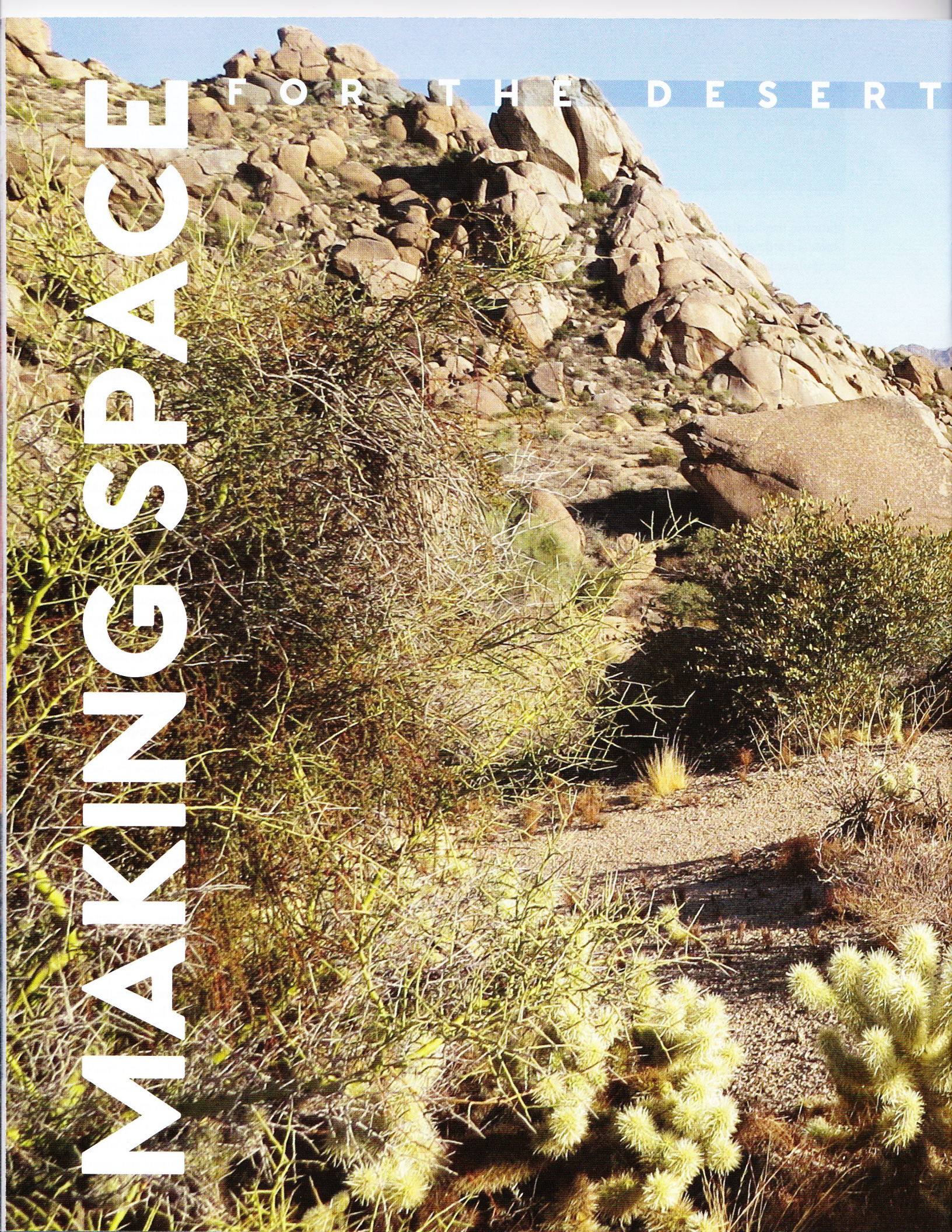
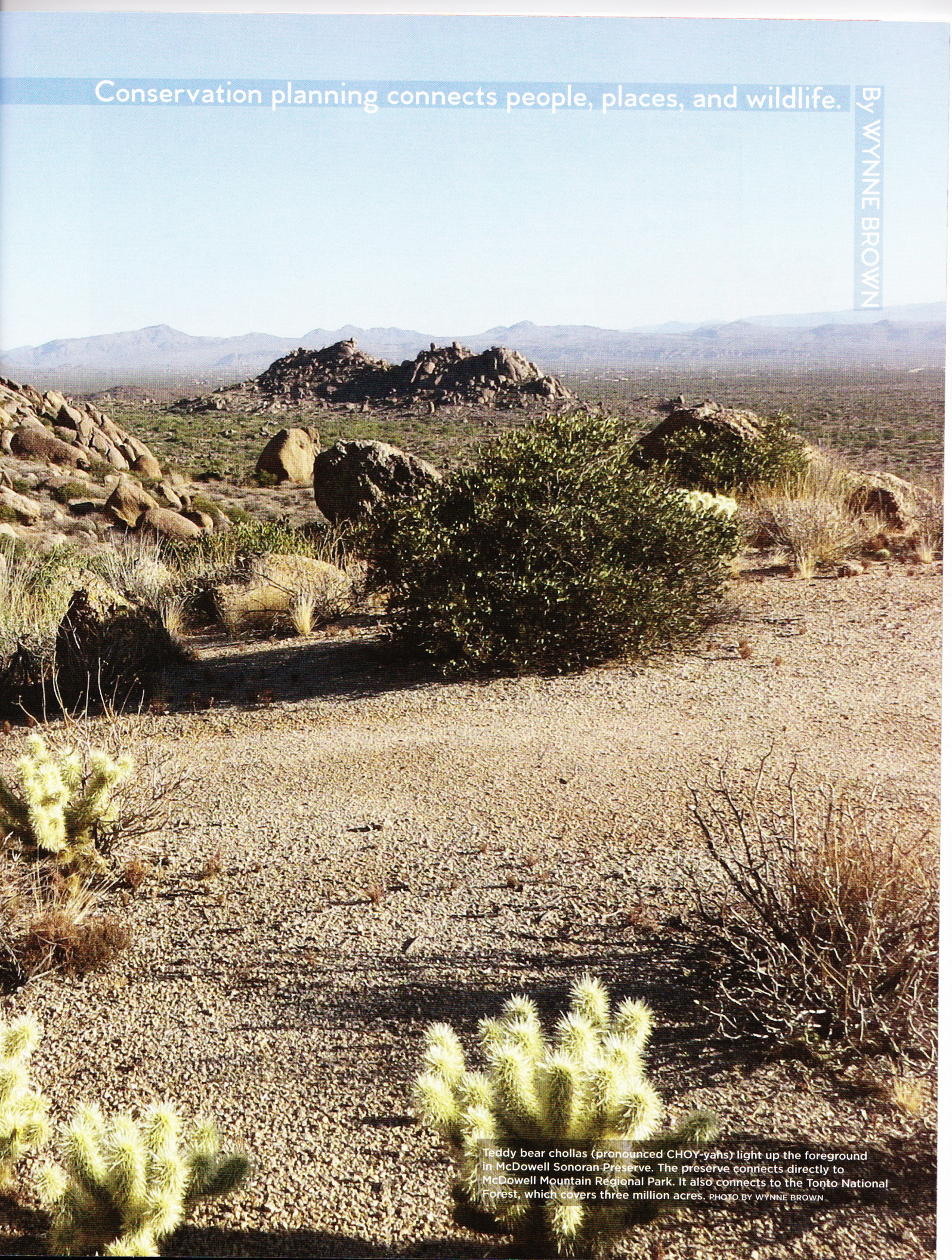

MAKING SPACE
FOR THE DESERT

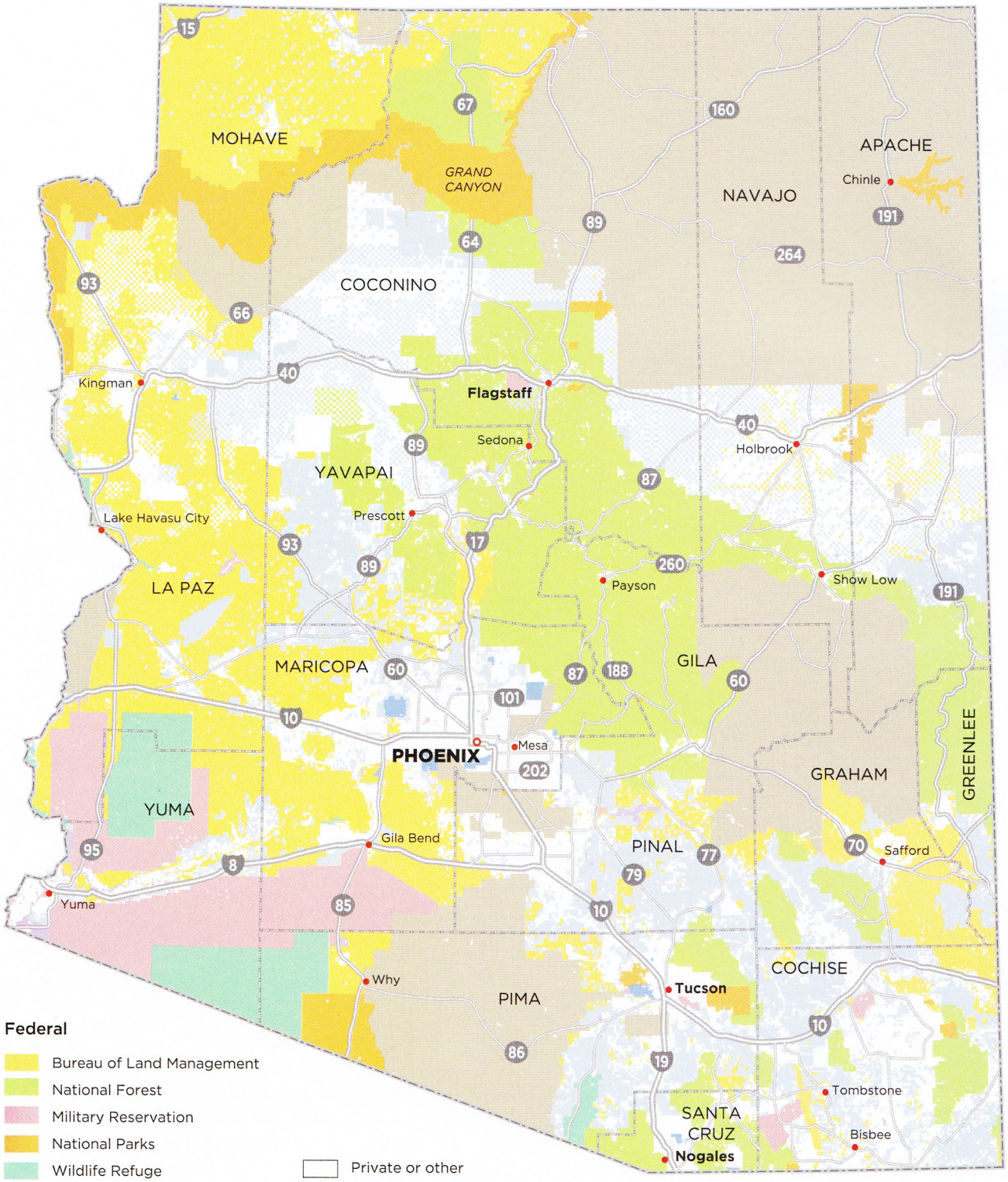
Conservation planning connects people, places, and wildlife.

By WYNNE BROWN



Teddy bear chollas (pronounced CHOY-yahs) light up the foreground in McDowell Sonoran Preserve. The preserve connects directly to McDowell Mountain Regional Park. It also connects to the Tonto National Forest, which covers three million acres. PHOTO BY WYNNE BROWN

Land Ownership in Arizona is a Patchwork



SOURCE: Arizona Department of Transportation

MAP BY WENDY WAHMAN

NPC 2016: MOBILE WORKSHOPS
HIKE A SCENIC MOUNTAIN PRESERVE **(W026)** SCOTTSDALE'S MCDOWELL SONORAN PRESERVE'S CITIZEN-DRIVEN INITIATIVE **(W029)** ECONOMIC LEGACY, LESSONS FROM PAPAGO PARK **(W038)**

FOR ANY NEWCOMER who's tackled rush-hour traffic out of Phoenix's Sky Harbor International Airport, this sprawling, seething urban ocean holds some surprises. One is that this patch of desert includes both the nation's largest and second largest urban parks—as well as the largest regional park system. ¶And who would expect hundreds of miles of hiking trails within America's sixth largest city? Or that southern Arizona, land of roadrunners, saguaros, and rattlesnakes, would be at the forefront of open space preservation? ¶Arizona encompasses about 73 million acres, ranging from flat, cactus-studded desert to snow-capped mountains. A little more than half is managed by the federal and state governments. Another 28 percent, or 20 million acres, is owned by 22 Native American tribes; 17 percent is owned by individuals or corporations.

Within that 73 million acres, Phoenix is the largest city. It's huge: "You can fit Paris, Manhattan, Rome, and San Francisco all into a space the size of Phoenix," says Colin Tetreault, until recently a senior policy advisor for Phoenix Mayor Greg Stanton. You could even tuck the city of Los Angeles into the greater Phoenix area, which now has a population of 1.5 million.

Why this open space matters

In addition to being huge, Phoenix is also toasty—at least in the summer. Temperatures often reach 115 in June and frequently don't drop below 90 at night. Maricopa County, home to Phoenix, Tempe, Mesa, and Scottsdale, reported 82 heat-associated deaths in 2010 alone.

So why would anyone care about open space in such a sprawling cauldron of a place? In general, of course, preserving open space is good for the planet's flora and fauna. And the Sonoran Desert of central and southern Arizona is rich in both. One of North America's four major deserts (the others are the Mojave Desert, the Great Basin Desert, and the Chihuahuan Desert), the Sonoran stretches from the southern half of Arizona, through the state of Sonora, Mexico, and spreads across most of the Baja California peninsula.

The Sonoran Desert, in fact, is one of the most highly biodiverse areas in the world. Two thousand plant species are found here, along with 550 kinds of vertebrates and an uncountable number of invertebrates.

One driver of all this diversity is the climate: Yes, with only one to 15 inches of rain a year, it's dry. But this part of Arizona has two rainy seasons: Summer can be a time of dramatic monsoonal thunderstorms and contributes much of the annual rainfall—although some summer rainy seasons end up being "non-soons." Winter, although mostly warm and sunny, can also bring storms from the Pacific, which are usually gentler than summer's torrents. A good year includes both, leading to vivid swathes of wildflowers and herds of eager photographers on the hunt for the perfect poppy picture.

Southern and Central Arizona are rich in historic and cultural history as well: According to Andy Laurenzi, of Archaeology Southwest, Arizona and eastern New Mexico hold more than 250,000 documented "cultural properties of record." Working ranches also count as a cultural resource, and much preservation effort goes toward "keeping ranchers ranching."

That the Sonoran Desert is special is no surprise to Arizonans. According to a 2011 survey by West-Group Research, 93 percent believe their parks are essential to tourism. Eighty-seven percent visit a park or recreation area at least once a year, with 23 percent doing so on a weekly basis.

Those hours outdoors feed the state's economy. "Nearly 5.5 million Arizonans participate in active outdoor recreation, generating approximately $350 million in annual state tax revenue, producing close to $5 billion in retail services and supporting

WHO OWNS ARIZONA?

Like many Western states, much of Arizona's land area is not privately controlled.

113,909
SQUARE MILES (73 MILLION ACRES) TOTAL AREA

6,731,484
POPULATION

LAND OWNERSHIP

28 percent
22 Native American tribes (20 million acres)

17 percent
Private

55 percent
Federal and state

15 percent
U.S. Forest Service

20 percent
Bureau of Land Management

13 percent
State of Arizona Trust

7 percent
Other public lands*

PARKS AND OPEN SPACE

24
Units managed by the National Park Service or BLM

30
State parks

*NATIONAL PARK SERVICE, U.S. FISH AND WILDLIFE SERVICE, ARIZONA GAME & FISH DEPARTMENT, COUNTY, CITY

SOURCES: ARIZONA DEPARTMENT OF AGRICULTURE, U.S. CENSUS BUREAU, ARIZONA STATE LAND DEPARTMENT

MARICOPA TRAIL—LINKING COMMUNITIES TO PARKS **(W040)** HIKE HOLBERT TRAIL TO SOUTH MOUNTAIN PARK **(W042)**

82,000 jobs across Arizona," reports Arizona Forward, which describes itself as "a business-based coalition vested in enhancing the state's environmental quality." In 2013, visitors to Saguaro National Park, near Tucson, spent $40.6 million, which in turn supported 563 jobs. In 2014, Maricopa County's open-space parks generated $13.72 million within 10 miles of each park and supported 139 full-time jobs.

Open space has also been shown to enhance health, increase property values, bump up tourism, attract businesses looking to relocate, and even lure commerce, including filmmaking. Scenes from movies as different as *Psycho*, *Little Miss Sunshine*, *Waiting to Exhale*, and *Wayne's World* were shot in the Phoenix area.

A long history of preservation

"Phoenix has a long, rich tradition of preserving very large open desert spaces," says Ray Quay, FAICP, research professional with the Decision Center for a Desert City project in the Julie Ann Wrigley Global Institute of Sustainability at Arizona State University.

As far back as 1871, the city had a park. By 1914, there were four. The breakthrough for open space preservation came in 1920 when the community convinced President Calvin Coolidge to sell the budding city 13,000 acres of what was then called the Salt River Mountains for $17,000. That area later became South Mountain Park and Preserve, which has expanded to more than 16,000 acres—and is now the largest municipal park in the U.S.

The 1930s brought Encanto Park to central Phoenix. Twenty years later a $4.8 million park bond issue was approved for Papago Park, with its golf course and lakes—who'd expect to catch rainbow trout and largemouth bass in midtown Phoenix? Papago is also home to the Phoenix Zoo and the Desert Botanical Garden.

The preservation of the iconic Camelback Mountain, now visited by 300,000 people each year, is its own fascinating story of grassroots, media, political, and federal interaction. Passage of the 1964 Land and Water Conservation Fund Act, in addition to the U.S. Department of Housing and Urban Development's Open Spaces Program provided federal funds to avoid development of the peak so many Phoenicians see as "our mountain."

But those parks are "examples—not of planning—but of federal preservation of a unique resource (distinctive geological formations) that cities ultimately surrounded and came to control," wrote Mich Lyon, a PhD candidate in the School of Geographical Sciences and Urban Planning, Arizona State University, in an email message.

Water, water . . .

Preservation in this desert city reaches back even farther than the 1900s—preservation of water, that is. Here's yet another surprise: Phoenix has 181 miles of canals, more than Amsterdam and Venice combined. These ancient waterways are the legacy of the Hohokam Indians, who lived here for 1,500 years, from around 1 CE to 1450 CE. Using no more than a digging stick, these remarkable early engineers excavated sufficient canals to irrigate 110,000 acres of cropland, enough to feed 80,000 hungry residents. No one knows why they left the area. Drought? Death of a charismatic leader? Disease? We may never find out.

But what modern Phoenicians do know is Canalscapes, an example of "integral urbanism": the idea of building upon an area's assets and the aspects that make it what it is. The Canalscape project uses that geographic DNA to include a multiuse trail, street crossings, and public art installations along the Grand Canal between Central Avenue and 7th Street. It was funded by the city's Street Transportation Department, which secured a $4.2 million grant from the Salt River Project's Municipal Aesthetics Program along with $700,000 in city money.

The nearly eight-acre lake in Papago Park in Phoenix is stocked with catfish in the summer and trout in the winter. The white pyramid in the distance is Hunt's Tomb, the final resting place of Gov. George Wiley Paul Hunt, who was elected as the first, second, third, sixth, seventh, eighth, and 10th Arizona governor. The pyramid is visible from almost any location in the park.

Interested in birding during your Phoenix visit? The Rio Salado Habitat Restoration project, less than two miles from the convention center, is 595 acres of desert river habitat with more than 200 species of migratory birds—along with a multiuser trail system (including equestrians—this *is* the West, after all) and a free Audubon Nature Center. The infrastructure is a legacy of the Hohokam, who also used this stretch of the Salt River as part of their canal system. In the early 1900s, the U.S. Bureau of Reclamation built dams to create lakes—which drained the river. The dried-up riverbed became home to gravel pits and many tons of old tires and other debris. In 1999 Congress authorized the matching federal construction funding for the Rio Salado project by signing the Water Resources Development Act, and the newly restored area opened in 2005.

If the Salt River is dry, where does all that water come from in the middle of the desert? Partly from floods: 22 storm drains flow into the waterway, and five supply wells pump more from a nonpotable aquifer that lies under the riverbed ("Rio Salado" is Spanish for "salty river"). Of that water, three million gallons per day are recycled to irrigate the hundreds of trees that were planted as part of the restoration project.

Another water-based urban space preservation project—this one in Scottsdale—is the Indian Bend Wash Greenbelt. This 11-mile urban oasis is the result of a citizen-driven refusal to accept a U.S. Army Corps of Engineers flood-control plan for a 23-foot-deep concrete trench slashing through the city. Instead, a grass-lined channel wanders through golf courses, shaded parks, playgrounds, and trails, ending at Tempe Town Lake, a two-mile long water destination. (Also read "An Eye on Every Drop," p. 34.)

Preserving mountain spaces

Phoenicians didn't stop with urban parks or restoring ancient waterways. The metropolitan area is a bowl rimmed by 10 regional county-managed mountain parks and totaling 120,000 acres, all within a 45-minute drive of downtown Phoenix. Despite two million-plus visitors per year, once out on the trails, it's likely you won't see a soul as you pedal your bike, hike, or ride your intrepid equine among majestic saguaros or through shady mesquite groves.

The regional park system was established in the mid-1950s, then bolstered in 1970 by the federal Recreation and Public Purposes Act. This legislation opened the door for the acquisition of thousands of acres of Bureau of Land Management land at $2.50 per acre. In 2009, the Maricopa Parks and Recreation Department revised the *Strategic System Master Plan* in an effort to define a "high quality" park system: A quality Maricopa County Park is a representative piece of Arizona's vast and diverse landscape large enough that the natural and cultural resource base can be protected, studied, and used to provide understanding of the history and natural systems of that location for the citizens and out of state visitors who come to enjoy the park system.

The most recent addition to that system is Spur Cross Ranch Conservation Area, 2,154 acres of rugged hills and deeply shaded riparian streamsides. On a hot September day, the area was mostly deserted except for a dude string ambling slowly through the mesquite thickets ("Watch out for them rattlebugs—didn't see none today, but they're out," warns the trail boss).

What's notable about the recent preserves is their context: No longer are they isolated islands in an ocean of urban sprawl. Now regional and city planners collaborate with citizens and scientists to preserve connections, not just open land.

A model for future preservation

McDowell Sonora Preserve is a hybrid and an excellent example of that collaboration: The 17,000 acres are managed by Scottsdale, but connect to county-managed McDowell Mountain Regional Park as well as the federally managed Tonto National Forest.

The key is using science to drive the process, says Helen Rowe, PhD, director of the McDowell Sonoran Field Institute, the research center of the conservancy.

"We actively involve 600 volunteers, called stewards, in many roles including trail maintenance, outreach, developing the interpretive signs, patrol, training, and more," she says.

The organization also sees the preserve as 17,000 acres of "living laboratory." It partners with scientists, many from ASU, and include the volunteers in research projects as citizen scientists. That research is then published in peer-reviewed journals where it's available for agencies and the public to extend their knowledge of resource management, geology, and ecology.

Dan Gruber is a master steward with the preserve—a volunteer, or, as he prefers, an unpaid professional. "Every community has an incredible source of knowledge in its own citizens," Gruber says.

"Another key piece is the good relationship we have with the city of Scottsdale," says Rowe, citing their memorandum of understanding.

Rowe and Gruber say they'd like to see the McDowell Sonoran Preserve as a model for future preserves, and they're already working with nearby Fountain Hills (read more about that city elsewhere in this issue) to establish another corridor.

One Arizona success story is Pima County's *Sonoran Desert Conservation Plan.* The plan, which covers metropolitan Tucson and the surrounding 5.9 million acres, was initiated in 1998 and driven by explosive local growth and the endangered status of a small bird with a big name—the cactus ferruginous pygmy-owl. It was one of the first initiatives to tackle science-based planning rather than politically based decision making and needed to meet three criteria: a science-based conservation plan, an update of the comprehensive land-use plan, and compliance with federal regulations that require protection of endangered species be addressed through a multiple species conservation plan.

Completing the *Sonoran Desert Conservation Plan* wasn't easy or simple: It took three years, 620 meetings, 84 members on just the steering committee, 150 contributing scientists, 12 government partners, 40 community groups, and 125 programs involving 4,375 kids, aged five to 16.

The end result? Pima County has been able to purchase more than 180,000 acres, including 117,000 acres of leased ranch land.

"I keep my eye on Pima County as a model," says Rowe.

Where to from here?

Passion, patience, a plan—and money. That last one is often the biggest hurdle.

"Sales taxes have been the primary funding mechanism, but that's not adequate," says Ray Quay. "There's no one silver bullet, no single approach. A combination of strategies is the only answer."

Arizonans aren't short on passion about their land: They've voted with their wallets again and again to support open space, usually in the form of bonds or increased sales tax. (Not always, though: Pima County residents in November voted down Proposition 430, which included funding for conservation land acquisition).

Nick Di Taranto now works with the U.S. Environmental Protection Agency in Washington, D.C., as a research participant in the Oak Ridge Institute for Science and Education program. But he wrote his dissertation on urban growth and environmentalism in Phoenix. "The preservation of Camelback Mountain demonstrates the power of community action and public-private partnerships in confronting urban challenges," he wrote in an email. "While local concern initiated the campaign to save Camelback, decisions by federal, state, and local government officials turned sentiment into action."

Colin Tetreault agrees. "Urban planners who are not afraid to step out of the ivory tower, those who turn to the community will be the successful ones," he says. "Bring them into the tent, saying 'Let's do this together.' We have a responsibility to take a collaborative-based approach to the future."

Perhaps that's one element of Phoenix that's no surprise. ■

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