degree days in the warmer months. In addition to human visitors, guests bring their lama or miniature horse along on a hike. These pets are welcome as long as they are on a lead as required by City of Scottsdale. Other visitors are unhappy to learn that their remote-control model aircraft or drone is not allowed to be launched or landed in the Preserve. Perennial issues at many trailheads are unleashed dogs menacing visitors or other dogs, and dog waste not being bagged and removed. On occasion, the Scottsdale Fire Department must rescue a heat-stressed canine. One unusual incident seen at Tom's Thumb trailhead was a group of men carrying a full-sized barber chair. They intended to hike off trail for a photo session. When advised that they could not leave the trail, they left to find a different venue.

In spite of everyone's best efforts, however, some visitors don't carry an adequate water supply, and suffer from heat stress. They may require help in the form of additional water, and access to shade or a cool spot. Occasionally, a Pathfinder

must call 911 for emergency medical help. On rare occasions, falls, which happen most often while off trail, have resulted in broken limbs and compound fractures that require helicopter evacuation of the patient. Thankfully, in the 12 years of the Pathfinders Program, no one has been bitten by a rattlesnake and no one has suffered an accidental death in the Preserve. That is a record the Conservancy hopes to hold into the distant future.

The Pathfinders Program is alive and well. The reputation of the Preserve and its trails continues to bring new users and vacationers to the Preserve, and old visitors return again and again. Pathfinders are upgrading and improving its mountain bike trail recommendations, pet safety information, and processes for assisting first responders. Currently the Conservancy is working with the City of Scottsdale to make sure the Pathfinders team can support planned trailheads at Pima-Dynamite, Granite Mountain, and Fraesfield. While details of the design, approval, and construction at these sites are still pending, Pathfinders are nonetheless working to fulfill the expectations of both the City of Scottsdale and future visitors to the Preserve. Pathfinders are engaged in a continuous process of improvements to find newer and better ways of serving Preserve visitors. 🦋

Cheers! Salute! Santé! Cin Cin! Sláinte! Kampia! Salud!



No matter what language, we toast our great partners at Total Wine & More for their generosity and support of *Dinner Down The Orchard* at Schnepf Farms, benefitting the McDowell Sonoran Conservancy. Thank you for helping to make our event such an enchanted evening for guests and a successful fundraiser for the Conservancy. We raise our glass to you!

We're already taking reservations for *Dinner Down the Orchard* 2018, scheduled for Saturday, April 21.

Call the McDowell Sonoran Conservancy office at (480) 998-7971 to reserve your seat!



The colorful Tour de Scottsdale occurs every October. The riders pass through beautiful scenery, and part of their entry fee benefits Scottsdale's McDowell Sonoran Preserve. Photo courtesy of Action Media LLC.

Ride the Tour de Scottsdale

By Steve Dodd
McDowell Sonoran Conservancy legacy steward

Since the event's beginning in 2004, the Tour de Scottsdale, the DC Ranch Community Council, Scottsdale's McDowell Sonoran Preserve, and the McDowell Sonoran Conservancy have shared a rich history of partnership, growth, and success.

Begun by the DC Ranch Community Council as an event to honor and draw attention to the Preserve, the annual fall Tour de Scottsdale ride now typically draws around 1,500 participants ranging from serious competitive riders to first-timers wanting the thrill of competing against talented riders to those who just want to experience the challenge of completing a long-distance ride. The ride also draws large family crowds to the DC Ranch Market Street area for the start and finish, and for an accompanying street fair featuring booths and entertainment.

The event's route circumnavigates parts of the Preserve and features both a 30-mile and a 70-mile division. There are a wide variety of bikes in the ride, including traditional road and racing bikes, mountain bikes, recumbents, and even some tandems. Finishers in the 2016 ride ranged from age six to age 80, including 28 riders older than 70.

The Conservancy is the sole nonprofit beneficiary of the ride and has traditionally provided volunteer support as well as riders for the event. Proceeds from recent Tour de Scottsdale events have typically resulted in an approximately \$15,000 annual contribution to the Conservancy from the DC Ranch Community Council.

"It has been one of those really long-standing relationships that has benefitted everyone involved," said Mike Nolan, past executive director of the Conservancy. "We've certainly

appreciated the financial support and the awareness the Tour de Scottsdale has provided to the Conservancy and the Preserve, and the Community Council's long term participation and support clearly demonstrates DC Ranch's commitment to being both a good neighbor and a good community citizen.

"It is a huge undertaking that involves a big commitment not only from the riders, but from volunteers both on and off the course, the people who plan and execute the ride and the street fair, the City of Scottsdale, and DC Ranch," Nolan added. "But when you see the sense of accomplishment of the riders when they cross the finish line, and see the families having a great time at the street fair, it makes it all worthwhile."

Although Conservancy stewards have always been among participants in the race, beginning two years ago, the Conservancy officially entered a team of stewards in the event. While not riding together as a group because of a wide range of age and ability, the team gets together for training and practice rides beginning several months prior to the event. Team members support and encourage each other in the training sessions, proudly wear their Conservancy bike jerseys during the race, and share a camaraderie and sense of accomplishment at the conclusion.

"Many of our stewards were among the top finishers, both overall, or in their individual age groups," said Nolan. "We're doubly proud of the entire Conservancy Tour de Scottsdale team, saluting not only what they do as stewards, but what they accomplish in the ride as well."

Top steward finishers in the 2016 30-mile ride included—

- Toni Vallee, female 11th overall, 1st in her age division
- Carolyn DiFonzo, female 16th overall, 5th in her age division
- David Wilson, male 24th overall, 5th in his age division
- Helen Rowe, female 28th overall, 7th in her age division
- Henry Krauter, male 39th overall, 3rd in his age division

Other Conservancy team riders included David Hay, Roger Riepe, Dennis Miller, Ian Robbins, Chuck Wain, Chris Kirkpatrick, Steve Dodd, John Picken, and John Sims.

The 2017 Tour de Scottsdale is scheduled for Sunday, October 8. Anyone interested in riding in the tour should go to the Tour's website at www.tourdscottsdale.net. Any stewards interested in riding with the Conservancy team should phone the Conservancy office at 480-998-7971 or email nancy@mcdowellsonoran.org 

McDowell Sonoran Conservancy stewards Carolyn DiFonzo, David Wilson, and Toni Vallee were top finishers in the 2016 Tour de Scottsdale. Photos courtesy of Tour de Scottsdale.



Conservancy on the Move— Exhibit at the Arizona Heritage Center

By Cinda McClain
McDowell Sonoran Conservancy steward

The Sonoran Silver exhibit opened at the Brown's Ranch Trailhead in October 2016 as part of the activities marking the 25th anniversary of the creation of the McDowell Sonoran Conservancy. This exhibit celebrates the vision of Scottsdale's citizens to preserve for future generations more than 30,500 acres of Sonoran Desert and mountain habitat known as Scottsdale's McDowell Sonoran Preserve.

Through photos, narrative, and artifacts, the Sonoran Silver exhibit tells the story of the Conservancy's first 25 years from its beginnings as an advocacy group aiming to acquire environmentally sensitive lands to its present position as a leader in urban preserve management. Exhibit panels highlight the creation of the Conservancy, the organization's evolving leadership, and how the Conservancy and Preserve have grown together. Photos and accompanying texts present the Conservancy steward program that has grown to over 650

stewards today. Since the Preserve would not have been possible without the support of Scottsdale's civic leaders, the exhibit also provides special acknowledgement of the consistent support the Conservancy receives from Scottsdale mayors.

Three logos have been associated with the McDowell Sonoran Conservancy and its predecessor, the McDowell Sonoran Land Trust. The common feature of each is the saguaro cactus. A display case illustrates the succession of the Conservancy's logos on t-shirts and other objects, including memorabilia from Chet Andrews, Steward #1, and Carla, the dynamic public advocate for the preservation movement in Scottsdale and a former Conservancy executive director.

Another display case, "Tools of the Trade," contains historic posters and art works as well as artifacts from the Conservancy's public education and research programs. The case displays items such as a tool for trail work, boots, cholla ball-harvesting tongs and



T-shirts worn by stewards and other volunteers over the years tell the story of a passionate group of people intent on preserving the McDowell Mountains for future generations. Photo by Dennis Eckel.

pails used for trail maintenance, and a mountain bike.

During its eight months at Brown's Ranch Trailhead, the Sonoran Silver exhibit has been viewed by thousands of visitors. The exhibit, to be renamed "Sonoran Silver: Arizonans Help Preserve Sonoran Desert Treasures," will move to the Arizona Historical Society's Arizona Heritage Center at Papago Park in Tempe this summer. Before moving to this location, the exhibit will be enhanced. Many of the panels and artifacts from the original exhibit will be displayed, and new photos will be added as part of a rotating slide show. A new section will be added to reflect the Conservancy's message for the citizens of Arizona—encouraging individuals and groups to take action to make a difference for themselves, their children, and their communities.

The grand opening for the exhibit at the Arizona Heritage Center will take place the evening of Thursday, July 13, 2017. Conservancy stewards



The Sonoran Silver exhibit at Brown's Ranch Trailhead celebrates and documents 25 years of dedication by McDowell Sonoran Conservancy stewards to Scottsdale's McDowell Sonoran Preserve. Photo by Dennis Eckel.

will act as hosts. They will answer questions about the Conservancy's past, present, and future, and explain how citizens throughout the state and beyond can empower themselves to make a difference. Len Marcisz, Conservancy legacy steward and past-president of the Arizona Historical Society Board, will be a featured speaker at the opening.

"Sonoran Silver: Arizonans Help Preserve Sonoran Desert Treasures" will remain at the Arizona Heritage Center through May 2018. Programs for the public will be offered throughout the exhibit's stay at the Center. Museum hours are Monday through Thursday from 10 a.m. to 5 p.m., and Friday and Saturday from 10 a.m. to 4 p.m. The Center is closed on Sunday. The exhibit will be included in the price of the general museum admission.

The Conservancy takes great pleasure in reporting that, as part of the partnership between our two organizations, a new display called "History in the Desert" showcasing the Arizona Historical Society and created by the Arizona Heritage Center will open at the Brown's Ranch Trailhead in mid-November 2017. 🦋



The display of books, posters, brochures, and other material show that education was and continues to be an important part of the mission of the McDowell Sonoran Conservancy. Photo by Dennis Eckel.

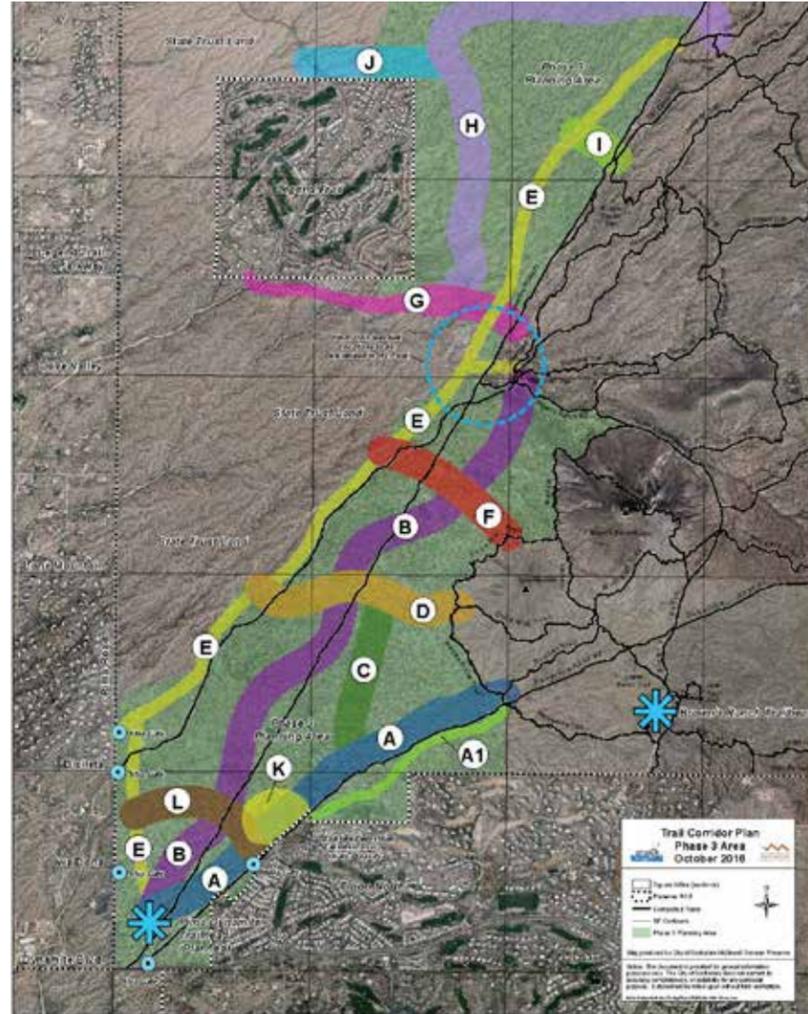
Maintaining the Preserve—A Work in Progress

By Scott Hamilton
City of Scottsdale Preserve planner

The 2016-17 season has been a very productive one for trail planning, construction, and maintenance in Scottsdale's McDowell Sonoran Preserve. The City of Scottsdale completed several important projects across various regions of the Preserve designed to improve the sustainability of its trail system, and provide new trail opportunities. In particular, several new miles of trails were planned and constructed in the northwestern area of the Preserve, substantial erosion control measures were put into place on Tom's Thumb Trail, and many miles of trails in the McDowell Mountains were renovated. The City's goal with these efforts is to continue to provide a high-quality recreational experience for the citizens of Scottsdale and other Preserve visitors, while protecting the natural environment of the Preserve to the greatest extent possible. This article describes some of the projects.

Phase 3 Trail Corridor Plan

Some of the newest Preserve lands are in the northern region of the Preserve, stretching from Dynamite Boulevard north to Stagecoach Pass, and from Pima Road east to the Brown's Ranch area. In the summer of 2016, the City convened a diverse group of trail



The Phase 3 Trail Corridor Plan shows the approximate locations of the planned trails in the Northern Preserve. Photo courtesy of the City of Scottsdale

users representing hikers, mountain bikers, and equestrians to prepare a trail plan for this roughly 3,000 acre area. Also at the table were representatives from the McDowell Sonoran Conservancy, the McDowell Sonoran Conservancy Field Institute, and other partners including the Arizona State Land Department, Arizona Game and Fish Department, and Arizona Public

Service. Together the group prepared a comprehensive plan, known as the Phase 3 Trail Corridor Plan, for the establishment of multiple-use trails. The group met seven times through the summer of 2016 to prepare the draft plan. Once complete, the draft was presented to the McDowell Sonoran Preserve Commission and the general public for review and comment. A series



Conservancy stewards and City of Scottsdale staff rode their mountain bikes through the northern Preserve to look at the areas of new and proposed future trails. Photo by Dennis Eckel.

of three public open houses was held, and the draft plan was made available for review and comment on the City's website. The Phase 3 Trail Corridor Plan was finalized in the fall of 2016. To view the plan in its entirety, go to www.scottsdaleaz.gov and search for "Phase 3."

Implementation of the Phase 3 Trail Corridor Plan began in the fall of 2016 with the City working with YRU Trail Construction, a professional trail construction contractor. The work is expected to last two to three trail-building seasons, which typically begin in October and end in May. For the recently completed season, the primary focus was the northern portion of the Phase 3 area—mainly, north of the Rawhide Wash, south of Stagecoach Pass, and east of the Legend Trail community. Some favorite old routes were kept in place, such as the classic trail known as West Express. Some routes in the Brown's Ranch area

were also extended into the Phase 3 area, including the Stagecoach and Broken Spoke Trails. At the time of this writing, these new trails are on the ground and usable, but are not marked with directional signs, and are not on the Preserve's Northern Region Trail Map. The work of installing signs for the new trails, and adding the trails to the public map will be complete by the end of the summer. In the meantime, you are welcome to use the new trails, but please be advised that they may not be signed or mapped.

Tom's Thumb Trail and Trailhead

The picturesque and popular Tom's Thumb Trail was first constructed in 2008-2009. Visitation was relatively low the first several years until the Tom's Thumb Trailhead officially opened in 2012. Since that time, the trail has experienced

thousands of visitors and many torrential monsoon rain storms. The combination of heavy foot traffic, steep mountain slopes, and the occasional ferocious drenching from Mother Nature began to take their toll. Over the years, volunteers from the Conservancy's Construction and Maintenance Program and the City of Scottsdale's Preserve staff did a tremendous job keeping the trail in the best shape they could. As time passed, however, it became evident that a permanent solution was needed, particularly for hardening the areas where concentrated surface water flows off the side of the trail and down the hillside below. Many of these locations had washed out and formed deep gullies that threatened the integrity of the surrounding habitat and the long-term sustainability of the trail itself.

In fall of 2016, the City enlisted the services of a professional trail construction company, Okanogan Trail Construction, to help identify permanent solutions for the erosion issues. Okanogan worked closely with the City Preserve staff to refine the design and installation of rock gabions along the trail. Gabions are wire baskets filled with rock to create a long-lasting unified mass. The gabions act as spillways for water flowing off the side of the trail, dissipating the water's energy as it filters through the caged rocks. This keeps the edge of the trail intact, and limits the formation of gullies downstream from the trail. A total of 100 gabions filled with roughly 100,000 pounds of rock were installed along Tom's Thumb Trail. Construction materials were moved

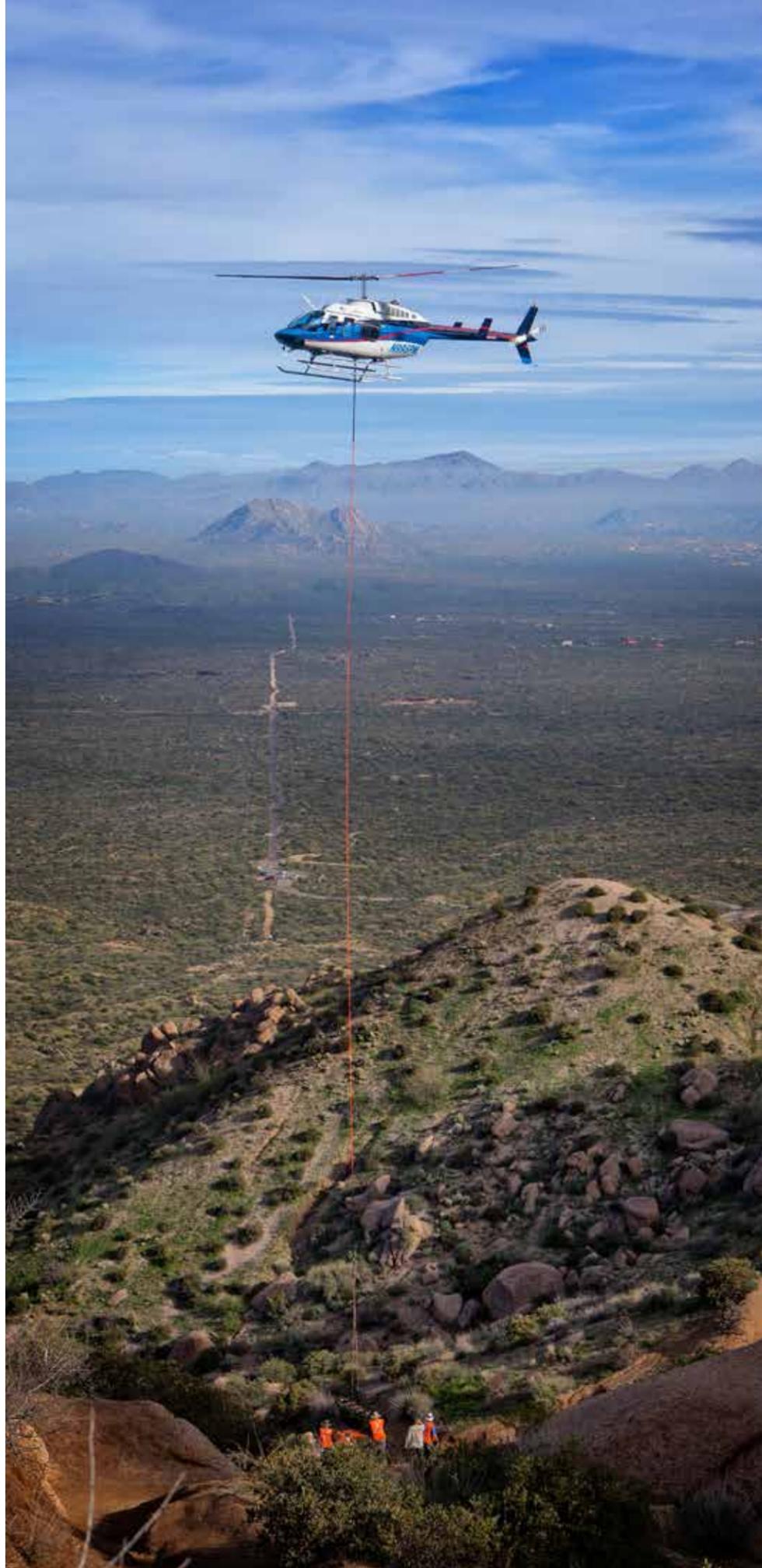
onto the trail by means of a helicopter carrying 1,000 pounds at a time. Stewards from the Conservancy's Construction and Maintenance crew provided invaluable service working alongside the City of Scottsdale staff on the ground where they loaded and unloaded the rock.

In addition to Tom's Thumb Trail, the City is also making improvements to the Tom's Thumb Trailhead parking lot by adding roughly 100 more parking stalls to the 200 already there. This improvement is in accordance with the trailhead master plan that specified a total of 300 stalls. The Tom's Thumb Trailhead will remain open during the parking lot construction, which is expected to be completed in the early fall.

Trail Renovations in the McDowell Mountains

In addition to working on Tom's Thumb Trail, the crew from Okanogan Trail Construction also renovated a few Preserve trails further south in the McDowell Mountains, including Bell Pass, Windgate Pass, Prospector, Windmill, East End, and Gateway Loop. The purpose of this work was to improve drainage from the trail surface. It included removing berms from the outside edges of the trails, restoring the outslope of the trail surfaces, removing rocks and debris from drainage structures, and clearing loose rock from the trails.

This helicopter made approximately 100 trips to haul rocks up the Tom's Thumb mountainside for a maintenance project on the trail. Photo by Dennis Eckel.



Wire cages filled with rock are more effective at preventing soil erosion than loose rocks. Photo courtesy of the City of Scottsdale.



The before photo on the left and the after photo on the right show the results of the East End Trail improvement project. This is one example of how the City of Scottsdale continues to care for and support the Preserve. Photos courtesy of the City of Scottsdale.

Arizona Public Service Medium Voltage Powerline

After many years of planning, Arizona Public Service (APS) is poised to begin construction of a new medium voltage (69 kV) powerline within its existing easement in the northern region of the Preserve. The new line will provide electricity to areas east of the Preserve, and will consist of a series of rust-brown poles paralleling the north side of the existing lattice towers. The route follows Powerline Road #2 shown on the Northern Region Trail map, and stretches from the APS substation on the northeast corner of Pima Road and Dynamite Boulevard, east to the 118th Street alignment. At that point, the new overhead powerline will connect to the existing underground conduits that head south on 118th Street and exit the Preserve at the Dixileta Road alignment. There will be occasional trail restrictions during the summer as APS clears vegetation, installs the poles, and pulls the electrical wires.

There is always a lot going on in the Preserve. If you have questions about these projects or anything else related to the Preserve, please don't hesitate to reach out to me (Scott Hamilton) or any member of the City Preserve staff. You can reach me at 480-312-7722 or shamilton@scottsdaleaz.gov. And, you can find more information by going to the City of Scottsdale website at www.scottsdaleaz.gov and searching for "preserve."

I hope to see you out on the trail! 🦋



Websites That Shine!

We developed the McDowell Sonoran Conservancy's new website, which is putting the McDowell Sonoran Preserve, the Conservancy and the Conservancy's nationally acclaimed Field Institute in front of a worldwide audience. You can see it at www.mcdowellsonoran.org.

Your website is your brand and your business card, the gateway to your company and its capabilities, and the credibility builder that creates confidence with prospective customers and partners. It must be dynamic, easy to navigate and exciting to experience.

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Huge granitic boulder slabs that lean together form the sheltering effect of Cathedral Rock and dwarf its human visitors. Photo by Dennis Eckel.

Great Hikes in the Preserve— Cathedral Rock at Brown’s Ranch

By Barbara Pringle
McDowell Sonoran Conservancy master steward

Deciding on your next hike in Scottsdale’s McDowell Sonoran Preserve can be challenging, given the plethora of choices. With over 180 miles of trails in today’s Preserve, there is something for everyone, whether you like to hike, ride your mountain bike, or saddle up your horse. The Preserve’s 30,500 acres offer amazing diversity in geology, geography, flora, fauna, and human history.

A hike to Cathedral Rock is a treat for the senses and a fascinating glimpse into the ways in which Preserve land was used in the past. *It is one of several sensitive cultural sites in the Preserve, and should be treated with great respect during a visit.* Located in Brown’s Ranch, an area rich in prehistoric resources and historic ranching operations, Cathedral Rock has Archaic components dating to approximately 5000-1300 BCE. During this time period, a warming Holocene climate following the Paleoindian period led to a new cultural and lifestyle pattern known as the Southwestern Archaic. It was characterized by small, mobile groups of people who hunted small game, and increasingly relied on collecting seasonal ripened plant resources, such as native plant seeds.¹

At Cathedral Rock, you’ll readily spot several grinding features in the granite floor, known as bedrock mortars or gyratory crushers. “The portable tools most similar to these stationary features are what we

¹ City of Scottsdale, *McDowell Sonoran Preserve Cultural Resources Master Plan*, June 2016. www.scottsdaleaz.gov/preserve/crmp

are accustomed to refer to as manos and metates,” explains McDowell Sonoran Conservancy legacy steward Len Marcisz, past president and board chair of the Arizona Historical Society, and past Conservancy board chair. The fine-grain rock would have worked best with small seeds, whereas portable manos and metates made from vesicular basalt having large vugs (holes) were used with large seeds, such as corn kernels. The bedrock mortars you



Cathedral Rock has provided shelter from the desert elements for many visitors, including Archaic era people who frequented the area around 5000 BCE to 1300 BCE. Evidence of their presence can be seen in the bedrock mortars, used to grind up seeds found in local flora. Photo by Dennis Eckel.

see at Cathedral Rock were worn deep by frequent use, possibly to make flour from seed pods available in the spring.

Observe the cathedral effect caused by the two large granitic rock slabs that lean against one another. This feature likely added to the site’s attraction for archaic people, offering shelter against both heat and cold. “In spring and summer, the slabs provided shade and a pleasant breezeway. In winter, they offered shelter from easterly and westerly winds, a heat-reflective surface for fires built within the cathedral, and a screen for the

fire’s glow, affording protection from possibly hostile human elements in the area,” notes Marcisz.

Let’s Go Hiking!

Brown’s Ranch Trailhead is your starting point for this easy to moderately difficult hike. As with all Preserve trails, the area is well marked with signs to help you safely enjoy your outing. Begin on Brown’s Ranch Road Trail, the main trail leading from the trailhead. It’s flat, easy, and often filled with hikers, mountain bikers, and horseback riders. Trek about one mile until you reach the Maverick Trail intersection, and head northeast. Along Maverick, you’ll enjoy expansive vistas and lush, upper-desert flora. Mountain bikers love Maverick for its roller-coaster bumps, narrow track sections, and occasional steep rises and descents. Equestrians also like this trail, so attention to proper trail

etiquette is important for everyone’s safety and enjoyment.

After about 0.8 miles, you’ll reach the intersection with Cholla Mountain Loop Trail. Go north for roughly half a mile, where you’ll spot the sign to Cathedral Rock. Climb the short trail into the cathedral shelter and enjoy the cool breezes, vistas to the north, and views of Brown’s Mountain to the southwest. Respectfully inspect the bedrock mortars and try to imagine living and hunting here in prehistoric times. Do not collect or move any artifacts that you may find at the site.

Return the same way you came, or take Dry Gulch Trail west to the Corral Trail, which runs through a section of the historic Brown’s Ranch grazing site. The Corral Trail is wider and flatter than Maverick Trail, and is a popular equestrian trail. Corral Trail connects to Brown’s Ranch Road Trail, so head south for 1.3 miles to the trailhead, completing the roughly 4.5-mile round trip hike. 🦋

Located in Brown’s Ranch, Cathedral Rock is surrounded by the rich flora of the upper Sonoran Desert at an elevation of approximately 2,900 feet. Photo by Dennis Eckel.



A dirt trail winds through a desert landscape. In the foreground, there are yellow wildflowers on the left and a large yucca plant on the right. The middle ground is filled with various cacti, including saguaros and cholla. In the background, several large, rounded boulders are scattered across the terrain. The sky is a clear, bright blue with a few wispy clouds. The overall scene is a typical desert environment.

Hikers, mountain bikers, and equestrians all enjoy the expansive vistas and variety of trails offered at Brown's Ranch in the northern part of Scottsdale's McDowell Sonoran Preserve. Cathedral Rock is an ideal destination in that part of the Preserve for those seeking a relatively easy hike and fascinating human history. Great respect for this sensitive cultural site is imperative for all visitors to Cathedral Rock. Photo by Dennis Eckel.

Urban and Climate Pressures on the Preserve— How Do We Monitor and Detect Changes?

By Debbie Langenfeld, Field Institute certified citizen scientist, and
Amanda Comstock, Field Institute certified citizen scientist

The mission of the McDowell Sonoran Conservancy is to help protect and promote the largest urban preserve in North America, Scottsdale's 30,500 acre McDowell Sonoran Preserve. Yet urban pressures such as air pollution, intense visitation, and changes in neighboring land uses from open space to development, exert strong pressures on plant and animal communities. In addition, climate change in the arid southwest is expected to cause hotter and drier conditions. With these looming threats, how does the McDowell Sonoran Conservancy Field Institute monitor the health of the plants and animals of the Preserve and ensure the preservation of ecological processes? Indeed, this is a tall order. So, in 2010, the Conservancy established the Field Institute to conduct ecological research to inform sustainable natural resource management of the Preserve. The first step is to monitor plants and animal communities on the Preserve to ensure early detection of change. Our approach is to carefully choose long-term monitoring protocols used by regional and national organizations so that we leverage our data for regional comparisons. Through these partnerships, we are able to provide our data

to national or regional datasets, and in exchange benefit from being able to download other data sets and interpret the results in a regional context.

With that in mind, let's take a closer look at four of our current monitoring projects designed to help understand the impact of urban stressors and climate change on the Preserve.

Birds

Both urbanization and climate change are threats to bird species richness and abundance. Habitat loss and fragmentation due to urban

development can have negative effects on bird populations. Naturally occurring food sources found in native habitat are replaced with landscaping that attracts urban-associated species at the expense of native or migrating birds. Changing weather patterns can disrupt natural events that trigger migrations. Warming temperatures may mean birds begin their migrations early while others might wait too long, arriving at their destinations out of sync with the lifecycles of the food sources (insects, flowers, fruits) on which they depend.

How do we tell what effects these changes are having on the Preserve's



Ongoing surveys of bird populations within the Preserve provide data that is added to a global database, eBird. The Field Institute uses the Preserve bird count data to monitor the effects of urbanization and climate change in the Preserve. Photo by Debbie Langenfeld

bird populations? The answer is bird counts. Comprehensive surveys were conducted in the Preserve in 2012 and 2013 to gain insight into the bird population and provide baseline data for ecological resource planning, education, and future research. Since then, Field Institute citizen scientists have participated in ongoing monitoring throughout the year. Data from these surveys, plus that derived from participation in the National Audubon Society's Christmas bird count and Arizona Field Ornithologist's Global Big Day is added to the eBird app, a global database with a vast source of bird and environmental information.

Butterflies

The fragile nature of butterflies makes them ideal subjects for early detectors of climate change. They could be considered a bellwether species. Warming temperatures may cause disruptions in synchronous timing events that migratory species are unable to adapt to. This may cause them to be less fit, unable to reproduce and have increased mortality. Others species that are stationary, only traveling a few yards, can also be susceptible to urban related influences such as the use of pesticides and changes in landscaping. Dr. Ron Rutowski, president of the Central Arizona Butterfly Association, reports, "There are butterfly species that interestingly occur in urban central Arizona and are rarely if ever seen on our counts in the relatively unmodified desert on the Preserve and vice versa. This indicates that urbanization and the habitat changes it causes have effects on the abundance and diversity of butterflies."



Identifying butterfly species and tallying their numbers is a collaborative effort where citizen scientists assist butterfly experts. Photo by Amanda Comstock.

Since 2014, the Field Institute has participated in an annual fall butterfly count conducted in coordination with the National American Butterfly Association linking local data to the NABA's nationwide effort. In 2017, a spring count was also added under the guidance of Dr. Rutowski to determine variations between spring and fall species. The data collected provides vital information needed in order to track changes in the way butterflies are adapting to changing conditions in the environment. With



Dr. Ron Rutowski, president of the Arizona Butterfly Association and Arizona State University faculty member, confirms the identification of a species observed during the spring count in the Preserve. Photo by Amanda Comstock.

this insight, we will be better prepared to devise conservation plans and adapt practices for maintaining the delicate ecosystem of the Preserve.

Ground-dwelling arthropods

Arthropods are an incredibly diverse group of organisms that include insects, beetles, ants, arachnids, and more. They make up about 84 percent of all described animal species, are incredibly diverse, and are essential elements of a healthy ecosystem. They differ from birds and butterflies, especially migrating ones, in that they aren't just passing through, but spend their entire lives in one location. This coupled with their short lifespan makes them highly sensitive to changes in precipitation, temperature, and habitat disturbances directly brought about by humans. They can't just pack their bag and relocate to a more suitable location. Their characteristics make them perfect subjects for studying the pulse of an ecosystem.

Since 2012, the Field Institute has



A field Institute citizen scientist holds one of the 20 specimen jars collected at Tom's Thumb. Collections are four times per year from eight selected sites in the Preserve to monitor the health of the ecosystem. Photo by Debbie Langenfeld.



Stewards transfer arthropod specimens from a pitfall trap to a specimen jar. Arthropods are the largest, most diverse, yet least understood component of our ecosystem. Monitoring changes in their diversity will allow us to assess the effects of urbanization and climate change within the Preserve. Photo by Debbie Langenfeld.

been working in concert with Central Arizona-Phoenix Long-Term Ecological Research (CAP LTER) project at Arizona State University's School of Sustainability. The investigators on this project monitor the arthropods on the Preserve. The data collected will help in identifying patterns resulting from urban and climate stressors, and their impact on biodiversity and species populations. The collection process is conducted quarterly by using pitfall traps at four sites strategically

positioned so that some adjoin urban areas and some are well inside the wild land habitats of the Preserve. The specimens are submitted to ASU for identification and documentation, and added to the database. The data from the Preserve, along with data collected from other areas in the greater Phoenix metropolitan area, are contributing to remarkable datasets that ecologists are employing to increase understanding of the Sonoran Desert.

Phenology

Our research would not be complete without understanding how the lifecycles of plants are also changing. Monitoring developmental events (phenophases) such as leafing, budding, flowering, and fruiting are all necessary pieces to detecting change.

These observations tell us how the plants react to climate change and human interaction. Both temperature and rainfall regulate growth and development. Lack of rain coupled with high temperature could cause the plants to become dormant, thus eliminating a food source and shade for animals. Plants are the foundation on which the animals in the Preserve survive.

In 2016, we embarked on a comprehensive study. With the guidance of the National Phenology Network (NPN), six plants were specifically identified as key species: the saguaro (*Carnegieia gigantea*), buckhorn cholla (*Cylindropuntia acanthocarpa*), jojoba (*Simmondsia chinensis*), desert senna (*Senna covesii*), velvet mesquite (*Prosopis juliflora*), and soap tree yucca (*Yucca elata*). The Field Institute will



Caption The desert senna is one of six key species of plants being observed by the Field Institute's Phenology Project. The project follows the protocols of the National Phenology Network (NPN). Learn about the desert senna on page 28 of this issue. Photo by Debbie Langenfeld.

collect observations throughout the year on three trails in the Preserve to understand how these selected species react to seasonal and long-term climate change. Monitoring the health and functions of plants and the animals that rely on them allows us to identify any environmental cues linked to climate and or human stressors.

Summary

Birds, butterflies, arthropods and plants all react to variability in urbanization and climate, but in very different ways that are difficult to predict without multiple-year monitoring. These studies enable early detection of population and ecosystem disruptions, such as

mismatches between migration and food sources, changes in diversity and abundance of populations, or a shift from native to urban species. Even with these four studies and the regional comparisons we can make with national and regional datasets, we will still have knowledge gaps. As we grow, the Field Institute strives to continually increase our ability to detect change. It is through early detection and a comprehensive understanding of ecosystems that we can hope to adaptively manage and preserve the diversity of the majestic Sonoran Desert. Our research will help provide the valuable information needed to start understanding the impacts on the Preserve now and in the future. 🦋



Stewards collect and record data on one of the many phenophases (a stage in a life cycle) of plants within the Preserve. These observations tell us how plants are reacting to climate change and human interactions within the Preserve. Photo by Debbie Langenfeld.



The first sighting of the mourning cloak butterfly in Scottsdale's McDowell Sonoran Preserve happened during the McDowell Sonoran Conservancy's 2017 spring butterfly count. These butterflies will be rarely seen in the Preserve because they lay their eggs only on the leaves of the willow tree (*Salix gooddingii*). Willows, which require a lot of water, are typically found in riparian areas that are rare in the Preserve. Learn about the butterfly count on page 24 of this issue. Photo by Marianne S. Jensen.

Monitoring Butterfly Abundance and Diversity

By Stacey Cassedy
Field Institute certified citizen scientist

What if we could predict the future—with butterflies? Butterflies are fragile and very sensitive to climate change. Their population variances provide us with insight and warnings about our environment.

Interest in capturing butterfly data has existed for hundreds of years, providing a unique data resource unlike any other insect group. Such large amounts of historical data, coupled with ongoing data collection, provide us with a credible way to research butterfly population change.

The McDowell Sonoran Conservancy Field Institute has been organizing butterfly counts in Scottsdale's McDowell Sonoran Preserve since 2014. Tracking our butterfly populations will help us identify changes in butterfly populations and diversity over time, giving us insight into possible changes that may affect the Preserve. Since our counts follow the protocols of a national count program overseen by the North American Butterfly Association

(NABA), it will allow us to compare our data with those from other areas of the country.

There are about 20,000 butterfly species in the world, with approximately 575 species found in the lower 48 United States. The Preserve is home to over 40 species of butterflies! Our seasonal butterfly counts occur in the spring and fall. To ensure data consistency each year, maps indicating starting and ending locations are



The spring 2017 butterfly count observed the beautiful Elada checkerspot for the first time in the Preserve. It joins the list of over 40 other butterfly species found there. Photo by Marianne S. Jensen.



Is this a moth or a butterfly? The answer is a butterfly—the common checkered skipper. Some butterflies are brownish in color, leading people to mistake them for moths. One way to tell the difference is to observe their antennae. Butterflies have thin antennae with a club shape at their ends. Moths have feathery antennae. Photo by Marianne S. Jensen.

recorded, and an established protocol is followed. In addition to counting and identifying butterflies, local weather conditions and vegetation information are recorded for comparison and possible explanations in count variations. The resulting data is shared with other organizations for large-scale comparisons and studies, as well as to provide valuable insight into scientific management of the Preserve.

The counts are taken within a 15-mile diameter circle in one day for several hours in midmorning. The key to documenting different species is to vary the habitat where you look, and the Preserve provides several different habitats. The goal of the count is not to compete for the highest numbers, but to provide long-term data on trends in butterfly populations. Sites were chosen for the likelihood that the count can be repeated there year after year, not just for richness or rarities. Six Preserve sites are observed—Old Paint Wash and Brown's Peak in the north; 128th Street Tank, Tom's Thumb



Butterfly counters go to likely butterfly habitats in the Preserve to spot butterflies. It takes training and practice to identify flitting butterflies, especially when they are in groups. Photo by Debbie Langenfeld.

Canyon, and Marcus Landslide Trail in the central area; and Dixie Mine in the south. Stewards and volunteers assist butterfly experts in the field.

Counting butterflies is no easy feat as nature rarely conforms to our field books. Variations in color can make identification difficult, and focusing on one butterfly long enough to identify it within a field of flitting butterflies demands attention. In anticipation of each count, Dr. Ron Rutowski of Arizona State University, a biologist and our scientific partner, gives participants workshop practice in observing and identifying butterflies.

During the 2017 spring count, over 800 individual butterflies were counted and 29 species were identified. Dr. Rutowski said of the findings, "It is

clear that the list of species is a little different with each survey, with some species present in the spring that were not there in the fall and vice versa; and certainly, the abundances of some species seen in both counts is quite different." The Elada checkerspot and Acmon blue were two species seen only at the Old Paint Wash site. Added to the overall butterfly species list this spring were the Elada checkerspot (*Texola elada*), Sara orangetip (*Anthocharis sara*), and mourning cloak (*Nymphalis antiopa*), bringing the total species count for the Preserve up to 45 butterfly species!

While surveying butterflies on the summit of Brown's Mountain, the team encountered an interesting phenomenon called hilltopping. This



A painted lady caterpillar crawls on a New Mexico thistle (*Cirsium neomexicanum*), its host plant. The caterpillar spins a web on the plant and uses the web as a sunscreen. Photo by Marianne S. Jensen.

is a mating behavior used by several species of butterflies where the male of the species flies to a hilltop to claim an area. The male competes for the highest point on the hill to have the best chance at mating. Dominance on the hill indicates strength and stamina which attracts female butterflies.

Butterflies are a beautiful and important part of the Preserve's wildlife. With the assistance of volunteers, the Field Institute will continue to collect data about butterfly populations in the Preserve. 🦋



A group of sleepy orange butterflies are mud-puddling in the damp desert soil after a rain. They are sipping up minerals and other nutrients not offered by the nectar in flowers. Photo by Marianne S. Jensen.

The Sleepy Orange Butterfly: What's in a Name?

By Susan Aufheimer
Field Institute certified citizen scientist

The sleepy orange butterfly is a bit of an enigma. For starters, people don't agree on how it got the name "sleepy." Some say it's because this dainty butterfly, which is perhaps an inch and a half to two and a quarter inches from wingtip to wingtip, flies slowly as if too sleepy to fly any faster. Some say it's because the image of a closed eye appears on its wing. But the sleepy orange flies just as fast as its relatives and the closed eye is somewhat hard to see without really using one's imagination.

A person might also wonder why it's even called "orange," because there's no orange showing when this butterfly sits with its wings closed in an upright position. The undersides are bright yellow to buff depending on the time of year. Only when the sleepy orange butterfly spreads its wings is the color orange visible on the topside.

And finally, its species name is even a question. Is it *Abaeis nicippe* or *Eurema nicippe*? Depends on who you ask. Some say the terms are synonyms. Probably *Abaeis nicippe* is most commonly used, but you won't be wrong no matter what you call it.

This enigmatic butterfly calls Scottsdale's McDowell Sonoran Preserve home. It is one of the so-called sulphur butterflies in the Pieridae family. The sleepy orange is among the most abundant butterfly species found in the Preserve. For the past three years, the McDowell Sonoran Conservancy Field Institute has conducted

a one-day butterfly count during the fall to tally butterflies found in all parts of the Preserve. In 2015 the count documented 208 sleepy oranges; in 2016 the count yielded 52; and in 2017 the count yielded 47. (See the article about this spring's butterfly count on page 24 of this issue.) The number of any given species of butterfly found in the Preserve is dependent on many factors, including temperature, rainfall, and available flowers and host plants to feed on. We'll need many more years of data to determine if fluctuations represent real decline or increase in any one species.

The sleepy orange's host plant is the desert senna (*Senna covesii*), which grows throughout the Preserve. (Learn about the desert senna in the article about it on page 28 of this issue.) Desert senna is the food source for the sleepy orange's caterpillars while they feed their way toward becoming pupae



Sleepy orange butterfly eggs are nearly microscopic. Here two tiny eggs are attached to the underside of a desert senna leaf and will soon produce two tiny caterpillars. Photo by Marianne S. Jensen.

and finally mature butterflies. The adult butterfly deposits her eggs on a senna leaf where they hatch after a few days. Out pops a sleepy orange caterpillar. It is light green with tiny hairs and a thin white stripe barely visible along its side. It is very small but grows exponentially during its time as a caterpillar. Senna contains a poisonous substance that keeps predators from preying on animals that eat the plant. It provides the sleepy orange caterpillar with a measure of safety that's perfect for keeping hungry birds and other predators at bay.

The sleepy orange caterpillar will eat until it bursts—literally. Its skin is not elastic, so when the caterpillar grows too big for its britches, it sheds its old skin and begins with a brand-new set of clothes. After devouring more senna leaves



A sleepy orange caterpillar eats its way around a desert senna leaf, which is its sole food. During the caterpillar phase, it will do nothing but eat, shedding its skin several times before it starts its metamorphosis into an adult butterfly. Photo by Marianne S. Jensen.

and shedding three or four more times, the sleepy orange caterpillar stops eating and transforms itself into a chrysalis. A chrysalis, or pupa, is the transitional stage between larva (caterpillar) and adult. It is where the magic of metamorphosis takes place.

The pupa, while appearing dormant, is not really at rest during this time because its larval cells are rapidly changing into legs and wings and compound eyes characteristic of its adult form. Soon a brand-new sleepy orange butterfly will emerge, wait for its wings to expand and dry, and fly off to join its fellows who are already enjoying nectar offered by the bountiful spring flowers growing in the McDowell Sonoran Preserve. If they're lucky, they'll find each other and begin the process all over again. 🦋



A nearly empty chrysalis is attached to the stem of a desert senna plant. The sleepy orange butterfly is almost free of its case where it changed from a pupa into an adult butterfly. The butterfly's tightly folded wings seen jutting from the bottom of the chrysalis will soon spread wide to catch the wind for the butterfly's first flight into the Preserve. Photo by Marianne S. Jensen.

A Native Star

By Amina D'Ambrozio
McDowell Sonoran Conservancy steward

Spring in the Sonoran Desert represents renewal. With longer daylight hours, dormant plants and trees awaken, and vegetation is revived, especially after a strong rain. The result is a tapestry of green landscape sprinkled with color for nature's annual spring party.

One desert shrub that can be seen coloring the Sonoran Desert is desert senna (*Senna covesii*). This perennial herb and dwarf shrub native grows in Scottsdale's McDowell Sonoran Preserve. It is also prevalent in the Mojave Desert, southern Nevada, the Baja Peninsula, and northwest Mexico. Desert senna tolerates full sun and thrives in dry, rocky or sandy, well-drained soil, which is why it flourishes across Arizona.

During early spring, desert senna grows pinkish green buds, and when these buds mature, they deliver a spectacular sight of five-petal, star-shaped yellow flowers with muted red veins. Each flower, less than one inch in diameter, has exactly 10 stamens with large orange anthers. While other plants display large, showy flowers that last for just a few weeks, desert senna offers small flowers that bloom from spring into fall.

The one- to two-inch leaves of desert senna are a dull grayish green, and showcase themselves in elegant pairs of pinnate (elliptical) leaflets. The grayish hue that covers the plant is



The beautiful star-shaped flowers of desert senna (*Senna covesii*) bloom in the McDowell Sonoran Preserve from spring into fall. The flower shows five yellow petals and 10 stamens when in full bloom. Photo by Marianne S. Jensen.

due to white hairs that cover it. Each branch typically exhibits three pairs of leaflets with red tips. The plant grows to less than two feet tall.

Desert senna contributes in many ways to the desert community. Its flowers are buzz-pollinated by carpenter bees and bumblebees. Buzz pollination takes place when a bee undertakes bee gymnastics called sonication where it hangs upside down and vibrates its wings to shake the pollen grains off the anther. This mutually beneficial activity allows the bee to gather pollen while the desert senna is pollinated.

The sleepy orange and cloudless sulfur butterflies use desert senna leaves as a food source and nursery for their larva. The female butterfly lays her



Desert senna is an important plant in the Preserve. It hosts the caterpillars of native butterflies and is one of the early plants to take hold of and stabilize disturbed soil. Photo by Marianne S. Jensen.

eggs on desert senna leaves which act as host throughout the butterflies' life cycle. (Learn about the sleepy orange butterfly on page 26 of this issue.)

Desert senna is one of the primary shrubs used for desert restoration projects because it quickly and easily establishes itself in the harsh desert environment. It helps the ground maintain stability by reducing erosion until other more stabilizing vegetation takes hold.

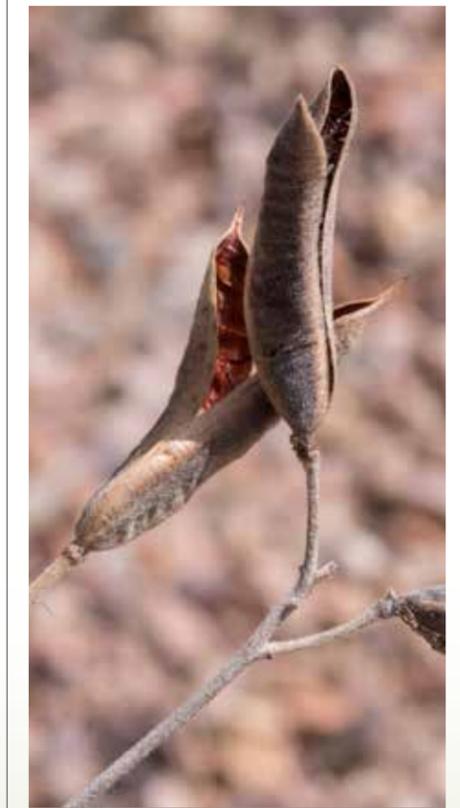
Like other fruits of the *Fabaceae* or legume family, desert senna has slightly curved seed-bearing pods that run from three-quarters to one and one-third inches in length. These pods stand erect with their bright reddish-orange apices (tips) directed toward



These pods, with their bright reddish-orange tips, are the fruit of the desert senna and contain seeds that will be released at maturity. Photo by Marianne S. Jensen.

the sky. The fruit is a dehiscent legume, meaning at maturity the legume splits at a built-in line of weakness (think peapod). Desert senna has been very successful with this propagation method. When mature, the pods pop with force resulting in the seeds flying far away from the plant.

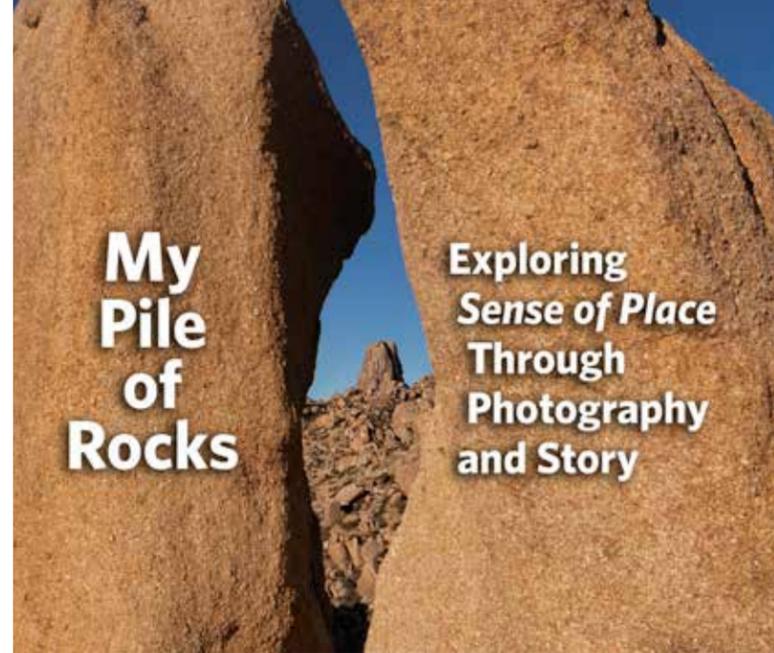
Not many flowers can last in the blistering summer temperatures of the Sonoran Desert, so when you're hiking in the Preserve from now through October, look for this native star. And if you're in need of a beautiful native shrub that will offer you flowers for the hottest six months of the year, you can easily order a pack of desert senna (*Senna covesii*) seeds online. 🦋



The matured pods of the desert senna release most of their seeds with explosive force when jostled by the wind or a passing animal. A few seeds left behind in the pod explains one of its names, the rattle box senna. Photo by Marianne S. Jensen.

My Pile of Rocks

By Ryan Blearn
McDowell Sonoran Conservancy steward



Scottsdale's Mustang Library featured an exhibit of the photovoice project, which told the story of why locations in the Preserve hold special meaning to the photographers. Photo by Dennis Eckel.



Lead Steward Elliot Gardner said, "It is getting the kids away from the electronic nannies. I want [my grandson] to get to enjoy the outside world. . . . This is a chance for me to do something with him that I didn't really have the chance to do at his age." Photo by Lynne Russell.

As we sat on a bench at the southern tip of Scottsdale's McDowell Sonoran Preserve, Joni Millavec, McDowell Sonoran Conservancy master steward, recounted a memorable day in May 2004 at this very location. "There was a big sign that said *Future Site of Sunrise Trailhead*." It was her first project with the Conservancy Construction and Maintenance Program since becoming a steward. The crew's job was to lay the stones for a new set of stairs at the



Early construction of Sunrise Trailhead evokes strong memories in the stewards who helped build it. Photo by Joni Millavec.

trailhead. As we watched hikers stride up the steps she told me, "It's one of those things you see, and you always [know] you did it. I did that", she gestured. "You can almost [say], 'I put that stone in.'"

Over the last one-and-a-half years, I asked Conservancy stewards to tell me about their most meaningful places in and out of the Preserve. I used a research method called photovoice where participants take photographs to tell a story about their lives. This effort is part of a larger project with the Conservancy to study the steward population of which I am also a part. My research, in fulfillment of my PhD dissertation in anthropology at Arizona State University (ASU), investigates how being a steward affects a person's relationship to his or her environment. The goals of the project are to contribute to the academic understanding of the volunteer experience and how we relate to our environments, and to increase the Conservancy's understanding of its steward population and program.

The photovoice project was the first major phase of the study and began in fall 2015. Eighteen stewards attended a 90-minute training session on how to participate in the project. The training session included a basic photography tutorial taught by Dennis Eckel, Conservancy steward, as well as tips on cell-phone photography and apps. The stewards were instructed to contribute five photographs taken inside the Preserve and five photographs in the Phoenix Valley. All of the photographs needed to be of places that are meaningful to them.

Over the course of several months, participating stewards collected and submitted their ten photographs. I then interviewed each participant, often in the Preserve at one or more of their meaningful locales, and discussed why each place is meaningful to them.

Stewards shared photographs of places that make them feel a certain emotion or state of being, such as peaceful, challenged, or a having a sense of ownership. Sometimes

Places are meaningful to stewards because they—

- Prompt an **emotion** or embody a state of being
- Are where **experiences** happen
- Help us form or perform our **identities**
- Have **features** that we enjoy or prefer
- Are **symbols** of important ideas
- Gain significance during a **time** of day or year

stewards described a place as having a feel to it, such as spiritual, majestic, or serene. As Laurie Jones, lead steward, shared, "I feel like *I am* Paradise Trail. . . . It's the trail that my new house—the

property line—connects to. If I leave my house and come up here and my feet are on this trail, I feel good. . . . Because I'm a steward I feel like I have a responsibility, like it's a child."

With all the time that stewards spend in the Preserve, it's no surprise that they have their share of memorable experiences. Sometimes those experiences are joyful, such as renewing marriage vows or witnessing a rare wildlife encounter. Other times a place marks a negative experience, such as reminding us of those who passed before us, or where an injury occurred. Steward Bill Heob contributed a photograph of the aftermath of a mountain bike crash in the Preserve. It was his reminder to "act like [I'm] 60, not like [I'm] 20."

Most stewards included photo-

graphs that spoke to their steward work or family identities. As Millavec did with her Construction and Maintenance work, stewards shared the fruits of their labor as citizen scientists, Pathfinders, and more. Several participants included photographs with their children or grandchildren in the Preserve. They told me how stewardship helps enrich their parenting or grandparenting roles.

Places are meaningful because they allow us to practice our hobbies and pursue new interests. Stewards took photographs of unique cacti, petroglyphs, ranching landmarks, and other features throughout the Preserve to capture their special interests, such as history or botany.

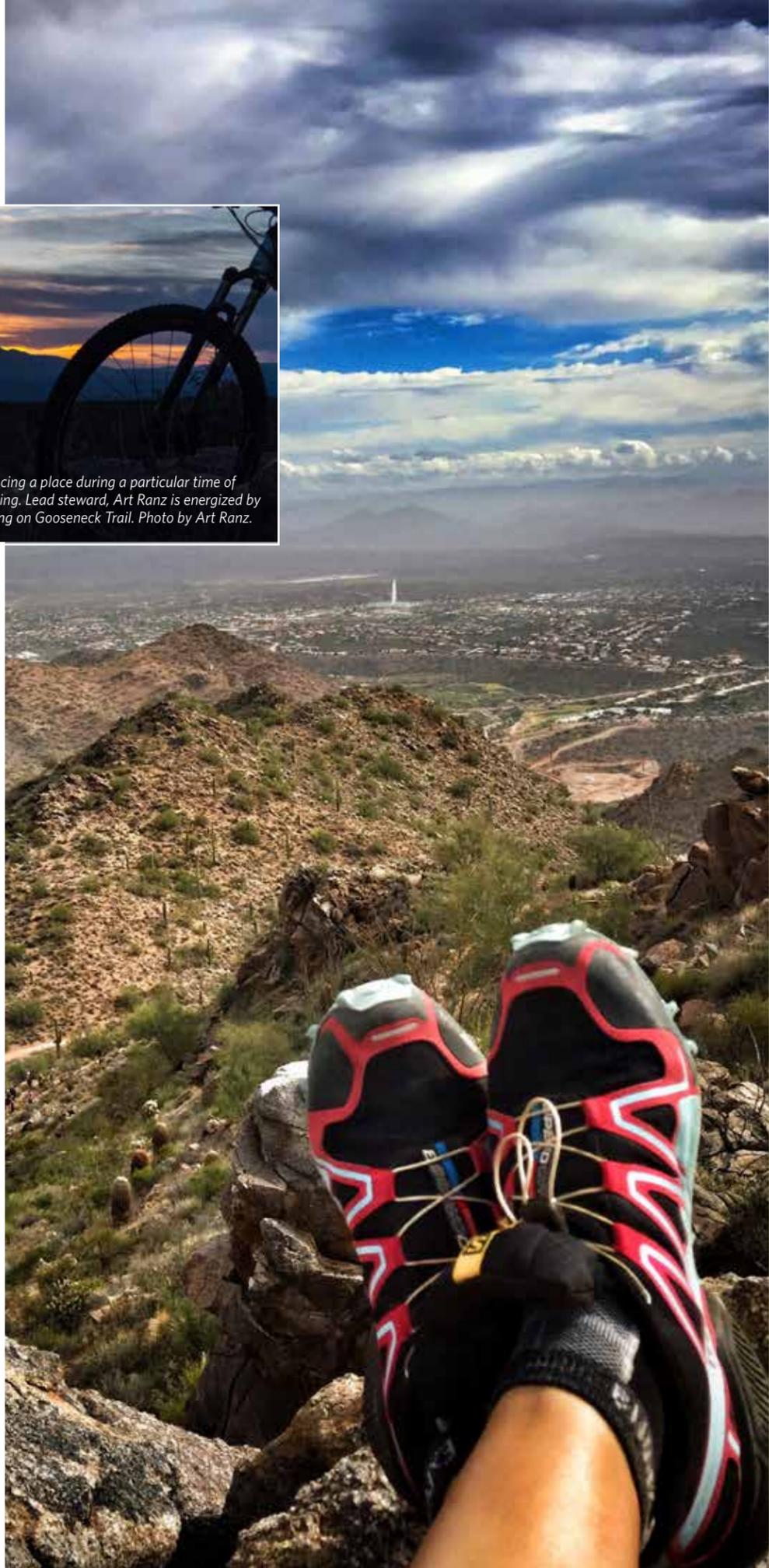
Sometimes a place is meaningful not because of what is there or what happens there, but because of what

that place symbolizes. One common symbol that emerged was the uncomfortable interface between the Preserve and development. Stewards saw development as both something to be wary of and a way to appreciate the dedication it took to save the land that became the Preserve.

Places are not static entities, and their meanings can change according to the time of day, time of year, or phase of life. Lead steward Art Ranz's photograph of the Gooseneck Trail isn't meaningful to him for that particular spot, but rather because it represents the general early-morning hours he spends in the Preserve. He states, "I just feel more alert and more in tune with what's around me at that hour of the morning."

The photovoice phase of the project underscores that place meanings are often more complex than an appreciation of a place's features. Take Millavec's Sunrise Trailhead stairs, for example. Early on in the photovoice training, she posed a question that transformed how I view place meaning, "What if all of my most meaningful places are just piles of rocks?" This question gets to the core of why it is important to collect and share these stories. To many, those stairs are

Steward Whitney Gilhart is enjoying Sunrise Peak as she views the urban development below. Places can be meaningful for negative reasons as well as positive ones. Photo by Whitney Gilhart.



To some people, experiencing a place during a particular time of day holds a special meaning. Lead steward, Art Ranz is energized by experiencing early morning on Gooseneck Trail. Photo by Art Ranz.

just a pile of rocks to climb. To her, those rocks are a lasting memory, a representation of hard work with new friends, and a symbol of her identity as a steward of this land. Whether we realize it or not, the work we do as preservationists includes the protection and celebration of these relationships of humans to their environment. 🦋

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Lead steward Lynne Russell says this is her favorite photograph because before becoming a steward, "[the McDowell Mountains] were just pretty mountains . . . After becoming a steward, they took on more meaning because now I was looking at the Preserve I love from this spot." Photo by Lynne Russell.

Experience



Engage



Join



Join Conservancy Women!

We are a friend-raising and fund-raising group of like-minded women who support the McDowell Sonoran Conservancy and are interested in learning more about the desert and sharing that interest and knowledge with others. For an annual donation of \$100.00 or more to the Conservancy, participants have opportunities for learning, giving back, having fun and making new friends with Conservancy Women.

Recent events have included:

- Spring and Fall luncheons
- Southwest Wildlife visit
- Hike & Brunch
- Gallery Talk
- Heard Museum tour
- Los Cedros visitation
- Arabian Horse Show
- Guided hikes

For more information or to become a participant

Contact **Peggy Sharp Chamberlain** at peggysharp@aol.com or **Joy Englehorn** at joyenglehorn@yahoo.com



McDowell Sonoran Conservancy



This photograph, taken just outside Scottsdale's McDowell Sonoran Preserve, shows the view from a nearby neighborhood. This view would have been one of houses covering the desert floor and dotting the mountainsides if the citizens of Scottsdale hadn't voted for sales taxes to buy the land. Now we need to take care of that land. Please contribute to the McDowell Sonoran Conservancy to support its work in maintaining the Preserve. Photo by Laurie Jones.

Help Us Keep the Preserve Beautiful and Accessible to All by Becoming a Member

Through your support as a member of the McDowell Sonoran Conservancy, the Conservancy will continue to protect and preserve everything you enjoy about the McDowell Sonoran Preserve. Your contribution is vital to keeping the Preserve beautiful and a place to be enjoyed by current and future generations. This shared appreciation of the McDowell Sonoran Preserve is why we invite you to join the Conservancy as a member by returning the membership form below. You can also join or make a gift online at www.mcdowellsonoran.org. Just click on "Donate Now."

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Thank you for supporting the McDowell Sonoran Conservancy!

This Is My Home!

By Blythe Sweeney

McDowell Sonoran Conservancy chief development officer



On a recent visit to the Arizona-Sonora Desert Museum in Tucson, I stumbled on a poem that I thought our Conservancy supporters might enjoy, as it so beautifully captures the entrancing qualities of our McDowell Mountains. I hope it inspires you to share your treasure with the McDowell Sonoran Conservancy.

"The Sonoran Desert"

by Tara Trewinnard-Boyle

How lucky am I? I have found my home!

In the place of dust and rock where the lizards run,

Where hot winds whip and the sun sears through a lapis colored sky.

Where Saguaros march uninhibited across the arid land.

Miles and miles of emptiness: freedom.

This is the place where Mother Nature still shows her true beauty.

Wild and uncompromising, she cuts me down to my rightful size.

Teaching me to live without; demand less; appreciate more.

Silently reminding me that the race is of my own making.

I can be free.

I have found my home. Not the home I was born to but where I belong.

The ache of leaving weighs heavy in my heart.

But today I can carry with me a gift, humbly offered to all who seek.

The desert is more than a place; it is a state of mind.

It is life and death, land and sky, struggle and freedom.

Slow! Your frantic pace does not matter here.

Breathe and be grounded in your humanness.

Be still and find your small place in this vast world.

You belong, just as you are. In the silence, you can find peace.

This is the gift of the desert; for which I am eternally grateful. 🦋



Photo by Dennis Eckel.



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The two-tailed swallowtail is Arizona's state butterfly. It inhabits western North America and is active throughout Scottsdale's McDowell Sonoran Preserve from springtime through the fall. The swallowtail and other butterfly species find the

Preserve attractive because of the abundance of nectar found in the flowers of our native plants. This swallowtail stopped to sip nectar from a desert hyacinth, also known as bluedick. Photo by Marianne S. Jensen.

