



MCDOWELL
SONORAN
CONSERVANCY

Mountain Lines

MAGAZINE OF THE MCDOWELL SONORAN CONSERVANCY SUMMER 2019



Furry Hikers

Keep your pet safe

Gooseneck Trail

Enjoy beautiful views

A Remarkable Season

Plant growth explodes



Justin Owen, CNAP

We've reached the midpoint of 2019. Yet this has already proven to be a historic year for the McDowell Sonoran Conservancy.

The first half of the year saw us fully deploy our new branding with resounding success. We launched our new Summit Society with the largest and most successful

fundraising event in our organization's history. Our Parsons Field Institute has received the honor of becoming the new Sonoran Desert Plant Specialist Group for the International Union for Conservation of Nature (IUCN). We have continued to grow our Conservancy family with dozens of new stewards completing their orientation, new community partners, and growing relationships throughout the Valley.

We are on course for 2019 to be one of the most significant years in our history. We are positioned to move into the next decade with ambition and confidence. On behalf of the Conservancy, you have my sincere thanks for all you have done and will continue to do to make this year such a success. As the Valley heats up, I wish you a safe and beautiful summer.

As always, I look forward to seeing you in the Preserve, at a Conservancy program, or out in the community! ▲▲

About Us

Our mission is to empower awareness and actualize global preservation with science, research, learning and teaching. Through the work of our scientific team and the dedication of more than 650 tireless volunteer outdoor advocates, we care for and study the McDowell Sonoran Preserve.

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Cover photo: An unusual amount of precipitation during the fall through spring seasons caused a massive display of flowers on the palo verde trees in the Preserve. Photo by Dennis Eckel

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Mountain Lines is published quarterly by the McDowell Sonoran Conservancy, a 501(c)(3) nonprofit organization

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Creative design donated by McDowell Sonoran Conservancy steward Dennis Eckel

Eckel Advertising & Photography



The Aftermath of a Monsoon

By Roger Riepe, McDowell Sonoran Conservancy lead steward,
 Linda Kalbach, McDowell Sonoran Conservancy lead steward

Preceding the summer monsoon of 2018, drought in Scottsdale's McDowell Sonoran Preserve had persisted for about one year. The desert was brown and dry. Many plants were dormant, conserving their meager moisture. Many smaller cacti died, and wildflowers waited for a better opportunity. All desert inhabitants eagerly awaited the pouring rains of a monsoon to restore moisture to parched survivors. Trails, in contrast, continued to be in good repair. But heavy rains change the contour of the desert floor and directly affect the condition of desert trails.

In the past year, we have experienced unusually high rainfall. The Brown's Ranch area in the northern portion of the Preserve received 17.15 inches of rain from May 2018 through May 2019. This was significantly higher than the average of approximately 12 inches for that area. Less rain fell in the southern portion of the Preserve but it received substantial rains also. Trails were affected everywhere and many required maintenance.

Desert soil is hard and dry, retarding absorption of the brief heavy

rainfall of a monsoon. Excess water finds the descent that provides the least resistance and forms streams that carve into dry ground. A similar circumstance occurs on a larger scale in washes and canyons. Water streams down the canyons, sometimes intersecting trails, creating gullies on steeper trails until reaching a lower

area where it can drain away. Rushing water carries loose soil, rocks, and debris. As the rainfall slows and stops, so does the running water, depositing the soil and debris it carried.

After storms, McDowell Sonoran Conservancy volunteers with the Construction and Maintenance Program respond to trail reports



Rushing water during and after a rainstorm often causes damage, resulting in unsafe hiking conditions. Construction and Maintenance crews do a lot of work repairing water damage. Photo by Marianne Skov Jensen



Trail ruts caused by water runoff during storms can make hiking unsafe and less fun. These conditions require timely attention by Construction and Maintenance crews. Photo by Marianne Skov Jensen

generated by patrollers who regularly monitor the trails. Area lead stewards evaluate the reports and advise City of Scottsdale staff and the Construction and Maintenance chairs about the extent of the damage. Then Construction and Maintenance crews are scheduled to repair the rain damage.

When drain construction is needed, crews examine the trail segment, often many times, to determine the best location for a drain. If strategically placed and properly constructed, usually as an angled trough on the downward side of the trail, the drain will result in the removal of future

excess rain water from the trail before a rut forms. Trail ruts may create a safety hazard, especially when they are deep or centrally located. Thus, trail repair and drain construction are some of the most important activities of the Construction and Maintenance crews. Ruts are sometimes created or worsened by usage of a wet trail, underscoring the importance of allowing trails to dry before use.

Effective drain placement can be a considerable challenge even to experienced trail crew members. Trail crews must consider multiple drain placement options

in detail. Equally challenging is the construction process. For a drain in the trail, the crew must assess the amount of trail surface to be removed to ensure the proper slope at the beginning of the drain. In addition, the off-trail portion of the drain must be appropriately angled and deep enough to allow flow away from the trail. Crews perform drain construction with pickaxes, shovels, and McLeod tools that have a hoe on one side and a rake on the other side. Excess dirt and gravel from drain construction is used to rebuild the trail surface and fill erosion ruts in the trail.



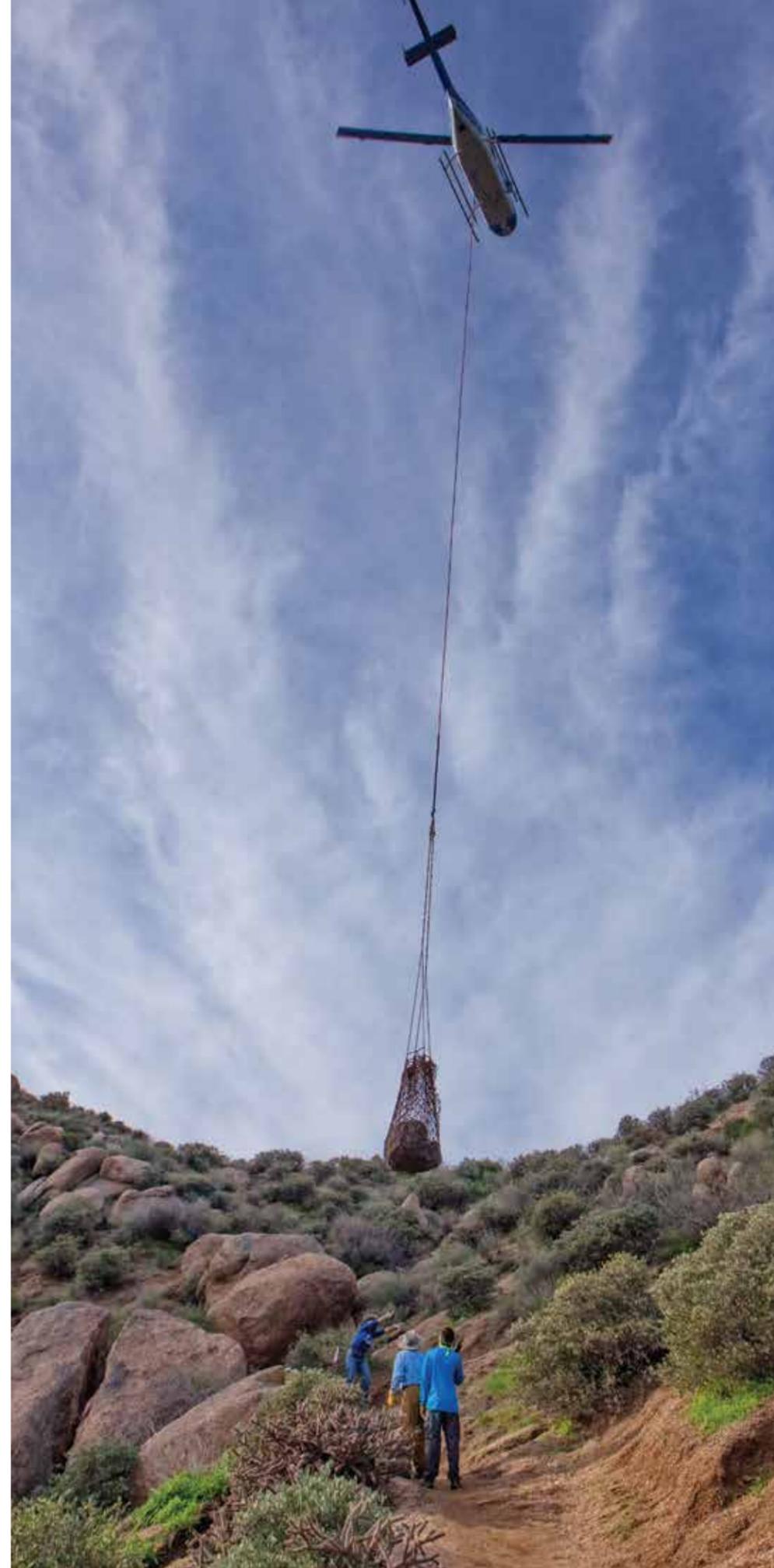
Steward volunteers with the Construction and Maintenance Program use McLeod tools and pickaxes to construct a drain beside a trail. Photo by Marianne Skov Jensen

Rocks enable workers to build dams in erosion gullies and washes, to repair deep ruts, and to preserve the surface where water is directed across the trail. But nearby rocks in the required size may be unavailable. In that case, it's necessary to transport rocks to the work site. Soil, sand, and gravel carried by flowing water tend to be dropped if the water flow is slowed by well-placed rocks. The addition of these transported materials helps to build and stabilize the trail and to fill erosion ruts.

Summer monsoons and winter rains may lead to substantial



Professional crews install gabions to slow the flow of water and prevent erosion in areas with heavy runoff. Recent conditions caused some erosion around their edges and some slipped from their installed positions. Photo by Dennis Eckel



Members of a Construction and Maintenance crew cut a downed saguaro arm into smaller pieces, then moved it off the trail with straps. Photo by John Loleit

deposits of sand, gravel, and rocks in constructed drains and on the trail. Storm water may rapidly accumulate, becoming a destructive current. With trail usage, a mounded ridge called a berm may form at the side of the trail. Periodic cleaning of drains and removal of berms to help water sheet off the trail are the key to preventing water from running down the trail. These activities become crucial to preserving the trail in anticipation of the monsoon. Sand, gravel, and rocks are scraped from the drain with the McLeod, and larger rocks are lifted out. Reshaping of the drain may be necessary using a McLeod or pickaxe. These tools also are

Helicopters transport rocks for erosion control to the steep trails on Tom's Thumb. Stewards and City of Scottsdale staff load the nets with rocks at the bottom of the trail, and another crew unloads them near the work site. Photo by Dennis Eckel



Volunteers with the Construction and Maintenance Program use straps to replant a multi-headed barrel cactus downed in a storm. Photo by Marianne Skov Jensen

used to scrape and push the berm off the downhill side of the trail.

Cacti absorb considerable water during and after significant rains, and plants are stimulated to grow. Saguaros and barrel cacti expand, becoming very heavy. This increased weight combined with moist, less supportive soil may cause a cactus to fall. Following heavy rains, Construction and Maintenance may receive reports of cacti that are down and blocking trails. Construction and Maintenance stewards remove them using an axe or saw and pickaxe. Many barrel cacti can be erected, then replanted, especially if they are still rooted. But barrels that cannot be replanted and large saguaros are cut into movable segments, and are hauled off the trail. A section of garden hose or a towing strap wrapped around

the cactus to be hauled or replanted can be quite helpful. In addition, the new growth of plants after rains may obstruct trails, requiring trimming or plant removal.

Monsoon rains along with winter rains in an arid environment make a unique place for plants and animals to thrive. The pattern of rains we experience is responsible for the biodiversity of the annual and perennial plants we enjoy, but also for significant damage to Preserve trails. The Construction and Maintenance Program work in repairing or preventing trail damage requires significant energy, but it is critical to maintaining the Preserve. Trail safety and usability are indispensable to sustaining the Preserve as a natural open space accessible to all. ▲▲



In late February 2019, a snowstorm swept through the northern Preserve, leaving behind seven inches of snow and causing damage and some trail closures. A little snow removal on the interpretive sign at the entrance to the Jane Rau Trail reveals the photo of Jane Rau, one of the founders of the McDowell Sonoran Land Trust. The Trust became the McDowell Sonoran Conservancy years later. Photo by Marianne Skov Jensen



Arizona Children's Learning and Play Festival

Saturday, September 7, 2019
9:00am- 4:00pm

Westworld of Scottsdale
16601 North Pima Road
Scottsdale, AZ 85260

Free Admission - \$5 Parking
Benefiting the McDowell Sonoran Conservancy



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Pawsome Summer Hiking Tips for You and Your Four-legged Friends!

By Deandra Owen,
Doctor of Veterinary Medicine,
Diplomate—American College of Veterinary Surgeons

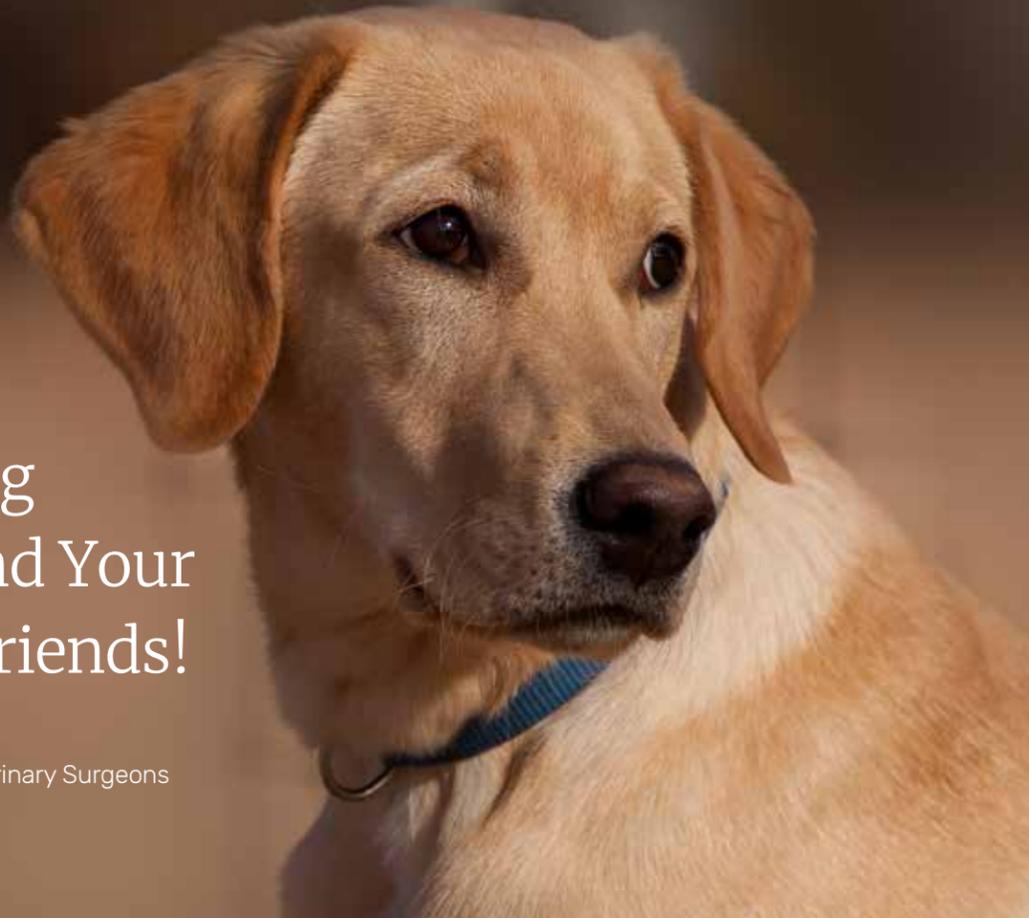


Photo by Dennis Eckel

It's that time of year again! We want to get out on the trails with our fur babies. Dogs make wonderful trail companions, but it's hot enough to fry an egg out there. Before you set out, make sure you have prepared for an enjoyable hiking experience for you and your dog.

Paw pad injuries are very common during the warm months in Arizona. These can consist of burns, abrasions, and lacerations. Paw pads are a special type of thick, keratinized epithelium. This is a durable tissue made to withstand different forces and terrains. Despite its durability, pads will burn just like skin when in contact with the hot ground. Additionally, novice dog hikers will have softer pads compared



Test the ground with your hand before you take your dog hiking. If the ground is too hot for your hand, it's too hot for your dog's paws. Photo by Dennis Eckel

to dogs who hike frequently, and the novices may be prone to pad injuries on the trail.

Pad injuries are very painful. It is like having a second-degree sunburn, and having to walk on that sunburn. Minor problems can quickly turn into major problems. Making matters worse, pad injuries are challenging to treat due to their location and the specific tissue type. Pads do not hold suture (stitches) well, and walking on repaired paws can lead to suture pullout and healing complications. Contamination with debris and infection are additional potential complications.

Pad burns are serious injuries. Some say, "dogs are born with three legs and a spare," and unfortunately

all four paws can be affected. When the tough pad layer is lost, new tissue is regenerated from intact pad at the margin of the wound. This means there must be some pad remaining on the outskirts of the burn. Pad grafts are possible, but are challenging, expensive, and tissue is limited if all pads are affected. Hair-covered skin is an inappropriate substitute for pads due to its inferior strength.

The best way to address pad injuries is to avoid them. Be honest about what your pet is capable of with respect to distance and terrain. Do not hike during peak temperature hours. This will also help to prevent heat stroke, another VERY common (and sometimes fatal) condition treated by veterinarians in Arizona. Consider using booties for paw protection. These are an adjustment for most dogs, so short walks using the booties before embarking on a long hike is recommended. Camping and sporting goods stores both have great options for dogs of all sizes.

If your dog sustains a pad injury while hiking, seek veterinary attention. Appropriate first aid involves rinsing the wounds with water or dipping the paw in a bowl of water. If available, apply a generous layer of antibiotic ointment to the wound. Cover the pads with a dressing or gauze and wrap the entire paw in an outer protective layer (bandage, t-shirt, medical tape, etc.) for transport. Be sure to make the outer layer only tight enough to remain in place. A bandage applied too tightly will lead to serious complications. If significant hemorrhage occurs, apply direct, firm pressure to the injury and seek veterinary attention as soon as possible.

Most dogs are reluctant to walk on



Dirt trails are better for dogs to run on than hard surfaces. But watch out for sharp stones and hazards that could injure your dogs paws. Photo by Dennis Eckel

their injured paw(s). In an emergency, a single person can carry their canine using a hammock-style backpack harness. You can buy one at a pet supply store. This can be a very useful addition to a first aid kit, especially if you would be unable to carry your dog in an emergency situation.

The importance of a dog's pads cannot be overemphasized. Things

can go from bad to worse rapidly. With proper planning, you can help your best friend avoid a debilitating injury. If your dog sustains an injury on the trail, seek veterinary attention as soon as possible.

See you on the trails with my three chocolate Labrador retrievers (when the conditions are right)! Have fun out there and happy tails! ▲▲



People dumped these backyard items in the Preserve. Although the photo is amusing, the consequences of dumping are not. Instead of littering the desert, drop reusable items off at an organization that will redistribute them to a second owner. Photo courtesy of the City of Scottsdale

Trash in the Preserve

By Bronte Ibsen,
City of Scottsdale recreation leader II

Like all things in nature, the trash situation in Scottsdale's McDowell Sonoran Preserve is dependent upon the season. During the slow summer season, trash and recycling bins might take more than a week to fill up, at even our busiest trailheads. At the peak of tourist season, trash bins fill up in a day or two.

Luckily, Preserve management does a good job of increasing staff and checking the trash more frequently as we see more foot, hoof, and wheel traffic. It seems that most users of the Preserve are aware that littering is not allowed and do a pretty good job of disposing trash in the appropriate receptacles. But there are always exceptions. The biggest offenders we see are dog owners who neglect to pick up their furry friends' poop. It's especially objectionable when a dog

owner takes the time to bag the poop, but then leaves the plastic bag behind—adding insult to injury. There is no poop fairy, and McDowell Sonoran Conservancy stewards and City of Scottsdale staff do not take on that role.

The other source of major litter is dumping, which is less prevalent now than in past years. Prior to the Preserve becoming protected land, much of it was state land where illegal dumping was common. As more physical borders have been constructed that inhibit motor vehicles from entering, instances of dumping have decreased significantly. Of course, after the creation of the Preserve, there were years of accumulated trash that needed to be found and managed. Needless to say, there have been some interesting finds. At Brown's Ranch Trailhead, John Loleit, Natural Resources



Use refillable water bottles whenever possible. This will help to reduce the amount of trash transported to our landfills. Photo courtesy of the City of Scottsdale

coordinator (opposite page), has a full-fledged backyard setup complete with lawn chairs, birdbath, and grill—all found objects from previous dumping in the Preserve. There have been more unusual finds—from a voodoo doll (seriously) to abandoned shoes, clothing, and artwork. It would be entertaining, if it weren't so objectionable, to see what kind of random stuff people have left in the middle of the desert.

As a visitor to the Preserve, there's plenty you can do to help us manage the trash situation. Here are two of the most effective changes you could make:

- Bring a reusable water bottle! This is one of the easiest shifts since many of the trailheads in the Preserve have drinking fountains to refill your bottles. If you must use a plastic bottle, try to reuse it as many times as you can before recycling it. Our recycling bins fill up very fast because empty plastic bottles take up a lot of space. So, before you put it in the bin, drink all the water or pour it on a plant, then crush the bottle to make it as compact as possible.
- Plan ahead! Another helpful practice to reduce trash in the Preserve is to plan ahead. Plan to pack out any trash you bring into the Preserve. Follow this practice whether

your trash is something like a granola bar wrapper or even natural waste like apple cores, orange skins, and banana peels. Although the latter are all technically biodegradable, it can take years for them to break down in the desert. And such materials disrupt the ecosystem and can be hazardous for wildlife. Try to keep a trash bag in your pack at all times. This way, even if you don't generate any trash yourself, you'll be prepared to pick up any trash you see to help keep the Preserve as clean as possible!

Keeping our desert clean is no small feat, and it's a team effort! We appreciate that our visitors are willing to help in our endeavor to protect this beautiful place. ▲▲



Refillable water bottles typically carry more water than plastic bottles, plus some types don't require unscrewing the cap with each sip. Photo by Dennis Eckel

A Great Hike—Gooseneck Trail

By Doug Jabour,
McDowell Sonoran Conservancy master steward

This is an early morning view from the Gooseneck Trail of Granite and Cholla Mountains on the left and Four Peaks in the distance on the right. Photo by Dennis Eckel



The Gooseneck Trail from Rock Knob Trail to Pemberton Trail skirts private property on its west side. It is close to McDowell Mountain Regional Park and private property on its east side. This narrow piece of the Preserve curves like a goose's neck. Photo by Dennis Eckel

If you are looking for a hike that is not too long or difficult but has interesting views and history, then a hike on the Gooseneck Trail in Scottsdale's McDowell Sonoran Preserve is a great choice. Your six-mile round trip hike will cover the portion of the Gooseneck Trail leading to the Pemberton Trail junction in McDowell Mountain Regional Park. This trail is a favorite of mountain bikers, so be sure to watch and listen for them, especially on some of the blind corners.

While you will see a variety of vegetation along the way, the most noticeable feature of this area is the lack of larger trees and saguaro cacti. This is due to the Rio Fire that scorched 23,000 acres of the Preserve and the McDowell Mountain Regional Park in July 1995.

The fire was started by lightning strikes close to the 128 Street alignment about a mile north of Rio Verde Drive. It spread through what would later become the Gooseneck area of the Preserve toward the Regional Park. Thanks to the heroic efforts of more

than 500 firefighters and a favorable wind shift, the fire was 50 percent contained by the third day and fully contained within a week. In the end, there were no deaths, no injuries and no structures lost, although it was estimated that around 100,000 saguaro cacti were destroyed.

Let's Go Hiking!

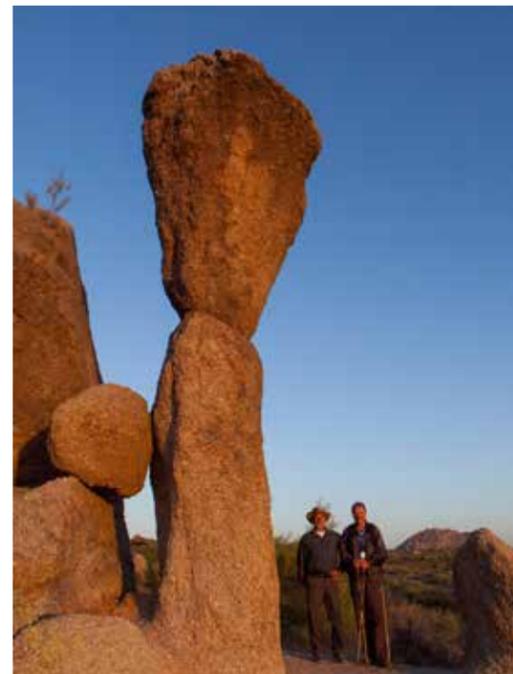
The Tom's Thumb Trailhead, which opened in 2012, is the starting point for this hike. The trailhead has bathrooms but no drinking water is available, so be sure you bring enough water for your hike.

The hike starts on the Marcus Landslide Trail, which is on your left just before you reach the trailhead building. Proceed 0.3 miles to the Rock Knob Trail.

Be sure to check out Mushroom Rock Scenic Point along the way. This giant granite boulder and others along the Marcus Landslide Trail were carved when underground rocks were subject to subsurface erosion. These rocks

were exposed over time and have wide tops and narrow stems, resembling mushrooms.

Take the Rock Knob Trail for about 0.2 miles through a chain fruit cholla forest until you reach the Gooseneck Trail. These chain fruit cholla cacti



Hiking Marcus Landslide Trail on the way to Gooseneck Trail brings you past numerous giant boulders. Their broad tops and narrow bottoms earned them the nickname of mushroom boulders. Photo by Dennis Eckel



The chain fruit cholla can grow up to 15 feet tall and is the tallest of the cholla varieties of cacti. You will see them along Rock Knob Trail. Photo by Dennis Eckel

resemble the teddy bear cholla, except that they are much larger, and the chain-like fruit can stay attached for several years.

On the next part of the hike, you will go over several washes where you will see small shrubs, but few trees or cacti due to the impact of the Rio Fire. You will get great views of Granite, Cholla and Brown's Mountains to the northwest, and Four Peaks and

Weaver's Needle to the east. Parts of the trail will feel very remote since you cannot see any evidence of civilization.

When you reach marker GN17, take the County Park Connector into McDowell Mountain Regional Park. You will come upon a fancifully decorated shelter for bikers and hikers along the Pemberton Trail.

Several mountain biking and hiking organizations erected the shelter. It is a great spot for a rest, or to have a snack or lunch. It also contains the tools and parts needed to fix a bike or a flat tire.

After a short break, you can return to the trailhead via the same route, or you can stay in the Regional Park and take the Pemberton Trail back to the Rock Knob Trail. This alternate route through the Regional Park will add 0.7



Take a well-earned rest at the shelter in McDowell Mountain Regional Park, and enjoy a snack and a drink. But watch out for the skinny guy on the roof! Photo by Dennis Eckel

miles to your hike.

The Gooseneck Trail is located in the central region of the Preserve. You can reach it from the Tom's Thumb Trailhead located off 128th Street south of Rio Verde Drive. For a detailed map of the trail routes, visit <https://www.scottsdaleaz.gov/preserve>. There you'll find the map for the central regions of the Preserve. ▲▲

There is an abundance of beautiful scenery to appreciate while hiking the Gooseneck Trail. Photo by Dennis Eckel



Tips for Surviving a Desert Fire

By Art Ranz,
McDowell Sonoran Conservancy master steward

Fire in the desert is a very real issue. Lightning sparked two major fires in Scottsdale's McDowell Sonoran Preserve in recent history.

In 1992, the Troon Fire consumed more than 2,500 acres in the Granite Mountain area near Brown's Ranch, an area that is now part of the northern Preserve. In 1995, the Rio Fire raced through the Gooseneck area of the Preserve and through McDowell Mountain Regional Park, charring 23,000 acres.

The risk of fires is increasing

with the proliferation of grasses, especially nonnative grasses. The grasses eliminate normal gaps among vegetation, allowing fires to race from plant to plant.

So how do you stay safe if you're out hiking, and you smell or see smoke? Here are some guidelines on what to do.

- Practice prevention. Lightning is a major cause of fires. Watch the weather and call off your hike when there is lightning. As always, prevention trumps cures. Of course, humans can start fires too. So, stay alert even on a clear day.

- Be aware. Animals have a high survival rate in fires because they have a keen sense of smell and react quickly to fire. One advantage to hiking in many parts of Preserve is the ability to see things from long distances. Don't hesitate to seek safety if you see or otherwise sense fire.
- Remain calm. Most people killed from fire die from inhalation of hot gasses and smoke, not from burns. Hyperventilation is deadly. Panic impedes your ability to see and process the situation. Com-

posure is the key to escaping.

- Immediately call the fire department. The fire department's preference is always for you to call them right away, even if you are not sure about what you are seeing. The fire department is there to respond to emergencies, and time is of the essence. Firefighters would rather respond to a false alarm than get a late start on a fire and be unable to stop it. Never hesitate to call if you know or believe there might be an emergency. Be prepared to supply basic information like the location, size and color of the smoke column, the direction of the wind, and whether structures are threatened.
- Seek an escape route. Generally, stay low and move toward low areas with little vegetation. Areas covered in grasses are not safe. A reasonable safety zone includes large rocky areas which obviously will not burn. Fire moves more quickly uphill, so go to lower areas. Do not shelter in canyons

where wind can create rapidly moving fires or your escape could be blocked. Don't try to outrun a fire. It can travel faster than you can run. If the wind is blowing toward the fire, head into the wind. Never try to run through a fire. The smoke and superheated air will kill you faster than the flames.

- Discard synthetics and keep clothing dry. Remove synthetic clothing and accessories. Synthetic fabrics in high temperatures melt onto your skin. In the past, experts suggested wetting clothes, but the current advice is to keep them dry. That's because when moisture becomes superheated it turns to steam and can quickly burn your skin.
- Cover your face. While your clothes should stay dry, that doesn't necessarily mean your face should be too. Covering your face can help protect it from burning embers.

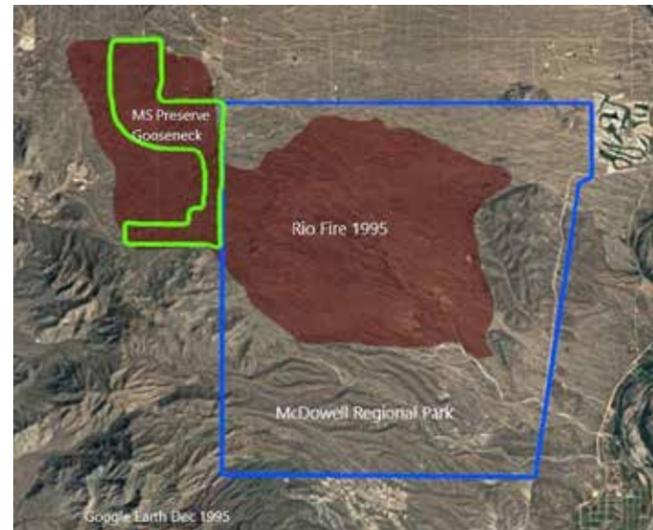
The United States Fire Administration and the Federal Aviation Administration recommend using a wet cloth over your mouth and nose.

- Last resort. If you're overcome by fire, lie down, dig a hole for your face, and breathe through the dirt.

None of this sounds like much fun. But it can keep you alive and help you avoid harm. Remember, the primary keys to surviving a fire are prevention and awareness. So, make a mental note of that, go back out, and have fun! ▲▲



The Troon Fire near Granite Mountain in 1992 covered a large area in the current northern Preserve. It destroyed many plants in its path, including saguaros. If you walk along Alma School Road from the Brown's Ranch Trailhead gate to the trailhead facility, you will see a dense saguaro forest to the east of the road and a dearth of saguaros to the west of the road where the fire burned. Map by Art Ranz



The 1995 Rio Fire, visible from around the Phoenix Valley, decimated plants in its path. After 22 years, most of the species have recovered, except for the saguaros. Their recovery will take many more decades. Map by Art Ranz



Lightning strikes do occur in the Preserve. Occasionally, a strike does more than just damage a saguaro or other plant. Sometimes it starts a fire. Photo by Art Ranz



Avoid grassy terrain during a fire. Grass is extremely combustible. Photo by Art Ranz

A New Front Opens in the Invasive Plants Battle

Educating homeowners and swapping nonnative for native plants

By Barbara Pringle,
McDowell Sonoran Conservancy master steward

The McDowell Sonoran Conservancy Parsons Field Institute staff and a group of committed stewards are engaged in combat with stubborn foes: invasive plants. Two nonnative grasses, fountain grass (*Pennisetum setaceum*) and buffelgrass (*Pennisetum ciliare*), have become well established in Scottsdale's McDowell Sonoran Preserve. These grasses crowd out native plants and wildlife and present a serious fire danger. The Parsons Field Institute has a long-term program to study the effectiveness of alternative treatments for ridding the Preserve of these grasses, as well as a mapping and removal program to identify the

location of these grasses so work teams can control them. Until recently, there was a gap in our efforts to battle these invaders—stopping the very source of the invasion by removing these grasses from nearby yards and roadways. Thanks to a grant from the Arizona Department of Forestry and Fire Management, the Conservancy and Scottsdale Community College



The 1995, Rio Fire grew quickly with high winds and plenty of dry vegetation to act as fuel. Photo courtesy of the City of Scottsdale

(SCC) have partnered on a new program. Its purpose is to engage with and educate residents and homeowner associations (HOAs) on the dangers of fountain grass and to encourage its removal via a swap for a native grass, purple threeawn (*Aristida purpurea*), which is grown at SCC's plant nursery.

The Conservancy developed an outreach program to educate those who might not understand the threat posed by those pretty fluffy grasses in their yard. Drive just about anywhere around the Valley, and you'll likely spot fountain grass. A native of Africa, it was imported into Arizona as an ornamental landscape grass. Once introduced, it rapidly escaped yards and common areas to spread into the Preserve. Although an increasing number of HOAs have become educated on the dangers posed by fountain grass and have prohibited its use in landscaping, too many communities still remain ignorant of the problem or choose not to enforce existing HOA prohibitions.

Starting last November, a group of stewards began meeting to strategize

all communities have been open to our message, but the team will continue to create new ways to reach them.

The Scottsdale Public Library has assisted with the education and plant swap efforts. In partnership with the Scottsdale Fire Department, the Conservancy helped kick off the library's annual March Garden Expo with a presentation on invasive plants and fire hazards. Then, we held plant swap and educational outreach programs at three Scottsdale public libraries and at one Fountain Hills public library.

The [Scottsdale Fire Department](#) has been a key ally in our efforts. We recently met with the Fire Marshall, who agreed to add our flyer to the Scottsdale Fire website. And we

hope to join Firewise days held at communities seeking to obtain or keep a Firewise designation.

For years, the department has been meeting with neighborhoods near the Preserve to educate them on how to Firewise their community, and to share information on the fire hazards of certain plants, including fountain grass and buffelgrass.

The Preserve's outreach and plant swap programs will continue this fall. The team will discuss other ways to encourage residents and HOAs to remove the offending grass. We enthusiastically welcome additional volunteers interested in engaging with our community to reduce the presence of invasive plants and thus better protect the Preserve for future generations. ▲▲

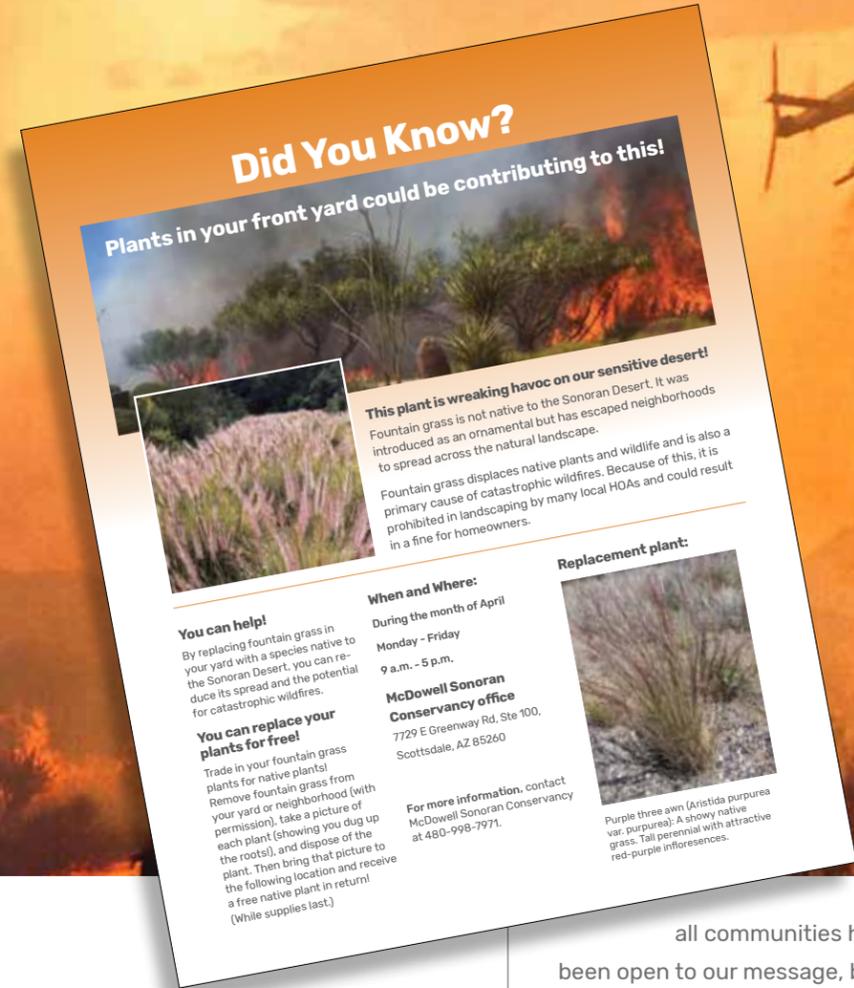


The author manages an information and plant swap table at the Appaloosa Public Library in Scottsdale. Handouts and a poster of the plant swap explain the importance of removing fountain grass plants from residences and community common areas. Photo by Debbie Langenfeld



A raging wildfire threatens the Preserve and the surrounding neighborhoods. Photo courtesy of the City of Scottsdale

The Conservancy produced the flyer at the left to inform homeowners of the fire danger created by invasive species and the plant swap program for replacing them with native species. Photo courtesy of the City of Scottsdale



Did You Know?
Plants in your front yard could be contributing to this!

This plant is wreaking havoc on our sensitive desert!
Fountain grass is not native to the Sonoran Desert. It was introduced as an ornamental but has escaped neighborhoods to spread across the natural landscape.
Fountain grass displaces native plants and wildlife and is also a primary cause of catastrophic wildfires. Because of this, it is prohibited in landscaping by many local HOAs and could result in a fine for homeowners.

You can help!
By replacing fountain grass in your yard with a species native to the Sonoran Desert, you can reduce its spread and the potential for catastrophic wildfires.

You can replace your plants for free!
Trade in your fountain grass plants for native plants! Remove fountain grass from your yard or neighborhood (with your permission), take a picture of each plant (showing you dug up the roots), and dispose of the plant. Then bring that picture to the following location and receive a free native plant in return! (While supplies last.)

When and Where:
During the month of April
Monday - Friday
9 a.m. - 5 p.m.

McDowell Sonoran Conservancy office
7729 E Greenway Rd, Ste 100,
Scottsdale, AZ 85260

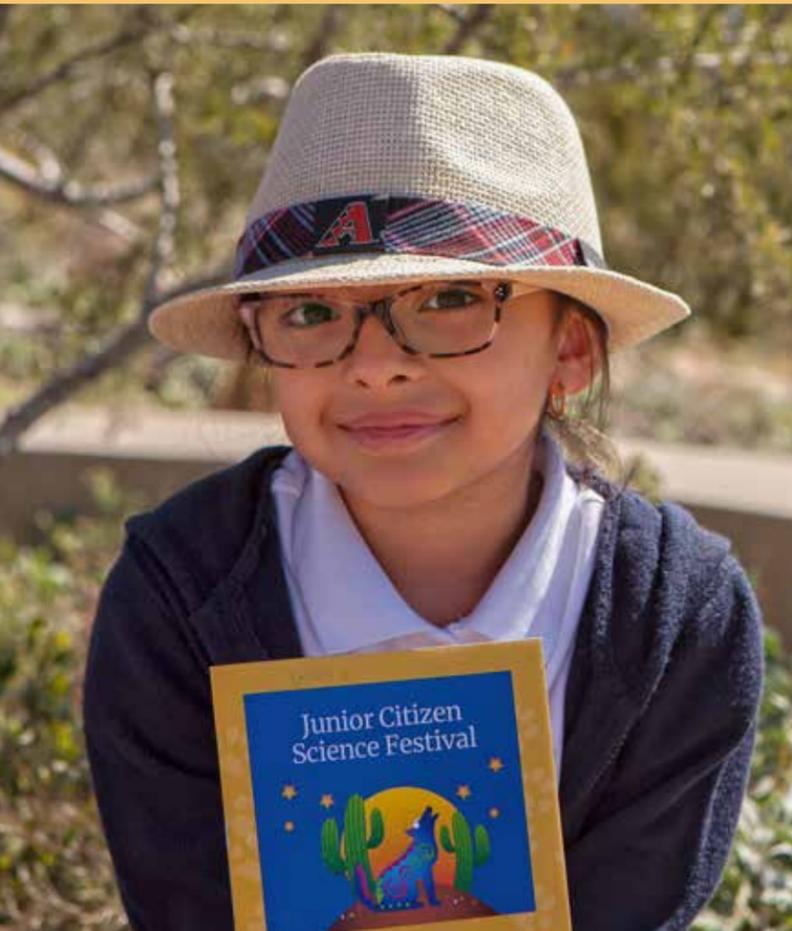
For more information, contact
McDowell Sonoran Conservancy
at 480-998-7971.

Replacement plant:



Purple three awn (*Aristida purpurea* var. *purpurea*): A showy native grass. Tall perennial with attractive red-purple inflorescences.

The 2019 Junior Citizen Science Festival



At the fifth Junior Citizen Science Festival, each child received a field notebook to document observations made during their day thanks to our partners: Cox, Thunderbirds Charities, Arizona SciTech, Arby's, and the City of Scottsdale. Photo by Dennis Eckel

A map at the beginning of the festival route showed the location of the learning stations. Each exhibit focused on a different aspect of science and nature, including plants, animals, and desert ecology. Graphics by Dennis Eckel



The 2019 Junior Citizen Science Festival in Scottsdale's McDowell Sonoran Preserve provided students and families an opportunity to explore science and nature while experiencing some of the skills and techniques scientists use. On March 21 through 23, volunteers with

the McDowell Sonoran Conservancy welcomed more than 1,000 guests at 18 learning stations near the Lost Dog Wash Trailhead. A few wild snakes even decided to join the fun providing an unexpected learning experience for both children and adults. The school groups who participated on Thursday and

Friday were awed by the beauty of the Preserve. For most of them, this was their first experience in the Sonoran Desert. They departed being surprised by how much they can help the Earth. Opportunities like this Festival plant the seeds to grow future generations of scientists and conservationists. ▲▲



A steward shows off a tarantula, one of the many animals on view at the learning station featuring arthropods. Photo by Dennis Eckel



One of the activities at the Junior Citizen Science Festival allows youth to learn about people who lived in this region long ago. By digging in sand for buried artifacts, children gained insight into the work of an archaeologist. Photo by Dennis Eckel



Mylar balloons that people have released in the city float around and regularly land in the Preserve. This station helped children and adults learn how they endanger Preserve animals. Photo by Lynne Russell



Liberty Wildlife brought several species of birds of prey to show at their station. One of them, this beautiful American kestrel, exercises its wings and displays more of its markings in the process. The American kestrel is the smallest and most colorful falcon in North America. Photo by Lynne Russell



Visitors to Junior Citizen Science Festival got to experience how a chuckwalla feels. They learned that the chuckwalla is docile and not venomous. Photo by Lynne Russell



A gopher snake was one of the many live creatures on display at the Junior Citizen Science Festival. School kids enjoyed learning about our native wildlife. Photo by Lynne Russell



People weren't the only animals that enjoyed the festival. Several wild snakes made an appearance, providing an excellent opportunity to remind families that the Preserve is the snakes' home, whereas people are visitors. Here, an experienced snake handler moves a rattlesnake safely away from the trail. Photo by Dennis Eckel



What's inside a cactus? Many types of cacti have a woody structure to support their softer plant tissue. Families discovered this and many other fascinating facts at our cactus learning station, which included cactus skeletons, cross-sections of cacti, and more. Photo by Dennis Eckel



An Exceptional Season

By Steve Jones, botanist

Purplestem phacelia (left) and Emory's rock daisy (right) proliferated in some parts of the Preserve this year after a sparse showing in previous years. Photo by Dennis Eckel



Winter-spring 2018-19 in central Arizona will be remembered for an explosion of plant growth. A series of low pressure weather systems brought well above normal rainfall to central Arizona and the wider region in the fall. The increased growth was all the more remarkable following the near-record drought of the previous winter-spring season.

October 2018 was the fourth wettest month in Phoenix history, and the wettest October in its history. Temperatures were relatively warm as well. Some plants responded by flowering out of season. The wolfberries (*Lycium exsertum*, *L. andersonii*), which typically flower in the spring, flowered

and set fruit in profusion in the fall. It is remarkable that they largely did not flower in the previous dry spring. They also did not flower this spring, though moisture levels were high enough to support flowering.

Seeds can last for many years in the soil awaiting optimal conditions, resting in the soil seed bank. For a number of species, these exceptional conditions were more than optimal—they were perfect. For some species, the seed bank account was emptied this season, but the return on investment—the new crop of seeds these plants produce—should be tremendous.

In the long-term drought since 1990, many perennial species had built up a large seed bank in the soil

where they grow. One result of the October rains was that brittlebush (*Encelia farinosa*), triangle-leaf bursage (*Ambrosia deltoidea*), and its larger cousin canyon bursage (*A. ambrosioides*) were all surrounded by skirts of tens or hundreds of seedlings.



Pictured are some of the millions of brittlebush seedlings resulting from the fall rains. Triangle-leaf bursage and canyon bursage also benefited from tremendous seedling production this year. Photo by Steve Jones



Texas toadflax (left) and its cousin violet snapdragon (right) were known to exist only in a single location within the Preserve until this year, when many more individuals and populations were sighted. Note the spur on the Texas toadflax flower, and the stalked glands on the violet snapdragon. Photo by Steve Jones



These two recent introductions into Arizona proliferated this season, benefiting from the abundant rainfall. Smallflower stock (left) has not been sighted in the Preserve yet, but globe chamomile (right) is becoming widespread. Photo by Steve Jones

Many annual species that were near no-shows in recent wildflower seasons also benefitted from the rains. Purplestem phacelia (*Phacelia crenulata* var. *ambigua*) and Emory's rock daisy (*Perityle emoryi*) in particular were sparsely represented during the 2011-2014 McDowell Sonoran Conservancy's plant survey. This year, however, seeds resting in the soil seed bank sprouted by the millions, particularly in the Gateway Loop area. Other rarities such as Texas toadflax (*Nuttallanthus texanus*) and its cousin violet snapdragon (*Sairocarpus nuttallianus*), which were previously found in single locations within the Preserve,



One of four nonnative species seeded along Ringtail Trail by a misguided Samaritan, this red flax was the source of some confusion among stewards and others who know the local wildflowers. Photo by Steve Jones

were found in numerous other sites.

Some unexpected plants showed up along the upper stretch of Ringtail Trail. A misguided Samaritan spread seeds from a California wildflower mix along the trail, and four nonnative wildflower species sprouted and flowered there. It is unlikely that they will spread, but the temptation to enhance the native wildflower population should be resisted. There is beauty enough in the native wildflowers in the Preserve. Plant what you like at home.

One of the species in the seed mix is a close relative of a recent and rapidly spreading nonnative species, smallflower stock (*Matthiola parviflora*). The latter has not been seen in the Preserve yet, but it is only a matter of time. It is spreading through the Cave Creek area now.

Globe chamomile (*Oncosiphon piluliferum*), also known as stinknet, is another recently introduced nonnative that benefited from the wet season. Besides being found scattered throughout the Preserve, it covered long stretches of roadside in north Scottsdale. Each flowerhead contains

hundreds of tiny seeds which are blown far and wide by winds. Each tiny seed can produce a plant with hundreds of flowerheads and tens or hundreds of thousands of seeds. Both globe chamomile and smallflower stock were first collected in Arizona in 2005.

Other nonnative species spread through the area so long ago that they are now considered naturalized. Among them are the annual grasses red brome (*Bromus rubens*) and Mediterranean grass (*Schismus spp.*). They responded to the rains with vigorous growth and are now drying out, becoming a substantial fire hazard. ▲▲



Nonnative but naturalized grasses, red brome and Mediterranean grass, produced the vast majority of the annual biomass in the Preserve this year. Until the summer rains knock them down, they will be a substantial fire hazard. Photo by Steve Jones



It's a snake in the grass! Rattlesnakes use their cryptic coloration to hide from potential predators and wait for prey. Always be aware of where you place your feet and hands! Photo by Lynne Russell

Meet the Western Diamondback

By Sue Handke, McDowell Sonoran Conservancy legacy steward,
Parsons Field Institute herpetofauna coordinator

The very mention of snakes makes some people shudder with fear. But perhaps I can help such individuals see snakes from a different angle: from a snake's point of view.

I am a Western diamondback rattlesnake (*Crotalus atrox*), one of 15 species of rattlesnake found in Arizona. I share Scottsdale's McDowell Sonoran Preserve with three other species of rattlesnake—the Mohave (*Crotalus scutulatus*), the tiger (*Crotalus tigris*), and the black-tailed rattlesnakes (*Crotalus molossus*).

On this early spring morning, I wake up as cold as the ground below me. The bright sun is heating up my favorite place where I go to warm up. I move very slowly to that spot.

Suddenly, I feel vibrations on the ground, vibrations that get stronger and stronger. I cannot hear as you do because I lack ear openings. I can see shapes, movements, and some colors, but not fine details. Before shedding, I have a single scale over my eyes that obstructs my vision. But I can taste and smell the air by flicking my tongue and processing the scent through the

Jacobson's organ in the roof of my mouth.

The fork shape of my sensitive tongue allows me to determine if a smell is coming from my right or left side. I have heat-sensing pits between my nostrils and eyes that detect warm-blooded animals. Using all of these senses, I can discern the direction, the size, and the type of animal approaching me. I decide if it's something I should eat, mate with, defend myself from, or ignore. That's a lot to process and a whole different set of skills than you, as humans, have.

No offense, but I want absolutely nothing to do with you. From my perspective, you're a lot scarier to me than I am to you. I will not chase you, lunge at you, or try to constrict you. Humans aren't rattlesnake prey, so I don't want to waste a drop of my precious venom on you. What I will do is defend myself if I feel threatened by you. I might strike a pose, hiss, or rattle my tail, telling you, "Hey, I'm here. Move on!" But I might not rattle. Instead, I might try to hide so you don't notice me.

Please don't hang around to count the buttons on my tail. You can't tell my age that way. I was born with one tiny button, and each time I shed, I will grow another button. I can shed several times the first few years as I grow, then I will shed one or more times a year. Sometimes my buttons will break off while I go over or between rocks. My rattle is made from the same material as your fingernail—keratin. So, that's one of many things we have in common!

Despite the common fear of



Rattlesnakes aren't being rude when they stick out their tongues. They're just smelling you. This is one of many amazing senses a snake uses to identify what you are. Photo by Dave Weber



This baby Mohave rattlesnake was born live, fully venomous, and with only one button on its tail. There will be no rattle warning here! Photo by Dave Weber

snakes, there has been just one documented case of a rattlesnake bite within the Preserve. So you don't need to be scared of me, but you should stay alert. And it doesn't hurt to know what to do in the unlikely case that I do bite you.

If you hear a rattle, or see me, or another snake, stay perfectly still. Then slowly back away. Do not run or step off the trail to go around me because you could hurt yourself or encounter another snake.

And if you get bit, try to stay calm and call 911. Walk slowly to keep your heart rate low. The more you get your heart pumping, the faster my venom will move through your body. That said, you do need to move so you can get to a medical facility that has antivenom within two hours. And let the professionals provide treatment; don't use a tourniquet or put anything on the bite

yourself. Medical care for rattlesnake bites is expensive and dangerous. The good news is my bite is usually not life threatening.

Now that you know a little more about me, you can spend less time fearing me and more time appreciating our similarities and differences. ▲▲



The rattlesnake's rattle is made up of individual "buttons" that clack against each other. One new button is created each time it sheds. Photo by Dave Weber



Be a **HERO** to the Conservancy Today!

Our desert is alive with more than just saguaros. Do your part to protect the life within!

As the largest urban preserve in North America, the McDowell Sonoran Preserve offers :

- over 200 miles of hiking, riding and biking,
- more than 30,500 acres of green space,
- fun family activities, STEM education programs and science initiatives that safeguard the land.

But the Preserve needs you. Become a Hero and safeguard our natural open spaces for all to enjoy!

Visit www.mcdowellsonoran.org to learn more!



Your Gifts in Action

Scottsdale's McDowell Sonoran Preserve is the largest urban preserve in North America and the fourth largest urban preserve in the world. Building on the legacy of our stewards and their success, we press forward to establish ourselves as global leaders in conservation, STEM (science, technology, engineering and mathematics) education for youth, and ecological research.

We hope you are inspired by our history and our vision for the future.

Joining the Conservancy Coalition directly impacts the following programs:

1. Stewardship and best practices in volunteer leadership and management:
 - Conservation and trail maintenance
 - Adult education
 - User safety with daily patrols and guides
 - Guided hike and bike tours with experts
 - Donor recognition
2. STEM education for youth and experiential learning:
 - Classroom curricula
 - Field trips to the Preserve
 - Junior Citizen Science Festival
3. Parsons Field Institute research projects:
 - Assessing the impact of urban stressors and climate change on:
 - ✦ Animals
 - ✦ Birds
 - ✦ Bats
 - ✦ Plants
 - ✦ Water
 - Improving best management practices in ecological restoration including:
 - ✦ Native plants planning and development
 - ✦ Trail restoration
 - ✦ Invasive plant management
 - Assessing viability of the Gooseneck Corridor:
 - ✦ Wildlife connectivity (camera traps)
 - ✦ Acoustic monitoring
 - ✦ Neighborhood mapping

To support the McDowell Sonoran Conservancy, visit mcdowellsonoran.org and click "Donate."

The environment is where we all meet; where all have a mutual interest; it is the one thing all of us share.

— Lady Bird Johnson

Three Easy Ways to Support the Conservancy



Shop from the comfort of your home and earn rewards for the McDowell Sonoran Conservancy using AmazonSmile. To link your Amazon purchases to the Conservancy, visit smile.amazon.com and select "McDowell Sonoran Land Conservancy" from their list of approved charities.



Community Rewards Program

Now you can support the Conservancy when you shop at Fry's by joining their 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 their 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 "Get Started" then choose "McDowell Sonoran Land Conservancy" from the dropdown list under "Nonprofit." Share your fundraiser with friends and family and let them know why you support our mission.

Scottsdale Community Services

Making Scottsdale the premier community for everyone!



Beautiful outdoor spaces and classes.



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Over 30,500 acres of Sonoran Desert waiting to be explored.

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Connect with us:



Tour de Scottsdale

Registration Is Now Open

Sunday, October 13, 2019
DC Ranch-Market Street

To register or for more information
visit www.tourdescottsdale.net

All proceeds benefit the McDowell Sonoran Conservancy



TOUR DE SCOTTSDALE



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