

WILD LIFE

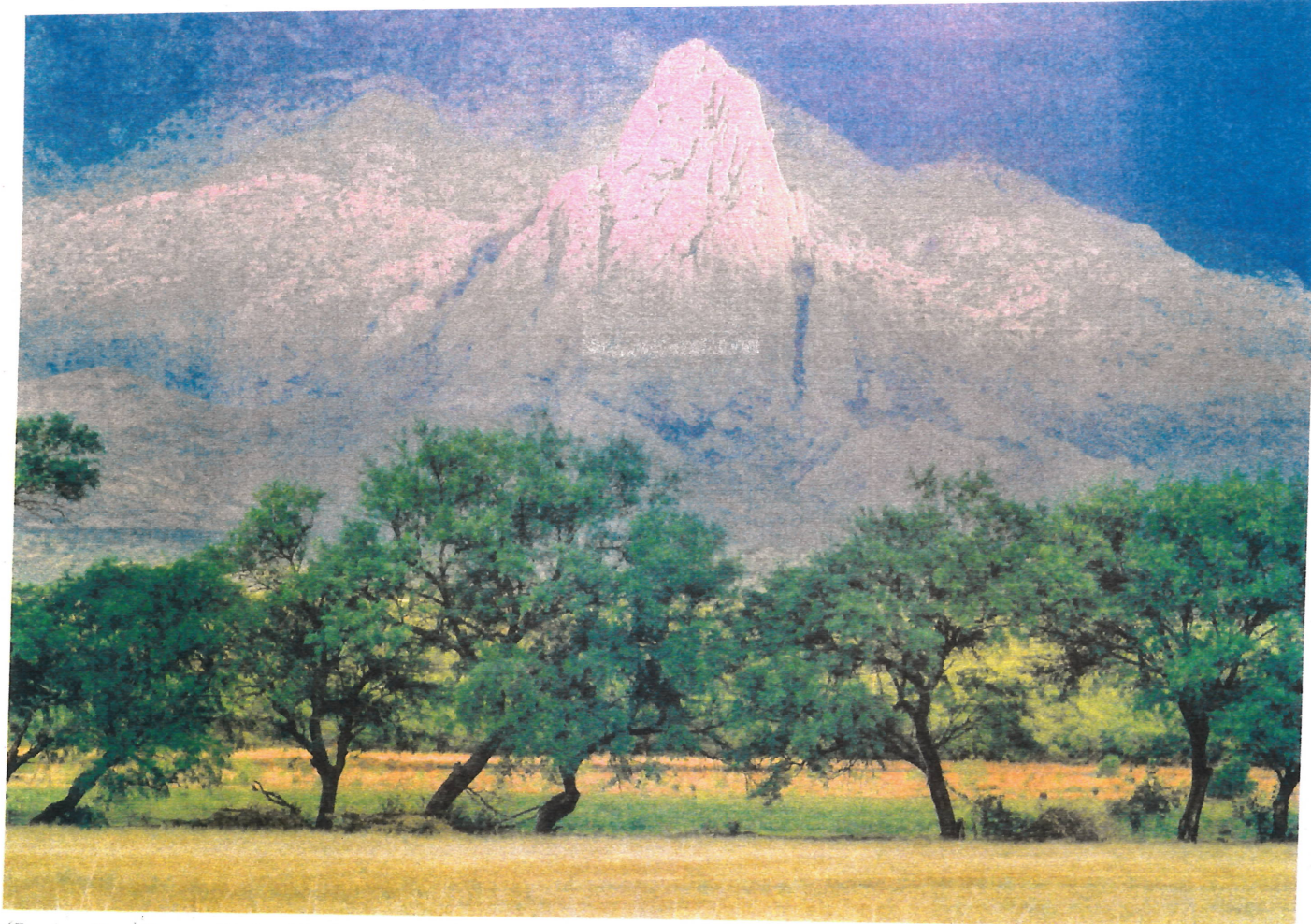
A hundred years after the National Park Service was founded, exploring the worth of wilderness.

By Megan Kimble · Photography by Jack Dykinga

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(Previous Page) Saguaro National Park at Signal Hill. (Above) Coronado National Forest, Santa Rita Mountains, Santa Cruz Valley at Elephant Head.

FROM THE TOP of Mount Wrightson, the highest peak in the Santa Rita Mountains, dark green ridgelines descend into the hay-colored floodplain of the dry Santa Cruz River like legs under a sheet. The green travels like water—like rainfall made visible. The mountain is dense with foliage, but as it slopes westward, the green thins until it is only a wavering line of lushness squeezed between ever-thicker contours of yellow and brown.

Thirty miles to the southwest, in a five-acre walled garden and orchard at Tumacacori National Historical Park, rows of heritage fruit trees flower and start to set fruit. These trees began as cuttings from some of the original cultivars brought into Mexico by Father Kino and other Spanish missionaries in the late 1600s. Throughout the 1700s and early 1800s, this garden and orchard fed the hundreds of people who lived at and around the Mission San José de Tumacacori. Three hundred years later, pomegranate trees again offer bright red blossoms to the hot May sun. Fig trees spread their ungainly limbs.

It is easy to see these gardens as isolated from the jagged peaks that rise to the east, a settlement guarded against the wild. The mission itself was wilderness quarried and contained, as the limestone to plaster the mission's church would have been extracted from the mountains above, timber felled for roof construction.

"Wilderness had once been the antithesis of all that was orderly and good—it had been the darkness, one might say, on the far side of the garden wall," wrote the historian William Cronon in his essay "The Trouble with Wilderness." The idea of wilderness as the opposite of agriculture is a venerable and persistent idea. Agriculture is a

series of selections, the subtraction of possible options. Wilderness is defined by expansion, by diversity and unpredictability.

But while wilderness can, and does, ignore agriculture, agriculture doesn't exist without wilderness. During the Mission Era, snow and rainfall from the Santa Rita Mountains would have flowed into the Santa Cruz River and trickled into *acequias*, or irrigation canals, providing water to the fruit trees and crops that grew within the walled orchard—and sustaining the people that depended on the Mission's harvest.

Wilderness is agriculture's source and sustenance. Every input required to sustain a resilient farm begins on the level of landscape, from the wild microorganisms that build healthy soil to the pollinators that coax fruit from flower. "Wildness cannot be maintained in the form of isolated pieces of the landscape, and farms cannot be productively managed without wildness," writes Fred Kirschenmann in *Farming with the Wild*. "If we hope to create an agriculture that ensures the land's capacity for self-renewal, then humans who possess an ecological consciousness need to be part of the landscape."

As the National Park Service celebrates its centennial and climate change sends the idea of an untrammelled wilderness, untouched by humans, quietly toward extinction, it's worth asking what wilderness is worth. What it is worth not only to our farms, ranches, and rivers, but also to us—to our ability to live well and thrive, now and in the future. If sustainable agriculture depends on humans who possess an ecological consciousness, then the future of our food might depend on what we find—and who we become—in the wilderness.



IN THE UNITED STATES, when we speak of wilderness, we're talking about public land, protected and managed by distinct federal and state agencies. Under the authority of the Department of the Interior and the Department of Agriculture, four bureaus manage wilderness: The U.S. Forest Service, the Bureau of Land Management, the U.S. Fish and Wildlife Service, and the National Park Service. The question of *how* these bureaus manage and protect this wilderness depends on the mission of each agency, which subsequently determines how we the public interact with that land.

A hundred years ago, on Aug. 25, 1916, President Woodrow Wilson signed an act of Congress establishing the National Park Service. The land this agency managed would have the highest level of protection offered by the United States; its mission was to preserve "unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations."

When Saguaro National Monument was established in March of 1933, University of Arizona President Homer L. Shantz, described his vision for "a great natural area for maintaining the botanical and zoological forms of the Southwest under natural conditions." In 1933, urban sprawl wasn't the saguaro's biggest threat; it was cattle ranching, deforestation, and cactus rustling. Today, Saguaro National Park, created in 1994, extends 140 square miles across its east and west districts, which are largely surrounded by urban development.

"One of the things that we can offer to the community of Tucson is wilderness," says Don Swann, a wildlife biologist at Saguaro National Park. "Wilderness provides clean water, and clean air. We think of wilderness as providing spiritual sustenance and places to camp, but it really does provide water for our community. Some of the water that we drink is from our wilderness, and some of it is from other wilderness. That value of wilderness for water is a fundamental resource that's provided to everybody."

*Coronado National Forest,
Huachuca Mountains at Miller Canyon.*



(Above) Aravaipa Canyon and Virgin Canyon confluence. (Right) Kofa National Wildlife Refuge, Kofa Queen Canyon.

When a drop of water falls in Tucson, that water is clean. What happens next depends on the landscape. Urban areas are good at shedding water; wilderness areas are good at absorbing it. Water that falls in the Rincon Mountains, for example, “can percolate slowly in the soil, get into fractures in the rocks and work its way ... into the aquifer under the city of Tucson,” says Swann. “That’s clean water that doesn’t have a pollution source upstream. If that mountain was covered with houses and driveways and other sources of pollution, then we’d get a different quality of water.”

“These mountain ranges and these open spaces are filters for gathering water, for cleaning water, for storing it underground,” says Jessica Moreno, a conservationist with Tucson’s Sky Island Alliance. “So that we can use it, so that plants can use it, so that the mountain can use it. It’s all tied together. When we protect these open spaces, we’re not only protecting our future for wild foods, we’re protecting our future for clean water, and our future for clean air.”

Saguaro National Park is part of what’s known as the Sky Islands region. Across Baja Arizona and northern Mexico, desert valleys and grasslands are punctuated by mountain ranges that top 10,000 feet; this range of life zones combine to support a landscape with some of the highest biodiversity of any region in North America. Contained in the Sky Islands region are, for example, more than a hundred reptile species, half of the bird species in North America, and more bee species than perhaps anywhere else in the world.

“The more diverse a landscape is, the more resilient it is, and the more it can deal with changes as they come,” says Bryon Lichtenhan, a conservation assistant with Sky Island Alliance. Ecosystems function well because of biodiversity—because biodiversity provides options. Take pollinators. “If one or two of these pollinator populations are damaged, that has a ripple effect through the ecosystem. There may be plant species that require that pollinator in order to function. Perhaps there are animals



(Far left) Willcox Playa, Dos Cabezas and Chiricahua Mountains in the background.

(Left) Cabeza Prieta National Wildlife Refuge, Growler Mountains.

(Above) Sonoran Desert National Monument, South Maricopa Mountain Wilderness.

that eat those plants. As you go up the chain, more and more things are affected by the loss of any one thing," says Lichtenhan.

"It's a keeping every cog and wheel kind of idea," says Moreno, paraphrasing Aldo Leopold. ("To keep every cog and wheel is the first precaution of intelligent tinkering.")

"We don't really use wild foods very much," says Lichtenhan. "As things change"—as the climate changes—"we may find that we need to look to those wild foods for potential future crops. So we need to maintain the biodiversity in the interim, and healthy ecosystems allow those potential plants."

Moreno works to protect functioning habitat for wildlife, which includes linking isolated habitats through

protected wildlife corridors. "People ask, Who cares?" she says. "Animals and plants can just stay on their little mountaintops. We can create little wilderness areas and put the wildlife there. In the scheme of things, it is actually *not* fine. Genetic diversity requires movement and flow. If you do not have that exchange between open spaces and between places, you get inbreeding and things die off and then they're gone."

And when it's gone, you can't make a species back up. You can't conjure wilderness when you decide you need it—when you need a new food crop or a clean waterway or a forest to suck up carbon from a warming world.



Cabeza Prieta National Wildlife Refuge, near Sierra Pintada Mountains.

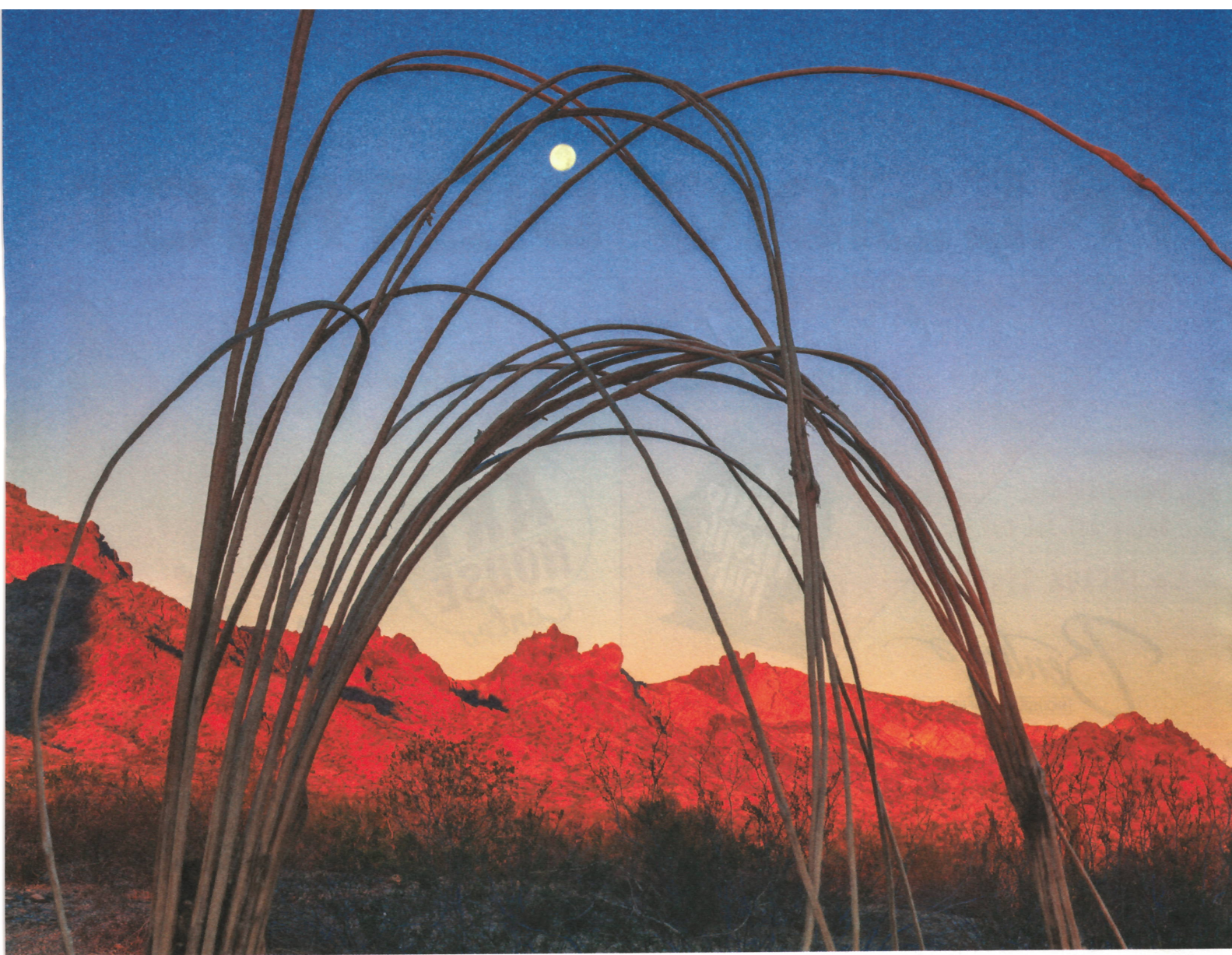
AND THE LOSS of wilderness affects more than just wildlife. In 1993, Robert Michael Pyle, a butterfly conservationist, published a book called *The Thunder Tree*, in which he wrote about “the extinction of experience.” Species loss on a neighborhood scale, he wrote, “endangers our experience of nature. If a species becomes extinct within our own radius of reach ... it might as well be gone altogether, in one important sense.” While protecting species on the brink of extinction is crucial for the health of our ecosystems, protecting biodiversity on a local scale is just as important for our *relationship* to those ecosystems. Pyle asks, “What is the extinction of the condor to a child who has never seen a wren?”

In 2016, Saguaro National Park partnered with the University of Arizona, the Arizona-Sonora Desert Museum and TUSD to “bioblitz” the region, surveying and cataloging species in backyards and schoolyards. “It’s like being a real explorer, a scientist,” said one student. Another student explained biodiversity as “the connection of plants and bugs or insects and animals. And life on earth, too.”

Connecting biodiversity in the city with biodiversity in the park is essential, says Rob Arnberger, a retired park ranger and the former superintendent of Saguaro National Park and Grand Canyon National Park. “Parks are much more than a place designated on land. It’s an idea. You have to come out from the parks and go into the community and find connection points where you can educate and develop the value system,” he says. “People need places and spaces. The basic motivation of protecting a city park, of having a place to go with your family, is every bit as profound as visiting the wilderness area in a National Park.”

This is a somewhat radical notion, given America’s long tradition of idealizing wilderness as sublime, incomprehensible, and largely inaccessible. But the idea of a remote wilderness is evolving, as park officials recognize that connecting city parks to national parks helps people understand that we are part of nature—and that stewardship can begin at home.

“As our country evolves and generations come and go and change, there is an increasing need to find relevance for the national park idea,” Arnberger says.



Eagletail Mountain Wilderness with saguaro ribs.

Part of the Park Service's fight to find relevance includes quantifying what seems obvious—the value of open, green, water-filled space. Of sovereign space, wild space, unaccountable and unforgiving. But it also includes telling new narratives—narratives of who belongs in a National Park and who these parks are for. If the National Park Service tells the story of what it means to be an American, then it has finally recognized that it must memorialize more than the stories of affluent white men.

In 2012, President Obama established the César E. Chávez National Monument near Bakersfield, California, to honor the Latino leader and farm worker activist. (In addition to its emblematic parks, the National Park Service manages national monuments, historic sites, and national recreation areas.) In 2014, the Park Service began to identify places and events associated with the story of LGBTQ Americans; many of these sites have been added or nominated to the National Register of Historic Places or the National Historic Landmarks Program. In 2015, the Honouliuli Internment Camp site, which was used to confine hundreds of Japanese-American citizens and immigrants during WWII, was declared a national monument.

"There's been a great maturation of what the American story is," says Arnberger. "You need to tell the full story, not just the story through one person's eyes."

In 2014, Saguaro National Park assessed its visitors and found that, although 40 percent of the population in Pima County is Latino, less than 3 percent of that population was visiting Saguaro. "We do great with white seniors over 62 years old, which is the age you qualify for a \$10 lifetime pass to the National Parks," says Diana Rhoades, an urban fellow with the National Park Service. In 2015, Tucson and Saguaro National Park were chosen as one of 10 cities and affiliated national parks to launch the NPS Urban Agenda, intended to make parks more appealing to diverse audiences, and to use the parks to help cities solve local problems.

"If we don't have young people or people of color in our parks, we're soon not going to have anyone in our parks," says Rhoades. So she's worked to launch a Latino hiking club, host a Latino family campout, and organize a campout in honor of César Chávez. She's working to make the parks more welcoming to visitors, which includes offering more Spanish-language brochures and tours—and supporting the hiring of more people of color in the park system.



Saguaro National Park.

In 2015, in partnership with the nonprofit Friends of Saguaro National Park, Saguaro National Park launched the Next Generation Ranger Corps, a job-training program intended to give young people better access to jobs with the park service. Tina Andrew is one of those Next Generation Rangers. She started working in the park's environmental education center in January 2015; today, her work focuses on strengthening and sustaining the relationship between the Tohono O'odham Nation and the National Park Service. "When I first came on board and being a member of the tribe, I realized the park shares a lot of the history with the O'odham and their ancestors," she says. "We need more Tohono O'odham involvement with the parks."

She's organized park staff trips to the nation to learn more about the tribe's long history on this land—"and what's happening now ... how we've evolved as a people," says Andrew.

Although any harvest or food collection is prohibited on National Park land, the Park Service offers permits to some tribal members to continue collecting the wild foods they've

been collecting for thousands of years. Stella Tucker is a Tohono O'odham elder whose family has been harvesting saguaro fruit in Saguaro National Park since before it was a park. Every year for two weeks in June, she and her family set up camp in Saguaro National Park West and invite community and youth groups to participate in the saguaro fruit harvest. The saguaro fruit harvest, which coincides with the Tohono O'odham New Year, is a "celebration," says Andrew. "Celebrating new life, new nutrition, new nourishment, not only for ourselves but also for the land."

Andrew says that for as much as the Park Service needs to learn and understand the Tohono O'odham, the Nation also needs to learn about the Park Service. "I'm representing the tribe and I'm representing the park," says Andrew. When she goes into schools, the first question she asks students is: What is a National Park? Often, they don't know. "I say, a National Park is a protected area. But it is a public area. This is your park. This is my park. We own this park," she says. "This makes people feel good. They need to take ownership."

OF COURSE, this is a complicated story. This story of wilderness in this region is in part a story of cordoning off tracts of land from human intervention—ignoring the story of the people who had been living on and managing that land for thousands of years. The notion of people apart from nature lingers, particularly as we concentrate ourselves in cities and shop at supermarkets, more and more removed from the wild systems that sustain us.

The endeavor required today, then, is to reintegrate humans into our understanding of wilderness—and take the lessons of wilderness into account as our garden walls expand to include most of the planet. As Cronon writes, “The special power of the tree in the wilderness is to... teach us to recognize the wildness we did not see in the tree we planted in our own backyard.”

“National Parks are complicated places. They tell complex stories,” says Swann. “So there is a complexity to managing them.” Increasingly, the complex story of our National Parks—of all wilderness areas—will include climate change. Swann and other scientists in Saguaro National Park are beginning to study and monitor the effects of climate change in the parks. They’ve just started monitoring snowfall—the Rincon Mountains extend up to 8,700 feet—after anecdotally noting less snowfall that lingered for less time. “Snow is important in the Sky Islands because it’s water that gets gradually released into the streams, so it’s water that’s in the desert in May and June, when the animals really need it,” says Swann. And in our hotter, drier future, water will be an increasingly competitive commodity for humans and animals alike.

In 2014, Saguaro National Park, Sky Island Alliance, and the Sonoran Joint Venture began a binational monitoring project with eight Sister Parks in Mexico to share data, resources, and best practices for monitoring wildlife. “It’s a natural partnership, given that you can stand at Coronado National Memorial and see the Sierra de los Ajos in Mexico,” says Swann. “They have identical issues.” While the Sister Park project doesn’t venture beyond data sharing and collaboration, across the country, proposals to geographically connect regional parks and wilderness areas are being discussed as a way to build the migratory corridors that animals need to breed and maintain genetic diversity.

“A lot of people think that we know everything there is to know about wildlife in the National Parks,” says Swann. “But we still have so much to learn.” Which might be one of the most compelling reasons to preserve and protect wilderness. Wilderness protects our ability to tolerate ambiguity. In spite of our best efforts, we simply don’t know everything there is to know. We don’t know how nature will change over the next hundred years—and how our farms, ranches, and rivers will morph and change along with it. “By protecting wilderness, one of the outcomes is that we protect life,” says Swann.

We also protect wonder. Once, at Saguaro National Park West, Andrew was leading a group of elementary school students from Tucson. “I was standing near an ocotillo plant, just sort of barely touching it,” she says. “One of the kids was really surprised. He said, ‘Look, she’s touching it!’ And I said, ‘Yeah! Come on, let’s touch it. And then they all came and put their hands on it. And they wanted me to take a picture of them holding the ocotillo. It was so simple, but they were so happy. It brought me so much joy to see them so happy.’” ❖

Saguaro National Park. 3693 S. Old Spanish Trail. 520.733.5153.
Nps.gov/sagu.

Sky Island Alliance. 406 S. Fourth Ave. 520.624.7080.
SkyIslandAlliance.org.

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Saguaro National Monument.

