

# landscape architecture


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A cleansing palette of plants grows atop the elephantine forms of the Elevated Wetlands. Solar panels keep water pumping through. • 72

## FEATURES

### Desert Passage 56

*An ecological restoration on the banks of the Colorado River tests a young practitioner's mettle.*

**By J. William Thompson, FASLA**

### Landscape Organism 66

*After thirteen years, can the West Philadelphia Landscape Project become more than the sum of its parts?* **By Paul Bennett**

### Slouching Towards Toronto 72

*Public art meets public science in an ecologically revelatory work by Canadian artist Noel Harding.*

**By Paul Bennett**

### Candidates on Record 78

*Rodney Swink, FASLA, and Ann Milovsoroff, FASLA—both candidates for ASLA President—answer questions about membership, leadership, and licensure.*



Summer opportunities for college students typically offer slim rewards, and this opportunity seemed slimmer than most. There was no solid job offer, no guaranteed pay, and no offer of a place to stay—just a prospective employer's invitation for the student to drive two thousand miles and then "see what happens." Nevertheless, Fred Phillips, ASLA, then a junior in landscape architecture at Purdue, packed his bags at the end of spring semester and drove from Indiana to southwestern Arizona on the off chance of finding work at the Colorado River Indian reservation.

That was in 1994. Five years later what seemed only the whiff of a summer job had spawned the restoration of 1,042 acres on the east bank of the Colorado River, in the Mojave Desert about a two-hour drive west of Phoenix. Where there was once only barren sand, thickets of invasive, nonnative salt cedar, and clogged wetlands, there are now bosques of native cottonwood and mesquite and a dredged and restored wetland. More than a tale of an energetic student leveraging a summer job into full-time work, this is a case study in the restoration of degraded ecosystems and the challenges of working with a culture very different from one's own.

The story begins with the vision of an Indian leader named Dennis Patch, a tall, imposing Mojave who holds a prominent position as a council member for the Colorado River reservation, the domain of Mojave, Chemehuevi, Navajo, Hopi, and other tribes. His concept was to bring back some of the rich woodlands he remembered from his childhood as a resource for his people.

Non-Native Americans tend to think of Indians as people who have a special relationship to the wilderness. The ironic reality is that most Indian children—on the Colorado River reservation, at any rate—have never even been to a wilderness area, much less learned to live off the land by hunting and fishing. The main reason, says Patch, is that the wild areas on the reservation no longer exist—replaced, mostly, by agriculture or subdivisions. On this reservation, too, the riparian zone has been severely damaged by the rechanneling of the Colorado, transforming it, in Phillips's words, "from a wild, meandering river

*ECOLOGICAL RESTORATION in action:  
These cottonwoods are among the 30,000 trees  
planted on 225 acres of land. Some trees have  
grown thirty-six feet in four years.*

*Wanted: One student for grueling  
project with uncertain outcome, no  
funding in hand, on Indian reservation.*

BY J. WILLIAM THOMPSON, FASLA

# Desert Passage





to something resembling the West's largest drainage ditch." Dams now restrict the floods that deposited soils necessary for riparian ecosystems, and the levees that were built in the engineering of the channel now cut off wetlands and backwaters from the seasonal flooding they need to flourish. As a result, the riverside ecosystems that were prized by the tribes for hunting and other forms of recreation have all but vanished, and fauna native to the orig-

WILLOW, COTTONWOOD, and mesquite seedlings were planted, below, mostly by Indian youths, four years ago in soils that consist of pure sand. Irrigation was necessary for the first growing season; the plantings have been self-sustaining since then.

inal mesquite bosques and gallery forests have ended up on the endangered list. Patch wanted to restore part of the reservation to help preserve the tribes' cultural resources by bringing back some of the biological resources of the area.

Word of Patch's idea reached Purdue via Benjamin Samuel, a doctoral candidate who had worked on Indian lands and who came in contact with Phillips in a graduate-level course in cross-cultural communications. It should be noted that Phillips, prior to his junior year, had not exactly been a stellar student. In fact, he had almost been riffed from Purdue's landscape architecture program, but in his junior year he experienced a turnaround that he attributes to one teacher, Bernie Dahl, who sparked his interest in large-scale landscape planning. In the course of the class with Samuel,

Phillips gave a presentation on Native American cultures, and Samuel, a fellow student who thought Phillips's interest in land planning would make a good fit, mentioned that there might be a job for him out West. Samuel gave Phillips the phone number of a contact person on the reservation, who extended the invitation to drive out to Arizona and see if there was a job available.

When he arrived at the reservation on that May day in 1994, a lone white college kid from the Midwest, Phillips must have looked pretty incongruous in an Indian community in the Mojave Desert. Nevertheless, Patch met with him and took him in his pickup truck to visit several sites on the reservation, starting at the area's biggest housing development. In an article he wrote for the journal *Restoration & Management Notes*, Phillips recalls the tour:

Dennis described the cottonwood forest that used to stand where there are now houses and palm trees. We then continued to a series of other areas where there "used to be" wetlands, forests, thick brush, and wilderness, but where we now saw cotton fields, levees, thickets of salt cedar, and dying wetlands.

Patch and Phillips ended up in an area that Patch had mentally tagged for his preserve—a backwater left over from the original meanders of the Colorado before the river was dammed and channelized. (Judging from the "before" photographs of the site, some of which are shown on these pages, the vista was bleak indeed.) "This is

Part of ecological restoration involves skills such as mapping

and site selection that are in the landscape architect's tool kit.

what you've got to work with, Fred," said Patch. "Do what you can."

So Phillips cleaned out a storeroom at Patch's office, put together a makeshift drafting table, and got to work. But with only one student to carry the project forward, the prospects didn't look too promising. Phillips was able to find some USGS maps, some old aerial photos, and a little other documentation—not much to go on for a restoration on the scale that Patch envisioned, but enough for Phillips to produce a base plan designating areas that could be revegetated with native species. But there were other problems, includ-

ing "tons of negativity," he says, from some of the tribal leaders, who called the project "a pipe dream" and wondered if the project was feasible or even necessary. One of Patch's proposals for the preserve was a community park, to which a local man said that the only park he needed was "my truck under a mesquite tree."

Finally, there was no real funding available for the project.

Although somewhat discouraged, Phillips hiked and camped in the area until he found a ten-acre upland site that would be suitable for the park. He then spent a month drawing up a thirty-inch by eighty-inch color plan and creating a ten-page booklet that he and Patch took to the tribal council, making a favorable impression. That ended the summer, and Phillips returned to Purdue.

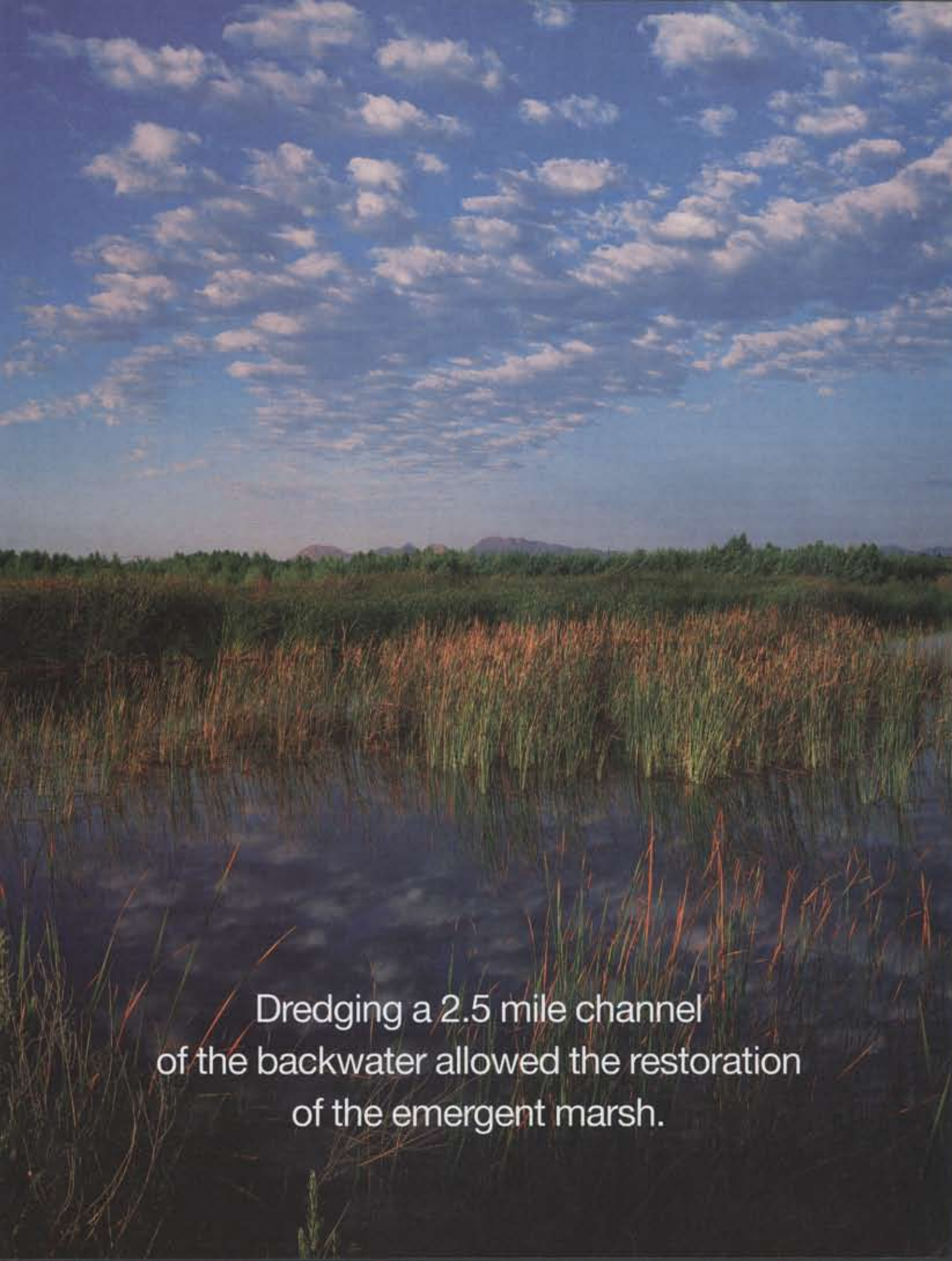
Phillips heard nothing further until early the following year, when Patch called to ask if Phillips could come out during spring break to write a grant proposal for tree planting. Phillips apparently was a quick study in proposal writing, because two months later Patch called to say that the Bureau of Indian

Affairs had granted \$10,000 to plant trees in two acres of the park. (This was to be the first of several grant applications that Phillips worked on; he was to learn that proposal writing is an essential skill for anyone who wants to work on projects like this one.) The initial grant provided enough money to hire Phillips and two interns for the summer. So Phillips, who was preparing to graduate, recruited two other students, Adam Perrilo (now ASLA) and his wife, Sonia Mullenix, a wildlife biology major, and returned to Arizona. There they set up in a small house on the reservation with air mattresses for beds and lawn chairs for furniture, and began drafting the final plan.

Part of ecological restoration involves skills such as mapping and site selection that are in the landscape architect's tool kit, but such restoration cannot succeed without scientific skills as well. In the course of that summer, the fledgling team met four people who would be key to the success of the project: Bertin Anderson, a revegetation and wildlife-management expert with more than twenty-five years experience in native-plant restoration on the lower Colorado; and Dave Wegner, John Nagy, and Frank Protiva of Glen Canyon Environmental Studies (an office of the U.S. Bureau of Reclamation), who guided the ecological monitoring of the restoration and developed a plan for dredging and restoring a critical on-site backwater. The experience and practical scientific know-how







Dredging a 2.5 mile channel  
of the backwater allowed the restoration  
of the emergent marsh.

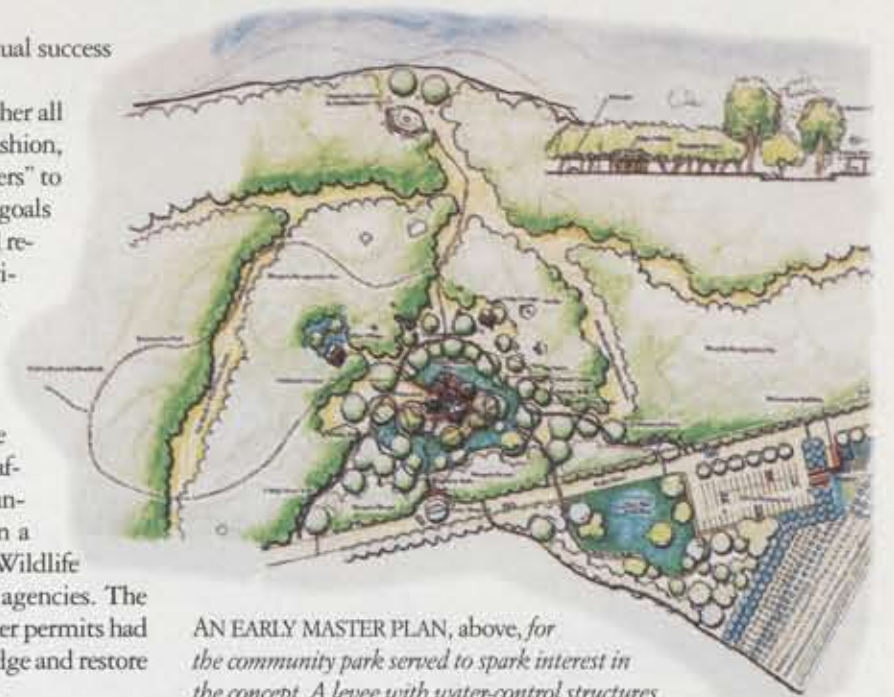
of these consultants would be critical to the eventual success of the project.

Phillips and his student cohorts gathered together all their ideas and information and, in true studio fashion, pulled five seventy-hour weeks and four "all-nighters" to complete the Ahakhav Tribal Preserve Plan. Its goals were ambitious: to combine tribal, state, and federal resources to restore and monitor a wetland and riparian woodland, create a nature park, establish a native plant nursery, and implement an environmental education program for tribal members and visitors. The key to the plan's acceptance, recalls Phillips, was listening to and incorporating the ideas and comments of everyone who might be affected. After the plan was approved by the tribal council, Phillips went to work seeking permits from a number of agencies, including the U.S. Fish and Wildlife Service, the Bureau of Indian Affairs, and other agencies. The longest permitting process of all—because the other permits had to be in hand first—was obtaining a permit to dredge and restore the backwater from the Army Corps of Engineers.

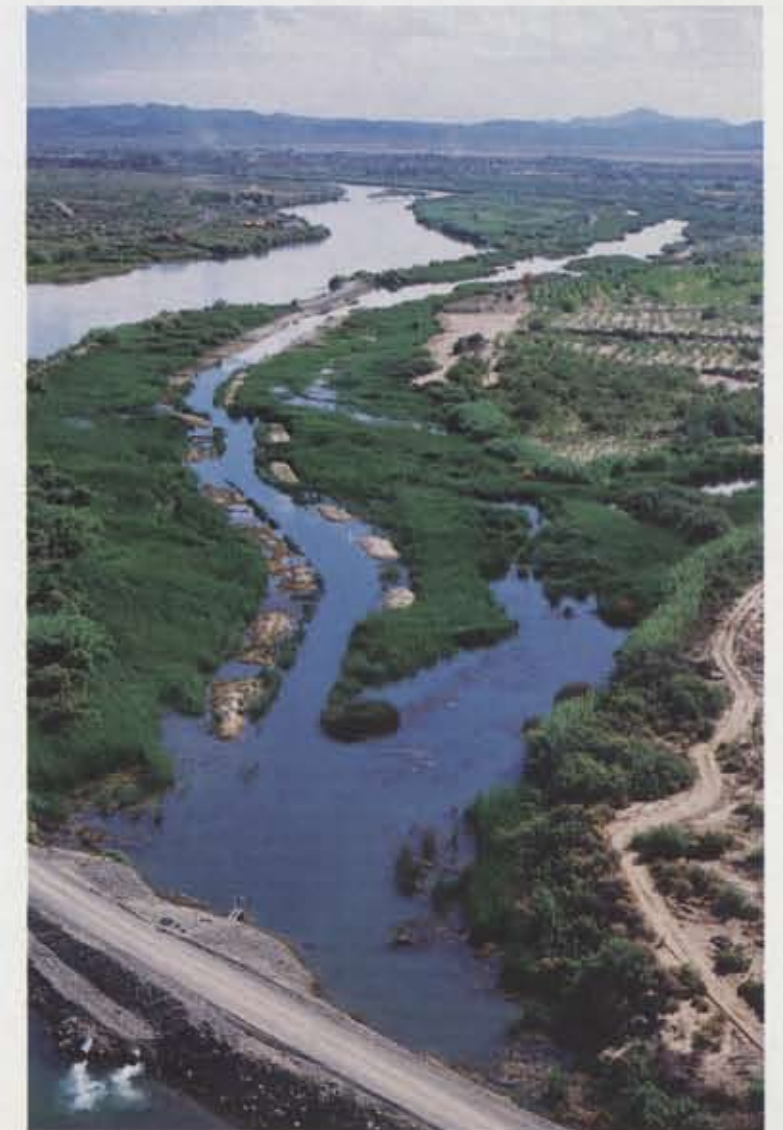
At the same time Phillips continued to hone his emerging skills in writing grant applications. The time must have been ripe for the project because, only seven months after receiving their final permits, the preserve had received \$2 million in grants and in-kind services. The preserve has received other grants for a total of \$5,345,000 to date. The largest grantor was the federal Bureau of Reclamation, which built the dams upstream on the Colorado—and thus was part of the reason for the impoverishment of the riparian areas in the first place—and had a role in the Central Arizona Project, a controversial canal that transports water 336 miles across the desert to Arizona's thirsty cities. Although Phillips was happy to get the funds that enabled the project to go forward, the irony of receiving restoration funds from "the dam builders and the canal builders" is not lost on him.

A major part of the project, begun in 1996, was to restore a backwater—formerly a bend in the Colorado that was cut off when the river was channelized, causing a historically productive wetland to silt up and become choked with invasive cattails. Rerouting the river to reestablish its full flow through the backwaters would have been out of the question, but the restoration consultants determined that, if the backwater were dredged to its historic depth, a levee with a series of water-control structures would allow the preserve staff to raise and lower the water level, emulating the flooding that was a historic part of the ecosystem. So, the U.S. Bureau of Reclamation dredged 300,000 cubic yards of anaerobic muck out of a 2.5-mile channel of the backwater over a one-year period, allowing the restoration of the emergent marsh and low-lying vegetation adjacent to it.

In 1997 Phillips became project director and, with initial grant monies in hand, assembled a preserve staff who began clearing and revegetating the riparian zone. Foremen and workers were recruited from the reservation. Wielding pick and shovel and pushing wheelbarrows in 115-degree heat, the youths, following a revegetation plan by Anderson, planted more than thirty thousand trees. These were grown

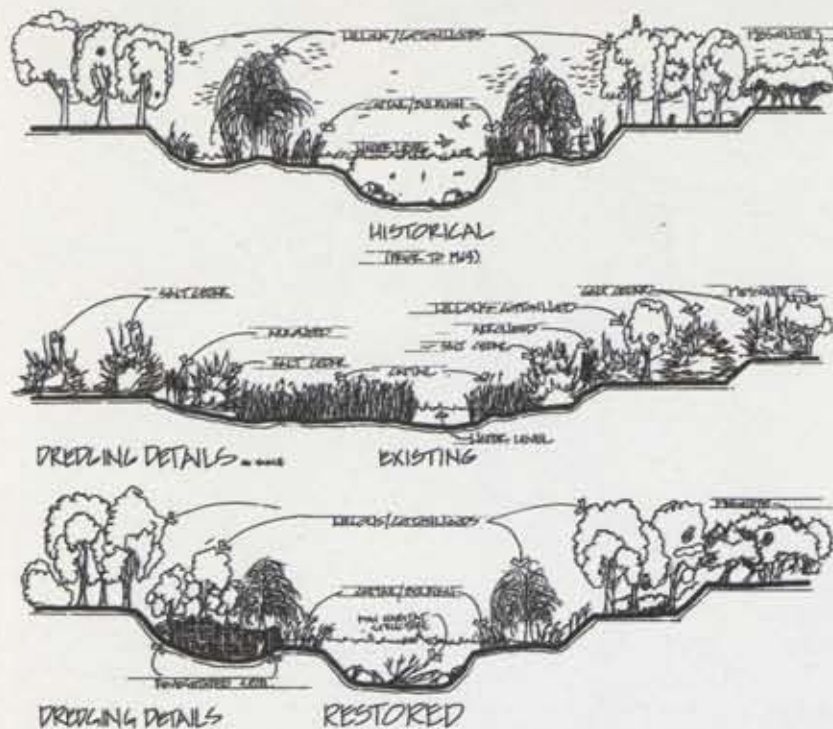


AN EARLY MASTER PLAN, above, for the community park served to spark interest in the concept. A levee with water-control structures allows the flooding of the backwater, below.



FRED PHILLIPS, TOP; RANDY PRENTICE, BOTTOM AND OPPOSITE





terminate from work crews for slacking off on their jobs. His most vivid memory, however, is of a contractor he hired who had a habit of showing up for work drunk when he showed up at all. When the contractor fell two weeks behind on his job, Phillips confronted him for the third time in the field and asked him to shape up—or be replaced. The contractor, who was with two other men, all of whom towered over the short-statured Phillips, flew into a rage. Clenching both fists, he brought them crashing together on Phillips's ears, following that with a punch that knocked Phillips off his feet. Phillips picked himself up and high-tailed it away from there, then had a restraining order put on the contractor and hired a replacement; but such incidents took their toll. More than once he considered packing up and leaving, but on reflection realized that he cared too much, and had invested too much in the project, not to see it through. The ability to take one's lumps and keep moving forward is, he learned, a requirement of working on such a project. Of his overall relations with the local residents, Phillips reflects that "I was surprised that I was treated as well as I was after what the white man had done to them."

on site in a native-plant nursery designed and planned by Tania Garcia, a Navajo, with botanist Christina Rinderle and Phillips, and overseen and largely staffed by Native Americans.

One aspect of the project that was both stimulating and challenging for Phillips was being an outsider within an Indian culture. Although he made many firm friendships on the reservation ("I felt as if they had taken me on as a family member," he says of many of these friendships) and was even invited to participate in some of the ceremonial dancing and singing of the tribes, there were other encounters that suggest that outsiders, even those with the best intentions, are not always embraced by the people they have come to help. Phillips attributes this to "animosity coming from what our forefathers did a century ago—how we almost destroyed their culture—that has been passed down from generation to generation."

Examples of this residual animosity were the death threats he received from youths he had to

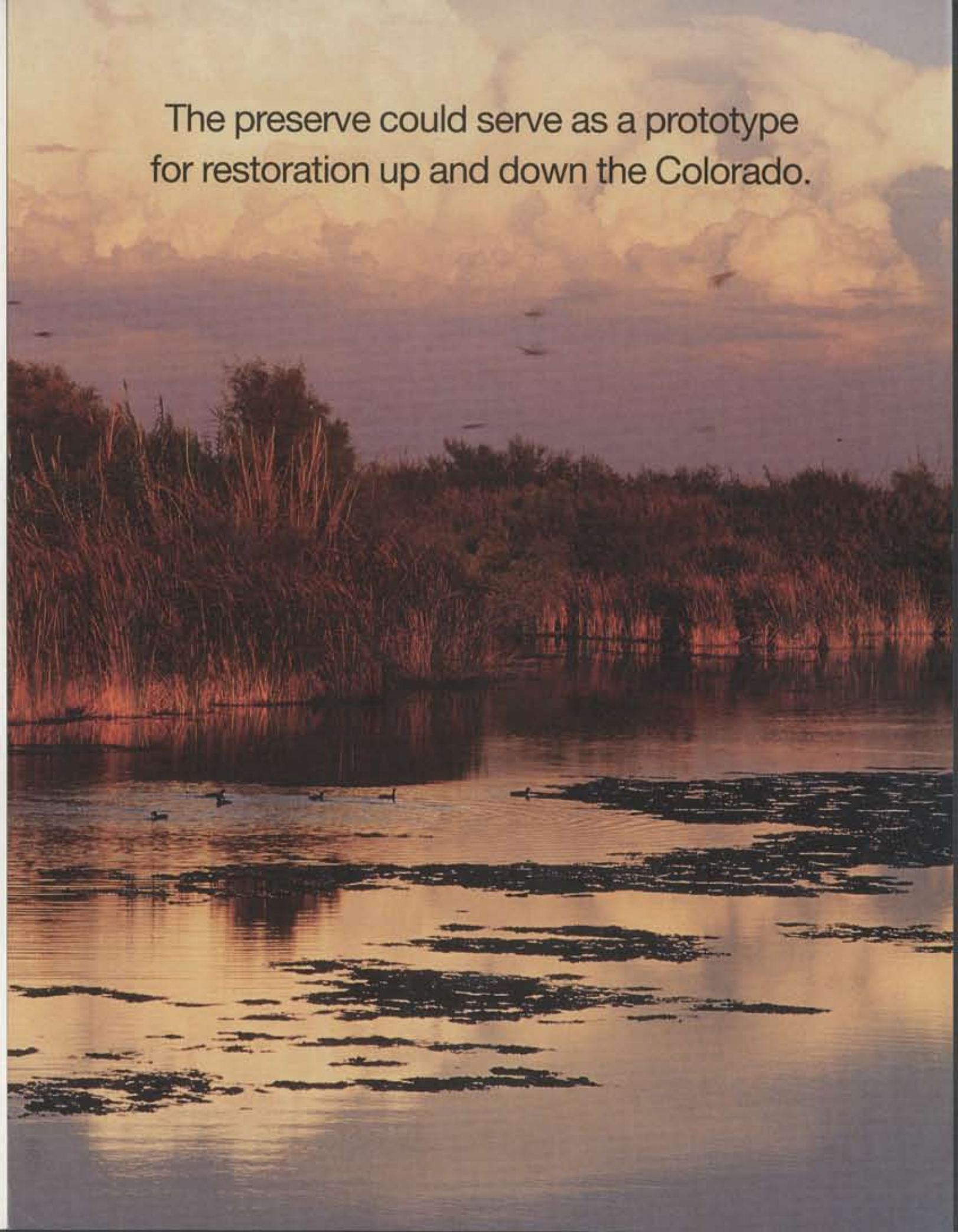
On a hot Mojave Desert afternoon, Phillips walks through the tree plantation in the 225-acre revegetated area of the preserve. "I love it back here," he says. "It's cooler than it used to be." And indeed, the temperature in these bosques is noticeably more pleasant than in the open desert by virtue of evapotranspiration from the willows and cottonwoods that have been planted here.

This is clearly a healing ecosystem. Leaf litter has yet to cover up the soil—which is pure sand—in many places, and the black irrigation pipes (turned off since the first year after tree planting) still snake through the trees. There is very little understory as yet. But the real surprise is the sheer size of the cottonwoods—thirty-six feet tall, many of them, after having been planted four years ago as six-inch seedlings and having grown, at times, as much as an inch a day. (Anderson, contacted by phone, notes that tree "mortality is very low, and the growth is very good for the most part. Even though

THE "BEFORE" photograph, below, of the backwater shows the extent to which it was choked with exotic vegetation. (The Colorado is at the left in photograph.) The sections above show how restoration would attempt to replicate a historic condition.



The preserve could serve as a prototype for restoration up and down the Colorado.







The park is “a hidden oasis” where several weddings have already taken place.

they were planted only four years ago, many of the trees have already reached our five-year goals for them.”)

And the wildlife is coming back. Phillips notes that the restored area is habitat for belted kingfishers and other bird species. The willow flycatcher, an endangered species that was native to the site, hasn't come back yet, but, at last count there were fifteen to twenty-five bird species inhabiting the site, about double the number of species before restoration. He is excited when he comes upon a bird's nest—and even more so when he sees a progression of hoofprints. “Deer tracks!” he exclaims. “Lots of 'em. You didn't see any of those in here even a couple of years ago.”

Phillips walks back to the community park, four green acres surrounded by a berm that separates it from the wilderness area. The



RANDY PRENTICE: TOP; FRED PHILLIPS: BOTTOM

park features an irrigated lawn, thornless Chilean mesquite trees, a visitor's center, picnic tables, and barbeque pits. Patch, who has just pulled up in his van, says that the park is “like a hidden oasis” and that several weddings have already taken place here. In the preserve as a whole, environmental education is going forward in the form of canoe and camping trips, interpretative hikes, and a summer day camp. The preserve has served as a site for “service learning” for students from outside, such as groups from California State University, Los Angeles, who have visited several times to build rustic ramadas, help in the nursery and, of course, plant trees.

Looking toward the future, Patch's vision is that the preserve serve as a prototype for restoration up and down the Colorado and on other reservations. Tribal people, he says, “have (Continued on Page 86)



HYDROSEEDING AND IRRIGATION have transformed the barren sand, opposite below, into the green community park at left. A conceptual bird's eye perspective, above, showed the community park area close to the backwater; it was eventually moved back from this sensitive habitat area. The park features rustic barbeque pits, below.





## Desert Passage

(Continued from Page 65) to find ways of making money from their natural resources without destroying them." In all, groups from more than ten Indian tribes—most recently, a delegation of Zunis from northern New Mexico—have visited the preserve.

Non-Indians are curious too, and representatives of various universities and more than fifteen federal agencies have toured the site to gain ideas. The preserve has also hosted the Multispecies Conservation Program, made up of California politicians and officials of the Los Angeles Metropolitan Water District, which, as Phillips puts it, "basically drains entire rivers to feed L.A." The program will potentially spend \$500 million over the next fifty years to restore damage done to the lower Colorado by downstream water users such as Los Angeles.

The preserve seems to have moved into a stabilizing phase with the arrival of a new director, Fred Johnson, who has taken over since Phillips left last October.

He is a landscape architect from Pensacola, Florida, who found out about the position from a posting that Phillips put on the JobLink listing on ASLA's web site. With two degrees in landscape architecture—and additional degrees in recreation planning and historic preservation—and long experience as director of a landscape program at a community college and as a partner in a land-planning firm, Johnson is clearly a different animal from Phillips. He sees his role as that of consolidating gains. Currently, he is overseeing the completion of 3.5 miles of trails; designing a beach and swim area on the backwater at the terminus of the trail; and completing the restoration of a second backwater downriver—all grant-funded projects that were awarded and designed during Phillips's tenure. The native plant nursery is also going great guns, he says. "We're supplying the material for every revegetation project up and down the Colorado. We're nonprofit, so the money is funneled back into the park for capital and operations." Canoe and pontoon boat rentals are also income sources, another initiative begun earlier that will help to make the reserve self-supporting through tourism. "We're not doing much revegetation now," says Johnson. "We're mostly into construction and monitoring what

has already been done before we do the next batch."

Johnson's goal, he says, "is to bring the preserve forward to where it's self-sustaining." An important part of that is encouraging tribal youth to seek training so that the reserve will have skilled members to step in and take over—including taking over Johnson's own job in a few years. For now, however, Johnson views his work on the reserve as "the opportunity of a lifetime. It's not often you find elected officials who are supporting an environmental project," he says, "and these tribal officials are enthusiastic about this project."

For Phillips the past five years on this project seem a rite of passage from callow student to battle-scarred veteran. For the moment, he admits to feeling exhausted by the rigors of the Ahakhav restoration and, although he still does some consulting with reservations, he would not seek a full-time project of this sort anytime soon. He is now trying to start his own consulting practice in Durango, Colorado.

What does it take to make a project like the Ahakhav restoration happen? Looking back over the past five years, Phillips ticks off a few essentials:

- A project manager of almost unlimited energy who is willing to absorb a lot of abuse and still keep the project on track.
- A local champion who holds political office and who can keep public momentum going for the project.
- A team of qualified consultants.
- Seed money.
- Some basic equipment and a place to work.

For young landscape architects who want to get into this kind of work, Phillips adds that the learning curve involves, among other things, proposal writing and fundraising—subjects that are not taught in landscape architecture schools. Even more critical, he says, is the ability to work with people from cultures and backgrounds very different from your own—something that is taught in few, if any, college curricula. How, then, does a student acquire such skills?

The problem, says Phillips, is that most of us, students included, tend to stay within the confines of our own social circles where we feel at ease. To break out of this, he says, one may have to deliberately get into situations where you feel uncomfortable. He even

advises contriving circumstances that test your resourcefulness—such as "getting on a bus with a one-way ticket to a strange city and very little money. Sink or swim." Beyond this, he suggests seeking summer jobs and internships with different cultural and economic groups. (Phillips spent summers in high school working with poor communities in Appalachia.) Another bit of advice: "Get off your drafting tables and get your hands dirty" in building projects in the field.

All in all, the Ahakhav restoration offers a model for practicing landscape architecture that is very different from conventional practice. The Ahakhav Preserve reminds us that, far from the corporate campuses and subdivision layouts of standard practice, there is another realm, that of the ecological restoration movement, whose goal is literally to restore native ecosystems that have been reduced to wastelands, making them bloom again. **LA**

### HOW TO GET THERE

The Ahakhav Preserve is outside Parker, Arizona, which is on Highway 95 west of Phoenix. From Parker, the Reserve may be reached by boat from the Colorado River or by land from Rodeo Drive, a dirt road. For information call 520-669-2664.

### RESOURCES

Phillips has told his own story in the Winter 1998 issue of *Restoration and Management Notes*, the journal of the Society for Ecological Restoration. Single copies of the article may be obtained upon request from Phillips at [hyabokabe@hotmail.com](mailto:hyabokabe@hotmail.com) or 970-375-0343.

### PROJECT CREDITS

**Project director:** Dennis Patch, Colorado River Indian Tribes.

**Project designer, planner, and administrator:** (prior to October 1999): Fred Phillips, ASLA, Phillips Consulting, Durango, Colorado.

**Consultants:** David Wegner, Ecosystems Management International, Durango, Colorado, and Sheppard Wesnitzer Engineering, Flagstaff, Arizona.

**Revegetation contractor:** Bertin Anderson, Revegetation and Wildlife Management Center, Blythe, California.

**Dredging contractor:** U.S. Bureau of Reclamation, Yuma, Arizona.