

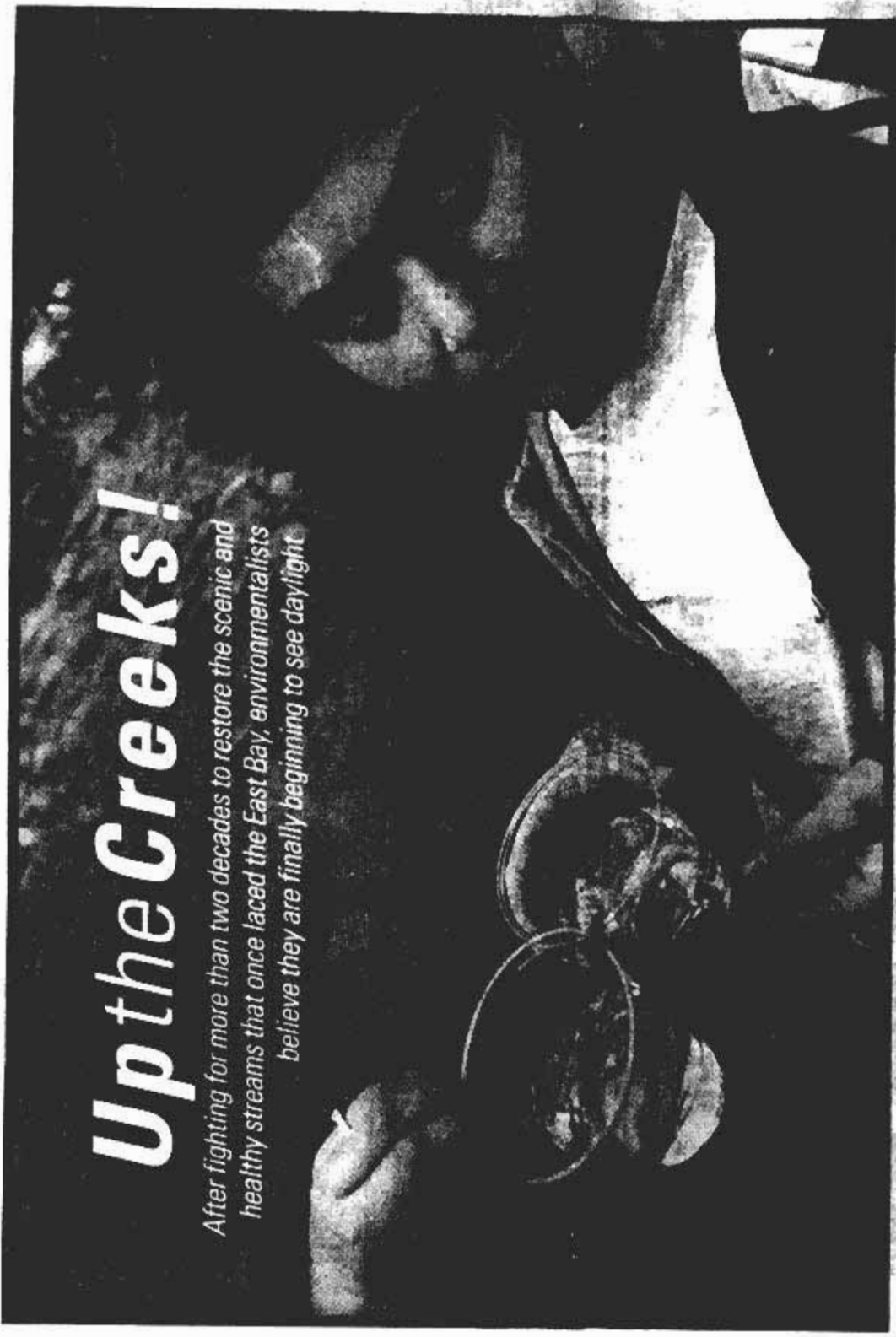
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## Up the Creeks!

*After fighting for more than two decades to restore the scenic and healthy streams that once laced the East Bay, environmentalists believe they are finally beginning to see daylight*



A photograph from Purdin Elementary School in Possession releases an inch-long steelhead trout into Alameda Creek

I grew up east of LA, a block from the site of a former creek that had once created a shady corridor of willows and bunch grass on a winding path that ended at the Los Angeles River. I could only guess, and poorly, what I might have found as I wandered along the creek's sandy bottom on a barefoot summer afternoon, for by the time I met this waterway in the mid-1950s, the Army Corps of Engineers had already been there. The resulting "flood control channel" had a flat concrete bottom and ten-foot-tall concrete box sides; it was flanked by high chain-link fences topped with barbwire. In some winters with especially heavy rains a child or two, intrigued by the sudden flood water, found an opening under the fence somewhere along the channel's straight path and was carried away.

I watched the flood control channel with the fascination we reserve for convicted serial killers; its obvious menace was well documented on the TV news, and the repeated warnings I heard about it echoed in my ears. Still, I felt an aching loss when I looked at its concrete glare, an angry grief I couldn't name because I didn't know what I'd lost. All through my childhood I carried the question: "Why is the water in jail?"

Back in 1936 Congress put the Army Corps of Engineers in charge of flood control for the nation. The Los Angeles River was its first big project and the model for all the rest: a flat expanse bare of all vegetation, framed by sloping concrete sides—my neighborhood channel a hundred times bigger. Flood control and bank stabilization were the Army Corps' goals; it was expressly forbidden to consider anything else in its projects, whether it be wildlife habitat, recreational uses of the waterway in question, the safety of children, or plain ugliness. According to the engineering reasoning of the time, the most efficient way to control flooding was to move the water as quickly as possible—no creekside willows to tangle it, no deeper pools where water could linger, and certainly no bends or curves to slow it down. Faster flows meant that the water could carry more sediment, to be deposited farther downstream, presumably out of the flood zone, rather than silting up the waterway. That was the theory. *continued on page 10*

**by GINACOVINA**

**photographs by FAITHCATHCART**

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Here in the East Bay, creeks had seen rough trade long before the Army Corps got around to them. Cattle that came with the Spanish in the 1700s messed with the creeks first, but the degradation caused by grazing looked minor after the discovery of gold. San Francisco grew from a town of 500 to 25,000 in one year, and housing for the influx was built with thousand-year-old redwoods. The giant trees were skidded down East Bay creeks to the bay and towed across. When in 1869 Oakland became the western terminus of the transcontinental railroad, East Bay urbanization picked up even more speed. By the 1920s both San Francisco and the East Bay had set up systems for procuring municipal water directly from the Sierra, and in the public eye local water shifted into forty years of irrelevance; local creeks came to be seen as nuisances rather than assets.

As the East Bay flatlands were built up more and more densely, many creeks were simply buried in culverts under long stretches of urbanized landscape—41 miles of buried creeks in Berkeley alone. At the southern reach of the East Bay, Alameda Creek was too big to bury, while

completely blocked the flow of water when in use, and, certainly not least, the Army Corps of Engineers came to town. Before the '60s ran out, the eleven miles of Alameda Creek between Fremont and the bay had become a straight flat channel 150 feet wide, constructed on the model of the Los Angeles River project; though local fisherpeople could tell you a different story, the official word was that steelhead and salmon on this waterway were extinct.

At the northern reach of the East Bay the '60s were another story. The wetlands of North Richmond were settled during World War II by African Americans, many from Mississippi and Arkansas, who came to work the shipyards. They quickly built housing segregated them on Wildcat Creek's floodplain, a low flat stretch of marshy land that flooded a bit even in drier winters; about every third year the creek flooded enough to put the entire community under a foot of water. At the end of the war when the shipbuilding industry evaporated, North Richmond remained: a suddenly impoverished town with substandard housing, regular flooding, and no storm water system in place.

In 1956, the Contra Costa County Flood

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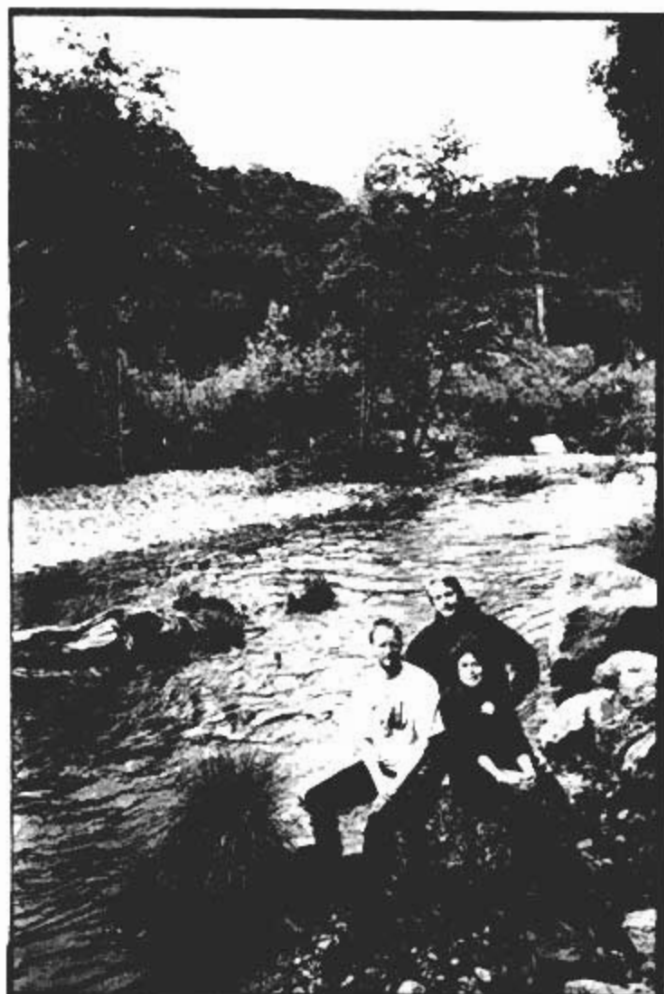
*"Creeks tend to bring out the creativity in people, and they naturally promote cooperative planning. I see creeks teaching us how everything is connected."*

draining a 700-square-mile watershed, it braided together dozens of small upper creeks and then doubled back on itself in broad loops toward the bay through the quickly growing towns of Fremont and Hayward. By the late 1950s flow reductions, water pollution, and other habitat degradation had reduced the creek's annual steelhead run to a trickle of its former thousands, so the California Department of Fish and Game officially wrote off Alameda Creek, the largest tributary to the south bay.

Alterations to the waterway then proceeded with no regard for fish habitat: three reservoirs impounded more water, the railroad built a sloping concrete base for its bridge (impassable for steelhead or salmon migrating upstream), the Alameda County Water District set up inflatable dams that

Control District requested a federal flood control project for Wildcat Creek. Four years later, Congress authorized the Army Corps of Engineers to do a feasibility study; the Corps got out its slide rules and after eight years came up with a plan that looked just like every other flood control channel it'd built. Not so fast, though—North Richmond failed the federal government's cost-benefit test, which balanced the cost of the flood control project against the value of the buildings to be protected from flooding. It was decided that the dilapidated housing of North Richmond was not worth protection, and in 1968 the plan was dropped.

That such a rejection could be a blessing in disguise began to occur to Lillie Mae Jones and other active local residents a few years later when, through



Left to right: Jeff Miller, Pete Alexander, and Annette Thompson

the federal Model Cities Program, they'd developed an urban renewal plan for their community that featured their creeks and shoreline as recreational resources. Though they had to have a rowboat to get around town some winters, they still saw the creek as a potential asset and didn't want to dispose of it entirely. Meanwhile federal regulations shifted to allow such items as potential recreational benefits to figure in cost-benefit equations, and the Army Corps was directed to include public participation in its planning process and to consider broader objectives in addition to flood control. Richmond citizens worked with the government engineers on a new flood control plan; it was the Army Corps' first venture into the very new world of cooperative planning. By all accounts they behaved quite well. In 1979 the Corps presented the

result: the usual concrete channels, with the addition of a dirt section with landscaping, a regional trail, some ponds, and a nature study area near Verde Elementary School beside Wildcat Creek.

The catch this time was that federal policy required all easements, right-of-ways, and land acquisitions, plus fifty percent of the recreational components, to be paid for by the community. This didn't sound impossible at first—though most Richmond residents were poor, the town was home to major businesses—but some of the biggest corporations, including Chevron Oil and the Richmond Sanitary Company, refused to contribute. Richmond was unable to raise its share of the project's cost, and moved into the '80s with a quarter-century of flood control talk behind it and no storm water system whatsoever.

**"After seventeen years of thinking of the flood control district as an enemy, I now think we're in a partnership situation."**

I had been pulled north from Southern California to the East Bay like an iron filing to a magnet the year I turned eighteen, sure I'd found my cultural homeland in Berkeley. I wandered miles of creeks in the hilly regional parks, making up for my jailed water childhood; I watched the creeks disappear into ivy-draped concrete tunnels as they approached the flatlands. Two people who would become central to a major shift in the way we treat creeks also migrated to the East Bay around that time: Ann Riley, of whom we'll hear more later, and Carole Schemmerling, a born networker whose brightest childhood memories revolved around the creek her grandfather took her to explore outside Philadelphia. Carole walked the East Bay creeks too, but she couldn't stop thinking about the buried parts. In 1979 she was appointed to Berkeley's Parks Commission, so when the city acquired two right-of-way railroad parcels off Addison Street to turn into a park, Schemmerling already knew that Strawberry Creek ran under the property and felt sure the time had come to dig it up.

The idea of "flaglighting" a buried creek across vacant land in a part of town that had no park proved popular; plans were also drawn up to restore the bit of Derby Creek that crossed under battle-weary People's Park, but the university did not approve, and that plan was shelved until much later. Strawberry Creek Park opened in 1981, featuring a restored stretch of creek complete with the curves and meanders real waterways follow; its urban history showed in the tumbled slabs of broken pavement used to line the steeper banks. The next year Schemmerling was in on the creation of the Urban Creeks Council, a nonprofit advocacy group she still directs, and lobbied successfully for the passage of Berkeley's moratorium on the culverting of its remaining creeks. A grass-roots creek restoration movement had begun.

The desire to bring back natural creeks would have gone nowhere if culverts and concrete channels had been successful at controlling flooding and erosion, and if viable above-ground urban creeks had not turned out to be a better engineering solution. But by the

late 1970s the pitfalls of conventional flood control structures had been demonstrated: Concrete channels, when they "worked" by moving water quickly, increased that water's erosive force, destroyed marine life by depositing too much sediment at former creek mouths, and actually destabilized streambanks because they made them impossible places for streamside plants that make thick mats of roots. Not only that, but they didn't even work from a purely mechanical point of view: since the big volumes of water necessary to keep sediment suspended come only occasionally, many channels silted up. Keeping them from flooding over then required the costly and unanticipated maintenance job of dredging.

Underground culverts, on the other hand, were often built too small to carry the water volume of the biggest storms—if they blew out, they created sudden sink holes that collapsed whatever had been built on top of them; if they backed up, they sent water up storm drains to bubble onto the streets. Because the urban land surrounding these flood control channels and culverts had been almost entirely covered over with buildings and pavement, rain could no longer soak into the ground to replenish the water table, with two results: creeks that had once run year-round were now dry in summer; and in winter, waterways had to take every drop of run-off, and flooded much more often than before. When storm water then found its way around and under concrete, it sometimes created worse erosion than would have occurred had nothing been done. The Corps' solution: bigger channels and more concrete.

Clearly, new vision would have to come from somewhere else, and as it turns out, that vision had been incubating right here. When Luna Leopold, widely known as the founder of the modern study of rivers, accepted a professorship at UC Berkeley in 1982, he persuaded Ann Riley, who'd consulted Leopold during her undergraduate work on restoring Buffalo Creek (in Iowa) to move here too. By the late '70s, Leopold (son of Aldo, one of the founders of the field of ecology) had amassed 25 years of experience in the study of rivers. He re-



Ann Riley and Luna Leopold

named the field of hydrology (the study of water) to the more precise "fluvial geomorphology" (the study of the shapes and features of rivers and their origins), and had written the defining textbooks for the field. (His *Fluvial Processes in Geomorphology*, published in 1964, was reprinted without changes in 1995.)

Riley, a small and deceptively unassuming dynamo of a person, studied under Leopold for her doctorate degree in environmental planning with a specialty in river restoration, floodplain management, and water policy. When she emerged from Cal, her passion for creeks had been fortified by technical knowledge. Additionally, she has the ability to think from many angles at once, to integrate the technical details with social ben-

efits, wildlife habitat values, and that mysterious spirit common to living waterways. Eager to demonstrate that restored creeks could deliver better flood control, she headed off to Sacramento, where the intellectual experimentation that characterized Jerry Brown's governorship had percolated down even to the Department of Water Resources. Riley was able to work toward the creation of a statewide creek restoration program. She kept her home in Berkeley, though, and commuted; she was here when Luna Leopold was called by Richmond residents to consult on the matter of Wildcat Creek. Leopold asked Riley to meet with the community, and they in turn asked her to work with them. As Lillie Mae Jones recalls of that period, "Riley and I used to walk the creek and see what could be done."

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National politics had already lurched right into the Reagan years, so the Army Corps of Engineers was again instructed to ignore environmental quality and go for least-cost/most-concrete flood control, with local residents being required to pay a bigger share of the costs than ever. Thus, in 1982, Contra Costa County proposed yet another project for Wildcat Creek—this time a bare concrete channel with no amenities added. Lillie Mac Jones still remembers the meeting at which the Board of Supervisors presented this plan to the community on a take-it-or-leave-it basis, arguing that North Richmond could not afford anything else. But North Richmond residents had already imagined, for years on end and in fine detail, a far better plan. "Everybody got ticked off with the county," Jones recalls, "so they volunteered their time to come up with something else."

The Richmond Neighborhoods Coordinating Council invited other local organizations with an interest in preserving Wildcat Creek to look at the county's proposal—including Save San Francisco Bay Association and the newly formed Urban Creeks Council. They brought in two prominent hydrologists, Phil Williams and Luna Leopold, and had them explain the engineering deficiencies they saw in the county's plan—namely that the Corps had substantially underestimated the amount of sediment moving through the creek, and that the sediment would inevitably decrease the capacity of the channel, destroy marine habitat at the creek mouth, and create expensive and frequent maintenance needs. Department of Fish and Game representatives also came to public meetings to talk about Wildcat Creek's status as one of the last remaining streams in the Bay Area with an almost continuous riparian environment along its length. The community discussed the plan's lack of recreational and educational benefits, and the difficulty of raising the local share of costs given such an unattractive proposal. The safety hazard of a box channel next to Yerde Elementary School was not ignored.

## Up the Creeks!

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While the county went on working with the Army Corps of Engineers to finalize the bare channel plan, the Richmond Neighborhoods Coordinating Council and the Urban Creeks Council set about designing their own plan. They successfully applied for grants from the Vanguard Foundation and San Francisco Foundation, and with additional assistance from Save San Francisco Bay Association and the East Bay Regional Park District raised \$50,000 for a planning budget. Their plan featured a natural meandering creek with a narrow channel for the low flow seasons and a wide flood plain to accommodate storm flows and serve as a recreation area the rest of the year. Trees and shrubs were integral means of bank stabilization, with trails and parks built in. The community planners developed cost estimates and a funding plan along with their design, sources of funding were not hard to find for such an innovative, environmentally beneficial, and community-unifying project. They also insisted on presenting their plan every time the county's plan was shown to the public or to government agencies; slowly but steadily the community's alternative plan gained more support while the county's plan looked worse and worse.

Upstream from Richmond, various friends of trout had been eyeing Wildcat Creek for its potential value as a habitat. East Bay Regional Park District biologists surveyed the creek in 1982 for its suitability, and determined that the upper

creek in Wildcat Canyon could again support native trout (which hadn't been seen there in over sixty years). The Department of Fish and Game agreed, and issued the necessary permits, and in 1983 Annette Thompson, sponsored by the Grizzly Peak Flyfishers, gathered eggs of the nearest native trout, in Redwood Creek, and raised them into the inch-long fishes called "fry." Thompson and EBRPD fisheries biologist Pete Alexander released 615 trout fry into upper Wildcat Creek in September of that year.

The fish would help gauge the health of the creek in two ways. First, trout need cooler, cleaner water than many fish. For trout to thrive, the water would have to be shaded by creekside plants and remain deep enough to stay cold. Trout spawn in gravel on the streambed; built-up sediment at the bottom keeps water from circulating around the eggs and kills them. Second, the trout from Redwood Creek were actually landlocked steelhead, the form of rainbow trout that migrates to the ocean as two- or three-year-old fish, spends a few years at sea, and returns to its home stream to lay its eggs in that clean gravel. The length of Wildcat Creek that the transplanted trout could inhabit would demonstrate the creek's health. If the fish could get to the bay and back, they'd remain rainbow trout and no one would complain. But releasing those 615 fry also represented a slim hope for a future in which steelhead could navigate the entire creek.

Trout advocates picked a good year for

their experiment, 1982-83 was an El Niño winter, with rain well into the spring and much more water in the creeks than usual. At the south end of the county, it was a busy winter for friends of fish along Alameda Creek too. The "extinct" steelhead and salmon were using the high waters to try for a homecoming; many made it up the eleven miles of flood control channel only to be stopped by the sloping concrete barrier below the Fremont railroad crossing. Some local fishermen couldn't stand to watch the big fish throw themselves over and over against the concrete; they waded out, caught the thrashing silver fish with their hands, wrapped them in wet burlap sacks, and carried them up beyond the barrier.

Back in Richmond, by early 1985 the Contra Costa County Board of Supervisors went ahead and approved the bare channel project for construction. The county's approval didn't mean much, though, because when the US Fish and Wildlife Service stepped in to make its required biological review, it rejected the county's plan as too damaging to marshlands and instead adopted the community coalition's project as "the prudent and reasonable alternative." The San Francisco Bay Conservation and Development Commission did the same. Unable to do otherwise, the county reluctantly agreed, not to accept the community's plan, but at least to try for some middle ground. The Board

of Supervisors set up yet another design team, this time with representatives from all sides. Their goal was not to make a decision by majority vote but by consensus. The engineers from the Army Corps had to find common ground with Phil Williams, the community coalition's hydrologist. Contra Costa County Flood Control District had to agree with the California Department of Fish and Game, the East Bay Regional Park District was involved, and the Coastal Conservancy, and the local Assembly, Senate, and congressional offices, as well as the Richmond Neighborhoods Coordinating Council. Ann Riley and Lillie Mae Jones attended grueling meetings that were sometimes scheduled as often as every week and averaged twenty representatives with very different viewpoints.

But to Lillie Mae Jones and other North Richmond residents, already veterans of decades of aborted flood control planning, the meetings, no matter how contentious, were welcome; finally the planners were including the people who would have to live with the results.

As Jones remembers, the Army Corps gradually changed its outlook "because we didn't let up on them. We were prepared to go to the President—we didn't care. They didn't live here so they didn't know." Though the process was hellish, consensus planning eventually accomplished what thirty years of conventional top-down design had not: a flood control project for Wildcat Creek was designed, approved by every government agency and interest group involved, fully funded, and construction began within two years.

The Consensus Plan for Wildcat Creek kept the water within the same narrow right-of-way boundaries (180 feet) designated by the county's 1982 bare-bones plan, and provided the same level of flood protection, but accomplished these objectives by following the principles of natural channel geometry pioneered by Luna Leopold and championed by Ann Riley: a meandering low-flow channel with riparian shrubs and trees to stabilize the banks, and wide flood plains where high waters could spread out, slow down, and deposit sediment. The State Lands Commission purchased a transition zone between the creek and tidal marsh to function as both a trap for sediment and a public park; the school district donated more land along the right-of-way to allow for a more child-friendly design past Verde School. Right up until it happened, no one would have guessed that Wildcat Creek would become the first demonstration project for a new paradigm in flood control, but soon laypeople like Jones were talking about bioengineering and watershed management.

The late 1980s saw growing neighborhood interest in creek restoration and a corresponding shift in perspective for the hydrologists at the top of the flood control food chain, the middle ground of bureaucrats, engineers, and flood control maintenance workers lagged far behind. Due in large part to the efforts of Ann Riley, who actually wrote the legislation, the Urban Stream Restoration Program was begun in 1985 as a project of the Department of Water Resources; it provided grants and technical assistance for small community-based restoration projects statewide. At the same time the Urban Creeks Council sprouted new affiliates and chapters, becoming a statewide resource for neighborhood friends of particular creeks. Berkeley sidewalks blossomed colorful stenciled creek names over buried waterways when eco-artist Richard Register and the Bay Area Citizens for Creek Restoration began their mapping project in 1988—an activity still carried on by Friends of Five Creeks and other neighborhood groups. On the national level, Congress authorized the Army Corps of Engineers to restore environments damaged by its own flood control projects when asked by local governments to do so. Apparently, the Army Corps didn't know quite what to make of this, so it took ten years to develop policies to implement the law, and two more before it agreed to try an actual project: a redesign of a fish ladder that had never worked on Wildcat Creek.

In Richmond, by 1987, the consensus design team soon found that handing its blueprint to the county didn't mean that

construction would proceed according to the plan. The Army Corps engineers, the county flood control district employees, the heavy equipment contractors, all were being asked to do work that went against everything they'd learned. Sometimes they did what they knew instead—bulldozing riparian vegetation, straightening and flattening, constructing a levee that destroyed a marsh restoration project (that one caused the Coastal Conservancy, which had paid for the marsh enhancement, to demand its money back). The design team created a more comprehensive chain of communication for its designs, and kept meeting regularly to keep the ongoing project on track, and generally became the creek's watchdog. Lillie Mae Jones says, "They claim that only the experts can do something, and here we have kids out there doing things I don't think they like that."

By now there are hundreds of kids out there using the educational potential of the creek to rebuild the community of North Richmond. In 1989, after listening to too many adults talk about ways the creek project could benefit youth, Jones and other community members organized a series of meetings for young people. Out of these meetings came the Community Youth Council for Leadership in Education (CYCLE), now a buzzing hub of dozens of activities for residents age 14 to 24. There are jobs in water quality monitoring, creek clean-up, and bank stabilization. Kids planted 3,000 redwood trees this spring; they've designed and planted native trailside landscaping and school vegetable gardens. In a program with Baykeepers, teenagers go out on the bay and learn how to collect water samples at industrial outfalls. "We're using water quality monitoring to catch polluters," Jones

says with relish.

Jones, now officially a senior citizen, still presides over CYCLE's programs. "We know the money that came with the creek project will leave," she says, "and we're using it for education so there'll be a resource left in the community. These kids will become the experts. That's what we're working on." She points proudly to the team leaders, young men and women who spend Saturdays with groups of at-risk ten to thirteen-year-olds doing everything from creek clean-up to help with schoolwork, and to one CYCLE veteran who is now a UC environmental law student. The Richmond schools, six of them within walking distance of Wildcat Creek, have been just as active in using the creek for hands-on teaching in biology, chemistry, and ecology.

All the East Bay's remaining creeks have become favorite classrooms, thanks

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to nonprofit programs such as Kids in Creeks that provide teachers with ideas and assistance for class projects. Thirty thousand students have participated in Kids in Creeks or its companion Kids in Marshes since their 1992 inception. Another classroom creek awareness project has been quietly sponsored over the last ten years by the Golden West Women Flyfishers—Annette Thompson, the person responsible for getting trout into Wildcat Creek, gathers eggs of trout and Pacific coast tree frogs for elementary school classes to raise and release. The flyfishers supply aquariums and other supplies, including refrigerators and pumps to circulate the bottled water so trout fry will stay at fifty degrees for fifty days before they're released into their home streams by children who have by that time become fiercely protective not only of the inch-long fish but of the creek and its entire watershed.

**A**s I've walked more East Bay creeks and met many passionate people, I've realized that support for creeks is not the same as support for general environmental causes like clean air. Creek supporters guard and restore their particular waterway and its watershed; the presence of a creek brings back the unique spirit of a place to the people who live nearby. John Steere, creek champion and now resource management planner for Contra Costa Water District, remarked that "creeks tend to bring out the creativity in people, and they naturally promote cooperative planning. I see creeks teaching us how everything is connected." As creek support groups have proliferated in the '90s, each one has emerged as a unique expression of its place; city governments are swinging around to actively support neighborhood creek restoration efforts.

Two years ago, the Aquatic Outreach Institute's Anne Hayes went door to door through Oakland's Fruitvale district to determine neighborhood concerns about Sausal Creek and to introduce the idea of the watershed as a place-defining bound-

ary. As AOL organized the first meetings, the group found that its neighborhood near Dimond Park included landscape architects, gardeners, native plant enthusiasts, biologists, and every sort of "expert" it might need. Says Ann Riley, "It's not unusual for the citizenry to have a better knowledge base than the engineers. What is an expert? We're turning that issue on its head."

The creek through Dimond Park and along the trail above the park was choked by ivy that hung in solid drapes across the native oaks and alders, so the group started by removing tons of nonnative vegetation. City of Oakland Public Works Agency administrator Harry Schrauth was so enthusiastic he took his vacation time to help out; Team Oakland crews came the first summer, and city staff still regularly haul away whatever the volunteers drag out of the creek.

Once the worst of the ivy and acacia had been cleared from the creekside through Dimond Park, the gardening neighbors started cuttings of native plants that grew near the creek. Neighborhood teachers took the cuttings to their classes; when they had rooted, the kids helped place the new plants along the creek in the park. At the same time neighborhood landscape architect Michael Thilgen guided the design and planting of a demonstration garden in the park, with commonly available horticultural varieties of California natives —together the plantings cover 30,000

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square feet. As I walked the creek with Sam Cohen, a neighbor for whom ivy clearing has become a personal mission, I was struck by the active guardianship going on. We stopped to replace a rope fence around newly planted natives (the rope had been used as a swing out over the creek and left dangling). Sam fished a tire and various metal and plastic items from the creek as we went; he pulled out invasive Scotch broom. It's his creek, and there are several hundred other people who feel the same.

Here's another thing: creeks seem to be lengthening people's attention spans. Sam Cohen spoke of bringing trout back to Sausal Creek, and I didn't need a degree in biology to see what a long way off that was, what with the buried parts and the concrete slab sections and the twenty concrete check dams up the canyon that cut off the flow completely in summer. Riley says, "I don't think most of us understand when we get involved in these things that it's a lifelong commitment." Thinking about the Richmond citizens who have worked on behalf of Wildcat Creek for over forty years, she added, "I'm still a new-comer because I've only put in my seven-teen years." Sam Cohen and other much newer creek friends welcome the lifetime commitment creeks require. I'm beginning to see what my childhood lost by keeping its creek in jail.

Speaking of jail, or childhood: even the Los Angeles River now has friends, a group

inspired by the amazingly energetic Ann Riley. The most recent spring clean-up day featured crews from every town along the river's sixty-mile course from mountains to sea, a total of 1,500 volunteers—and at each site a marching band from the nearest high school came out on the broad concrete riverbed and played the workers on.

**W**hen the Deukmejian years made Sacramento an unproductive place for restoration planning, Ann Riley quit her Department of Water Resources job and returned full-time to Berkeley. Though the Urban Stream Restoration Program still exists, it is as subject to political whim as every other necessary—its last infusion of cash, \$5 million, came in 1988, and it's been out of operating funds entirely since 1994. Riley founded the nonprofit Waterways Restoration Institute to provide technical assistance in demonstration restoration projects and to train engineers and planners in restoration. The WRI moved into a shared set of offices with the Urban Creeks Council on the edge of Strawberry Creek Park; the two outfits work together on many projects, with UCC finding funding and organizing maintenance and other follow-up needs, while the WRI is in charge of the actual restoration.

Though state government had stopped being helpful, on the local level creek restoration was catching on big. During the winter of 1995, the El Cerrito department of public works received eighty calls about



Lillie Mae Jones (front) with members of North Richmond's Community Youth Council for Leadership in Education

storm water problems. Two of those calls concerned blockages in open creeks and were easy to remedy, while the other 86 complaints had to do with blocked underground culverts—much more difficult. When a buried section of Baxter Creek that ran along a median strip needed to be replaced, the city decided it would be cheaper and more effective to daylight the creek. The company hired to do the job had no idea how, and the resulting channel flooded the next winter. Ann Riley, through the WRJ, was brought in to redo it, and today it's a satisfyingly wild stretch of creek in the middle of Poinsett Avenue in El Cerrito

The cities of Albany, Berkeley, El Cerrito, and Richmond, together with the East Bay Regional Park District and UC Berkeley, drew up a joint watershed goals agreement in 1995, pledging to daylight creeks and wherever possible make them pedestrian and bicycle greenways. Oakland declared its commitment to creek restoration in 1997 with \$300,000 and various projects on Temescal, Seminary, Glen Echo, Peralta, and Sausal creeks. Several blocks of Codornices Creek bordering Albany Village were daylighted just in time for this past winter's El Niño storms; Conserva-

tization work looked down at their feet to see a steelhead making its way upstream. The culverted creek had flooded regularly, and with a much greater volume of water this winter, the new above-ground creek did not flood.

Every East Bay creek has organized friends by now, and we've got Bay Area Citizens for Creek Restoration and their *Creeks Speak* publication for details and overviews. The Oakland Museum has published great creek maps with color-coded watersheds; there's one for Oakland and Berkeley, and one for Hayward and San

is on the way). Berkeley has contracted a feasibility study for daylighting Strawberry Creek through the entire downtown, and a new plan is circulating to daylight Derby Creek through People's Park, giving the university another chance at that one.

In April Ann Riley's thorough handbook *Restoring Streams in Cities* was published, with a list of sponsors that includes so many federal agencies it would make an Army Corps engineer stand up and salute. The Army Corps itself is somewhere in the middle of a 180-degree turn: in 1996 Congress declared that its primary mission "shall be to protect the environment," and specified wetlands restoration and watershed planning as part of the deal. Carole Scheninger described the Corps' reaction as "they're going to hold their noses and leap any minute now." The week after she said that, they did: Ann Riley got a call from the Los Angeles Division of the Army Corps of Engineers, asking her to come this month and train their engineers in waterway restoration.

**W**ildcat Creek, meanwhile, has become a model for its planning process as much as for its technical innovations. When Napa County citizens voted this spring for a natural treatment of the Napa River, they were voting on the results of a two-and-a-half-year planning process modeled entirely on the experience of the Richmond community with Wildcat Creek. Ann Riley and Phil Williams, who both worked on Wildcat Creek, were hired by the Napa County Flood Control District to facilitate planning. They held meetings in the only places big enough, the exhibit halls of the county fairgrounds; 200 to 300 people showed up every time to design their river project. "It's changed what citizen participation means," said Riley.

This summer the Contra Costa County Flood Control District will have another chance to get with the program: under the leadership of the Waterways Restoration Institute, the district will work at improving sections of Wildcat Creek as fish habi-



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tal. Riley is hoping for cooperation. "After seventeen years of thinking of the flood control district as an enemy, I now think we're in a partnership situation." The Army Corps will be in on this summer's Wildcat Creek activities too, reworking the part of the creek that has the inoperable fish ladder. The WRI, the East Bay Conservation Corps, and the Richmond Fire Department already did some demolition work on the old fish ladder, which had not only kept large fish from migrating upstream but blocked young ones on their way down. The week after they'd hauled out the concrete gates, parks district fisheries biologist Pete Alexander went by to check on the creek and found fifteen young steelhead down past the fish ladder on their way to the bay. This was the first chance for descendants of the fry deposited upstream in 1983 to reach the sea; if the fish ladder is successfully redesigned (or eliminated) by the Army Corps, these fish may pass by again in a few years, two feet long and bright silver, heading up to clean gravel and cold water.

In Wildcat Creek, steelhead are the jewels in the crown of a community's forty-year commitment, the proof of Lillie Mae Jones' satisfied conclusion: "The creek, as far as I'm concerned, is healing itself." In Alameda Creek it would be more accurate to say it is the steelhead who are leading the fight to regain their own ancestral home, with people struggling to catch up. Steelhead were listed last August as a threat-

long and its eggs died, but the other four were relatively protected at the base of the BART pillars, and yielded 273 viable eggs. The Golden West Women Flyfishers figured these eggs were important enough to warrant more reliable equipment, so they bought a new chiller unit and a twenty-gallon tank. Thompson delivered the eggs to several fourth and fifth grade classrooms of teachers experienced in raising trout, with the largest batch, and the new equipment, going to Evelyn Frantz's class at Don-

lon Elementary School in Pleasanton. The kids watched every day until, at fifteen days old, a bright eye appeared in each globe, looking out at them. Then the fish became thin lines attached to the globe-yolk sacs—their food for fifty days. The students watched as the fish grew, and the yolk sacs shrank. When the fish looked like inch-long guppies with tiny pot-bellies of yolk, they would have to be released into the stream where they would find their first food. That stream would be the place they would al-

ways know as home, the place they would try to return to after years at sea.

By early May the steelhead hatchlings were inch-long fish, speckled and transparent, with tiny bulges of yolk left at their bellies. The Department of Fish and Game gave its permission for the fish to be introduced to the stream their parents meant to lay them in, and 188 little fish got on the bus with the Donlon Elementary School fifth graders to go to Sunol Regional Wilderness. At a shady bend of upper Alameda

# Up the Creeks!

**Right up until it happened, no one would have guessed that Wildcat Creek would become the first demonstration project for a new paradigm in flood control, but soon even laypeople like Lillie Mae Jones were talking about "bioengineering" and watershed management.**

be able to swim up the eleven miles of flood control channel from the bay, but the sloping concrete drop structure below Fremont's railroad bridge would present an insurmountable barrier. In March, Alameda Creek Alliance founder Jeff Miller brought engineers from the National Marine Fisheries Service and the Department of Fish and Game to look at the barrier, hoping to interest them in designing a fish ladder for it. As they stood looking down at the concrete slope, a school of steelhead reached the barrier from downstream; one after another the fish hurtled themselves clear of the water and up through the air, only to slam against the concrete and slide back down.

Wading into the hip-deep water, the engineers managed to catch ten steelhead and move them safely up above the barrier. More steelhead were seen below the drop structure but couldn't be caught, and observers wondered if any of them would try to spawn right there in the flood control channel since they couldn't get farther

upstream. Veteran trout egg collector Annette Thompson came to search.

I knew steelhead lay their eggs in clean gravel, but I hadn't realized that they dug out trenches eight to twelve inches deep with their bodies, lay the eggs in the bottom, and cover them back up with gravel. The eggs are translucent globes of pale orange, smaller than a pea, and several hundred to a nest. Thompson tottered on underwater rocks in the strong current, looking for slight depressions of cleaner rocks on the channel bed. There was no gravel, only cast rocks, no shade except the shadows cast by the BART bridge pillars, and soon, whenever Alameda County Water District raised its inflatable dam upstream, there would be no water. Steelhead would have to be desperate to lay their eggs there. Thompson found five nests, and with Pete Alexander's help dug them up and caught eggs in a net as they popped into the current. One nest had been in direct sun too

Creek, one of the Golden West Women Flyfishers laddled fish from a cooler into clear plastic cups, handing one carefully to each student. All the fish had names by this time, and while some kids thought they could tell theirs apart, most called whatever fish they held by the name they'd picked. Each one squatted by the water's edge to tip a cup into the current and watch the little fish move off. "Good luck, Bob." "Bye, Sparky." "Grow big, Poochy and Cheesy." "Bye, Banana." "Later, Perky." "See you next year, Spot"