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The Sonoran Desert Conservation Plan is a collaboration between local environmentalists, county administrators, government biologists, academics, and developers. Among the key players were (left to right) Maeveen Behan, Bill Shaw, Sonja Macys, and Carolyn Campbell.

Photograph by Chip Simons

Score one for the Desert

For decades Tucson's urban sprawl swallowed up the magnificent desert and wildlife that drew people to the area from far and wide. Then, in the heat of a recent battle, opposing sides banded together to adopt a pioneering plan that balances biodiversity with development.

In 1997 passions over a reddish, muffin-size bird were beginning to boil over in the Arizona desert. The cactus ferruginous pygmy owl, its population in the state down to a dozen and clinging to the last patches of saguaro cactus not yet swallowed up by Tucson's booming suburbs, had just received federal protection under the Endangered Species Act.

Environmentalists and developers were already embroiled in a legal battle over the site of a high school to be built on one of the bird's few remaining nesting grounds. Construction was temporarily halted after a pygmy owl was spotted in the vicinity. Leslie Dierauf, then a U.S. Fish and Wildlife Service biologist based at the agency's regional headquarters in Albuquerque, New Mexico, could see trouble brewing. The pygmy owl was on the verge of becoming the Southwest's version of the northern spotted owl—whose status as an endangered species briefly brought the Northwest's logging industry to a halt in the early 1990s. She turned to a colleague one day and said, "They [county officials] don't know how difficult this listing is going to be."

So Dierauf hopped on a plane to Tucson, in search of Pima County administrator Chuck Huckelberry, whose jurisdiction included the site of the pygmy owl battle. When Dierauf showed up unannounced, she was told Huckelberry was too busy to see anyone that day. So she waited in the lobby outside his 10th-floor office. She had heard Huckelberry "looked like a big overgrown kid who whistles and laughs while he walks," and when a man fitting that description appeared, Dierauf introduced herself and asked if she could ride down in the elevator with him to discuss the pygmy owl issue. "I had 10 floors to sell my story," she recalls, chuckling. Dierauf explained to Huckelberry the implications of the pygmy owl's listing—the impending train wreck between business and environmental interests—and advised him to initiate a Habitat Conservation Plan, a provision in the Endangered Species Act that allows future development to take place in accordance with a federally approved plan that minimizes harm to the designated species. She also told him the plan could be

structured to cover a host of similarly vulnerable species in need of protection. Huckelberry listened politely. When the elevator reached the ground floor, Dierauf thanked him and returned to Albuquerque.

Later that day Huckelberry bumped into Maeveen Behan, a lawyer in his office. At the time neither of them knew much about the pygmy owl or about the dozens of species that depend on the biologically rich Sonoran Desert ecosystem framing Tucson. Behan, lanky with shoulder-length blond hair, laughs at the memory. “Chuck told me to ‘talk to this person [Dierauf] who would talk to me about the pygmy owl and everything else that’s in trouble,’ ” she says. “He assigned it to me in passing.”

Today, seven years, 250-plus technical reports, 600 public meetings, several near-death experiences, and one successful \$174 million open-space bond measure later, the Sonoran Desert Conservation Plan is a done deal. Since voters in Pima County overwhelmingly approved the bond measure by 66 percent to 34 percent last May, \$45 million has been spent to execute the plan. It sets out a course of management, monitoring, and vital habitat acquisition for 54 native plant and animal species, including the lowland leopard frog, the Gila chub, and the federally endangered pygmy owl.

But that’s only one cornerstone of something much grander in design. The plan also recognizes that ecosystem repair, via the creation of linked biological corridors, is essential to the recovery of those 54 species, and that creating those corridors, in turn, requires measures to manage Tucson’s sprawling growth. To this end the plan steers future development away from ecologically important areas—perennial streams, for instance, and groves of paloverde, saguaro, and ironwood—and toward existing urban cores. The species targeted for protection were expressly chosen to represent the Sonoran Desert’s diverse web of life.

It is an audacious and novel undertaking, covering about 2 million of Pima County’s 5.9 million acres—a landscape larger than the state of Connecticut that ranges from scrub desert and grasslands to limestone caves and 10,000-foot mountains. “There is no other plan in the country that has done anything on this scale or with such integration,” crows Behan, who became a pivotal behind-the-scenes player. Environmentalists and planners agree, and are already touting the plan as an ideal model for other communities seeking to balance growth and conservation in one fell swoop. “The unique thing is that it sees the preservation of the natural environment as something that can be accomplished along with development,” says Bruce Knight, planning director for the city of Champagne, Illinois, and a board member of the American Planning Association. “Sustainability is a nice concept that people have been talking about for years,” he adds. “This plan is really implementing sustainable concepts.”

While national environmental issues received scant attention in last November’s presidential election, on the local level the subject of sustainable growth weighed heavily on the minds of voters across the country. Fed up with traffic congestion and with cookie-cutter suburbs that lack town centers or greenways, they are increasingly turning to bond measures to buy forests, wetlands, farms, and ranch lands and protect them from development. In 2004 voters supported 120 of 161 conservation measures on ballots across the United States, at a total cost of \$3.25 billion.

What’s notable about Tucson, though, is that the vote for open space last May was a loud retort to unchecked sprawl and a ringing endorsement of a far-ranging conservation plan. In a larger sense it also symbolized the last leg of a torturous journey that the community has been on for some time.

Everyone I talk to in Tucson tells me it’s a great place to live. The winters are glorious—always sunny, with average daytime temperatures in the 70s; summers, though unfailingly hot, are more than bearable because of the low humidity and cool nights. The Sonoran Desert landscape, with its oddly lush, wildflower-dotted valleys (thanks to biannual rains) and low-slung mountains, is stupendous to behold from virtually any angle. Drive a half-hour from the city and you can be in Saguaro National Park, Coronado National Forest, or Sabino

Canyon Recreation Area, where hiking trails climb through patches of mesquite and paloverde along a creek lined with willows and cottonwoods. At Sabino Canyon, a mere 12 miles from downtown Tucson, you're liable to cross paths with mule deer, foxes, and bobcats (not necessarily to their liking).

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Although saguaro density has shrunk considerably from development, the tall, prickly, multi-armed cacti—the area's signature plant—still stand like ubiquitous sentinels everywhere you turn. Southeastern Arizona is also a hub for birds (and Tucson is a mecca for birders); about 500 species have been recorded here. When I was passing through last winter, I watched Gila woodpeckers hammering away at saguaros, creating cavities in which pygmy owls sometimes make their nests. Roadrunners streaked by me in a whirl, their tails sticking out high. I heard great horned owls calling out to one another in the early morning hours, their soft *coo-cooing* floating across the desert.

Of course, like all such enchanting places, everyone already there wants to be the last one to arrive. In the 1960s and 1970s the city drew artists, writers, hippies, and career changers. In the 1980s and 1990s a wave of retirees headed west, many of them landing in Tucson and other parts of Arizona. They're still coming. In 1949, when Huckelberry was born in Tucson, the population was 135,000. Today it's nearly 10 times that, and there seems to be no end to the multiplying subdivisions and strip malls. A 2003 economic study commissioned by Pima County found that Tucson loses an estimated 96 acres to development each week. "The Sonoran Desert Conservation Plan won't stop this pace," concedes Behan, "but it does change the location of the impacts to less ecologically sensitive areas."

One big problem is that so many people want their own piece of the desert. And what could make that prettier than a grand, flowering saguaro in the backyard? So it was inevitable that the concentric rings of houses and stores would expand ever farther from Tucson proper, gradually eliminating the one thing residents love most about where they live: open space. For a while the desert was sliced and diced in ways that bothered the wildlife, including a herd of bighorn sheep in the nearby Catalina Mountains that disappeared altogether as houses overtook the slopes.

Every community has its tipping point, though. The pygmy owl was Tucson's, as soon as it was listed as an endangered species. "The pygmy owl was the catalyst for the community to see what was happening to the environment and habitat," admits Huckelberry. More specifically, the tiny raptor's decline and the actions required to keep it from going extinct forced residents to take a closer look at the sprawl that was gobbling up their paradise.

"She had an open door in her conference room, where anyone could come and vent. At first the enviros came, then another week the developers, and another week the ranchers."

Of course, not everyone had the same concerns. After construction of the new high school adjacent to a pygmy owl nesting area was delayed, developers accused environmentalists of choosing the owl's welfare over children's. The bird's listing also forced several housing projects to be scaled back, and threatened others. The charged atmosphere was hardly conducive to the spirit of compromise that would eventually inspire the plan's formation. "I don't know if the plan would have gotten popular support if it was about one bird," says Carolyn Campbell, executive director of the Coalition for Sonoran Desert Protection, an alliance of 40 environmental and neighborhood groups that helped craft the plan. "The owl became such a lightning rod for controversy."

Indeed, opposing sides had become so entrenched by the late 1990s that U.S. Representative Jim Kolbe (R-AZ) once called a public meeting in a Tucson church to try to calm the roiling waters. Eight hundred people showed up. He got more than he bargained for; in addition to all the shouting and finger-pointing, fistfights

broke out in the church bathrooms.

When I first visited Tucson in 1998 to write a story about the pygmy owl, a pair of jittery government biologists escorted me to the barren school site where the owl nest was found. On this trip I met Huckelberry, Behan, and Campbell, separately. I wanted to talk about the pygmy owl, but they were already looking beyond it, to this master conservation plan in the works that was supposed to untangle Tucson's mess of ecological and growth issues. As much as I remember being impressed by their zeal, I couldn't help but think they were chasing fool's gold.

“We planned for biodiversity, not endangered species,” explains Bill Shaw, a professor of wildlife and fish at the University of Arizona, in Tucson, and chair of the plan's science committee, one of 10 advisory teams that met at least once a month during the plan's formation to hash out details. From the beginning, the science team focused on developing a list of high-priority species and habitats. The pygmy owl's plight, they recognized, was the symptom of a much larger ecological crisis. A Habitat Conservation Plan (HCP) designed just for the owl would not address the dire needs of all the native Sonoran Desert species suffering from habitat fragmentation—species not yet granted federal protection, like the owl. Shaw resolved to come up with a forward-looking plan that would head off future listings and avoid splintering the community.

“An HCP provides certainty as to where development and conservation should occur,” says Sherry Barrett, a Tucson-based biologist for the U.S. Fish and Wildlife Service (USFWS). “The multispecies plans are best done on a regional level.” Huckelberry, Behan, and concerned biologists like Shaw recognized this fact early on and made sure the Sonoran Desert Conservation Plan would work on several levels. Protective measures for species had to pass muster with the USFWS while also saving what remained of Tucson's desert ecosystem. To this end more than 100 biologists contributed studies; Shaw's science team built a computer-generated GIS model and fed in the raw data from the biologists to develop habitat maps highlighting the locations of the greatest species richness. The team came up with a set of conservation reserves covering 54 species, but in reality it will end up aiding the full spectrum of animals and plants across the ecosystem.

The conservation reserves are pockets of biologically sensitive areas that are either adjacent to existing reserves or near parcels of developed land surrounded by open space. The idea is to create habitat corridors from the reserves by connecting them to other large tracts of undeveloped land. The future debate will center on where to sink most of the \$174 million that voters approved for such open-space acquisition. So far a quarter of the money has been allotted for the purchase of eight properties that link a total of 24,000 acres to existing open space. All told, there are 2 million acres of land that can be preserved—1 million of them are already federally protected.

One of the plan's novel touches is that it acknowledges the importance of connecting parcels of marooned habitat in rapidly urbanizing areas, says Sonja Macys, executive director of Tucson Audubon, which is a member of the coalition and a leading player in building support for the plan. By way of example she takes me to the Mason Audubon Center, in fast-growing northwest Tucson. The nature center, in a converted house, sits on 22 acres studded with saguaro, teddy bear cholla, mesquite, and centuries-old ironwood trees—classic pygmy owl habitat and a vital part of the plan's conservation reserve system.

Unfortunately, next to the center is a 60-acre parcel of equally prime habitat whose owner wants to rezone for commercial purposes—possibly stores. “We're hoping this property gets purchased as ‘open space’ to link all this contiguous habitat,” says Macys, pointing to the 60-acre lot, her sun-bleached blond hair poking out the back of a baseball cap. Whether her wish will be granted remains to be seen. There are plenty of other parcels of undeveloped land—some much bigger than 60 acres—that are also candidates for reserves. And Huckelberry wants to get the biggest bang for the buck.

Macys believes the nature center—with its outdoor butterfly garden, self-guided loop trail through the desert, and markers identifying various cacti—is key to teaching people the importance of saving even the smaller patches of habitat in urban cores. The center attracts 13,000 visitors a year, and Tucson Audubon runs educational programs here on desert ecology. Pointing to the lush panorama of bright green and tan plant life behind the house (the Sonoran has the greatest botanical variety of any desert in the world), Macys says, “The idea is to help people become aware they are part of this whole thing here, this greater ecosystem.”

Given the pygmy owl controversy in the mid- to late 1990s, it’s almost hard to believe that something so sweeping as the Sonoran Desert Conservation Plan even got off the ground. Leslie Dierauf, who made the impromptu visit to Huckelberry back in 1997, credits Behan with bringing the opposing parties together during the plan’s crucial early stages. “She had an open door in her conference room, where anyone could come and vent,” recalls Dierauf, who advised the county on its multiple-species plan and is now with the U.S. Geological Survey. “At first the enviros came, then another week the developers, and another week the ranchers.” Eventually Behan got them all together in the same room, talking to one another.

In doing so she encouraged all the stakeholders to take a role in crafting the plan. Within a few years, as the plan gained momentum and growing public support, even developers could see which way the political winds were blowing. “When I realized the community at large wanted to protect all this land and not just defeat the developers, then I thought, ‘Okay, let’s make a deal together,’” says Peter Backus, a local developer. The plan still allows some home building in conservation reserve areas, but with constraints. For example, Backus has one new development under way in the Rincon Valley, near Saguaro National Park, where, he says, he “ended up giving away 70 percent of open space in return for a higher density of homes clustered together.” Backus eventually supported the plan. “If you create a better community in the end,” he says, “doesn’t everybody win?”

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Even so, there were still powerful holdouts. When, in 2001, a new regional land-use plan for Pima County incorporated the environmental ordinances and growth curbs from the Sonoran Desert Conservation Plan—effectively joining the two plans—opponents shifted into high gear. Republican Jane Hull, then Arizona’s governor, asked the Bush administration to step in and grant state agencies the power to overrule Pima County’s authority. Republican state senators also tried, and failed, to introduce amendments that would strip Pima County of its authority.

Each time the plan faced political death, though, “the broader community stepped up its support,” says Behan proudly. “That was crucial.” Groups like Tucson Audubon, Defenders of Wildlife, the Sierra Club, the Center for Biological Diversity, and others in the coalition mobilized their constituencies. Tucson Audubon, for instance, made dozens of presentations to local civic groups, religious organizations, and rotary clubs. While coalition leaders met with the editorial boards of local newspapers to tout the plan, its members wrote letters to the editor, expressing their support. Meanwhile, the public meetings continued. “I’d say the biggest victory was just sitting down and really hashing out the merits of the plan with the developers and realtors, and working out a solution together,” says Campbell. “That was hard work.”

By 2002 and 2003 a creeping realization had also snuck up on the participants. “Folks recognized they were fighting and fighting for years over what to do about growth, and in the meantime it kept on happening,” says Bill Arnold, a realtor who sits on several of the plan’s committees. “This seemed like a vehicle for a solution.”

The plan's local flavor broadened support even further. Its tagline—"A vision for the future by conserving the past"—rests on preserving Tucson's economic and cultural heritage, including working ranches and historic buildings. It's almost as if Tucson faced up to what was being lost, muses Behan, who is widely credited with shepherding the plan through the byzantine layers of government bureaucracy. Of all the key players I met, Behan, who is now the assistant Pima County administrator, personifies the evolution of attitudes.

Wonkish by nature, she has always been attracted to the nuts and bolts of public policy. But when I visited with her again last year, the walls of her tidy office were lined with ecology books. One of Edward O. Wilson's recent works, *Consilience*—which argues for applying science, arts, religion, and ethics to natural systems—was lying open on her desk. While working to protect the Sonoran Desert, she became so passionate that she enrolled, in 2003, in the arid-lands Ph.D. program at the University of Arizona—which has a focus on desert conservation in the United States.

The Tucson plan may have been sparked by the pygmy owl and stoked by resentment over the declining quality of life, she notes. "But it was also marked by this sense of wonder, as all the biological studies and meetings started to show us who we are as a community, and what kind of world we wanted to live in."

-By Keith Kloor