CALIFORNIA
COAST & OCEAN
VOLUME 15, NO. 1 SPRING 1999 • $4.95

Citizen Power

How People Protect Places They Love

Visit our Internet web site at:
www.coastalconservancy.ca.gov.

Our web site includes most of the articles from the print edition (some abridged), many color photos, back issues, and some supplemental information.

To subscribe to
CALIFORNIA COAST & OCEAN
for one year (four issues), send a check (payable to "Coastal Conservancy") for $18 to:

COAST & OCEAN
Coastal Conservancy
1330 Broadway, 11th Floor
Oakland, CA 94612

Cover photo:
Northern saw-whet owl. Birds at the Lindsay Wildlife Museum, in Walnut Creek, have been injured and can not be released to the wild.Photographer Joel Albert seeks to convey their beauty, grace and power.

Back Cover photo:
Peregrine falcon, by Joel Albert.

Coastal Conservancy

The Coastal Conservancy is a state agency that works with the people of California to preserve, improve, and restore public access and natural resources along the coast and around San Francisco Bay. It is funded primarily by bonds authorized by California voters.

BOARD MEMBERS:
Gary A. Hernandez, Chairman
John J. Lormon, Vice-Chairman
Margaret Azevedo
Tim Gage
Larry Goldzband
Mary Nichols
Sara Wan

ALTERNATES:
Jim Burns
Fred Klass

EXECUTIVE OFFICER:
William R. Ahern

CALIFORNIA COAST & OCEAN
California Coast & Ocean is published by the Coastal Conservancy in association with the California Academy of Sciences.

Rasa Gustaitis, Editor
Dewey Schwartzenburg, Managing Editor
Hal Hughes, Associate Editor
Anne Canright, Wesley Marx, Contributing Editors

Design and page composition: Seventeenth Street Studios
Prepress and printing: University of California Printing Services

CALIFORNIA COAST & OCEAN (ISSN 1052-5823) is published quarterly at $18 for four issues. Copyright © 1999 Coastal Conservancy, all rights reserved. No part of this issue may be reproduced by any mechanical, photographic, or electronic process or otherwise copied for public or private use without written permission of the publisher. All opinions expressed are the responsibility of the authors, and do not necessarily reflect the positions, official or otherwise, of the Coastal Conservancy, the California Academy of Sciences, or the editors. Direct all correspondence, including editorial submissions and subscription requests, to:

CALIFORNIA COAST & OCEAN
1330 Broadway, 11th Floor
Oakland, CA 94612
(510) 286-0934, e-mail: calcoast@igc.org

Articles appearing in *California Coast & Ocean* are indexed in *Environmental Periodicals Bibliography, Biology Digest,* and *Environment Abstracts.*

Printed on recycled paper with soy-based ink.

CALIFORNIA
COAST & OCEAN
VOLUME 15, NUMBER 1 SPRING 1999

SANCTUARY FOREST ARCHIVES

Citizen Power

4 The Power of a Shared Vision on Morro Bay
Sarah Christie
Too beautiful to lose

10 The Miracle of Paradise Creek
Gary Taylor
The children knew what must be done

14 Sanctuary Forest Saga
Jim Hight
Winning without a fight

19 Victory at Age 82
"Some things take longer than others"

20 The Wonders of Joel Hedgpeth
Rasa Gustaitis
Materials for a life in aquatic biology

24 Forgotten Waterways See the Light of Day
Lisa Owens-Viani
Urban creek revival

29 Does the Left Hand Know What the Right Is Doing?
Sean Woods
Contradictions in an Orange County watershed

32 Elkhorn Slough Sea Otters
Anne Canright
Trying a new habitat

DEPARTMENTS

38 EBB AND FLOW
- *Acquisition on Big Lagoon*
- *Watsonville Slough Acreage*
- *Bolsa Chica Access Ramp*
- *Carlsbad Nature Center*
- *More Parkland for Richmond*
- *New La Jolla Stairways*
- *Arcata Marsh Improvements*
- *Want to Honor a Coastal Champ?*
- *Summer Coastwalks*
- *The Importance of Fog Drip*

40 BOOKS

Citizen Power

Marla Morrissey

"THIS PARTICULAR INSTANT OF TIME, THAT IS MINE."

—RACHEL CARSON

THE MODERN HISTORY OF THIS GREAT COAST can be written as the story of people who fought for its protection, usually close to home. With amazing energy, ingenuity, and endless patience they defended places they loved against destruction and gathered the support required to save them for everyone's benefit and enjoyment.

These are not necessarily extraordinary people, but they extended themselves beyond ordinary limits. What moved them to do so? Why did they act when others felt helpless? What kept them going until they prevailed?

The theme of this issue of *Coast & Ocean* is Citizen Power, and it focuses on a few such citizens and their accomplishments. There are too many ever to be counted. Some are well known and widely honored; many more are anonymous outside their communities. Some have material wealth, others not at all. Many are private individuals, others are public servants laboring beyond the call of duty. As some tire or die, others emerge. What do they all have in common?

In *Voice from the Sea: Reflections on Wildlife and Wilderness,* newly published by the Monterey Bay Aquarium, Margaret Wentworth Owings writes: "My life was completely changed, at a time when illness and deep concerns sent me to my bed. A dear friend brought Rachel Carson's *The Sea Around Us,* and read those stirring words aloud to me for several days. 'This particular instant of time, that is mine,' wrote Rachel Carson, and I was struck by the depth of that simple thought. Later, I stood on my porch savoring the immensity of its great view before me as the sight, sound and diversity stretched out in all its splendor—and I became part of it."

The porch of the house designed by Margaret's husband, Nathaniel Alexander Owings, extends over the edge of the conti-

Margaret Godshalk

Rondal Snodgrass

Lucretia Edwards

Joel Hedgpeth

nent in Big Sur. Sea otters loll in kelp below and sea lions rest on wave-battered rocks. Behind the house the mountainside rises, with many miles of wilderness beyond it.

Owings is known for her successful fight to save the sea otter and, later, the mountain lion. In her introduction to the book, Jane Goodall writes: "For years I have cited Margaret Owings's campaign to save the California sea otters an example of what can be achieved through the persistence, determination, resourcefulness, and passionate conviction of a single person."

As they tell or write their stories, almost all who have fought for the coast remember an experience that lifted them out of loneliness into a sense of belonging to a larger community within a natural place.

From the Lost Coast, in Humboldt County, comes a marvelously vivid and thoughtful book by Freeman House, *Totem Salmon: Life Lessons from Another Species.* It includes this story about Richard Gienger, who is known on the North Coast as an uncompromising defender of salmon and forest: "Soon after he and his family settled in the Mattole, Richard experienced an epiphany. One day he stood on a bridge over the Mattole and watched a large male king salmon, deep in the chest and longer than his arm, swim lazily beneath him. . . . The salmon belonged in the landscape in a way that Richard could hardly imagine himself or his peers belonging. . . . He yearned for a relationship resembling the voluptuous comfort with which that big salmon had leisurely explored the waters of his small home."

Gienger proceeded to build a place for himself in the Mattole watershed by helping the salmon. He gathered a few neighbors and started a home-grown habitat improvement project on a creek. Two years later a gratifying number of salmon had made their way up that creek and a long and difficult struggle was under way for the survival of the remnant population of wild salmon on the Mattole. That struggle continues twenty years later, and it has drawn people in the watershed together.

"To achieve, one must dream greatly, one must not be afraid to think large thoughts," Rachel Carson has said. But sometimes it's not a matter of bravery. Sometimes a thought just enters a person's mind, takes root, and grows, as it did on the Mattole.

The shaping experience may arrive uninvited. Joan Dunning was about to go to Mexico to work on a book about the birds of Baja California. Instead, she found herself drawn into writing about the battle to save the ancient forest near her home in Arcata. *From the Redwood Forest: Ancient Trees and the Bottom Line—A Headwaters Journey* tells of "the satisfaction that comes from action, effective action, activism."

Some people act because it's too painful not to. "It just makes me sick to think about the loss," said Marla Morrissey, from Morro Bay, San Luis Obispo County. "I would dream sometimes about the last two kangaroo rats. I don't know. It's like listening to music. For some reason I hear this. I feel relief that I would not experience if I were listening and not doing anything."

The group Morrissey heads is described in this issue, along with other citizens and groups up and down the coast. Each has a different history, goal, and strategy. All have learned from others and will be models for others. Their success has been possible because so many people in their communities and in natural resource agencies are grateful for their work and glad to have a chance to help save the California coast.

—*Rasa Gustaitis*

See p. 40 for more on books cited here.

ALMOST ALL WHO HAVE FOUGHT FOR THE COAST REMEMBER AN EXPERIENCE THAT LIFTED THEM OUT OF LONELINESS INTO A SENSE OF BELONGING TO A LARGER COMMUNITY WITHIN A NATURAL PLACE.

CITIZEN POWER

The Power of a Shared Vision on Morro Bay

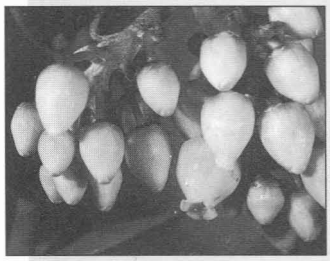
SARAH CHRISTIE

THE TERM COASTAL DUNE SCRUB doesn't do it justice, this subtle mix of native plants that bind the thin, shelly soils of the Estero Bay watershed in San Luis Obispo County. In the winter the shrubs hunker leafless and gray, while their inhabitants burrow or cocoon or sequester themselves beneath the shelter of duff and mulch. But in spring this landscape erupts with a pent-up passion, and the town of Los Osos is magically encircled by a fairy ring of color. Butterflies light on trailing lichen and blooming dune almond. Willow flycatchers weave nests from the fallen twigs of Morro manzanita and saint's daisy. Badgers tunnel in the loose substrate, and falcons—peregrine and prairie—circle overhead, assessing the chances for a meal.

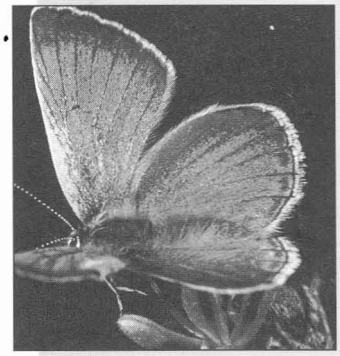
It doesn't look endangered, but it is. Coastal dune scrub is a globally imperiled ecosystem, compromised nearly out of existence by our insatiable hunger for oceanfront real estate. In California we have lost more than 85 percent of this habitat, consumed it in ravenous gulps of urban sprawl in San Diego, Los Angeles, and the San Francisco Bay Area.

The ragged arc of dune scrub around Los Osos has fared better than most coastal dune scrub elsewhere. Development in this town of 14,000 has been held in check for more than 15 years by a state-imposed building moratorium as citizens struggled

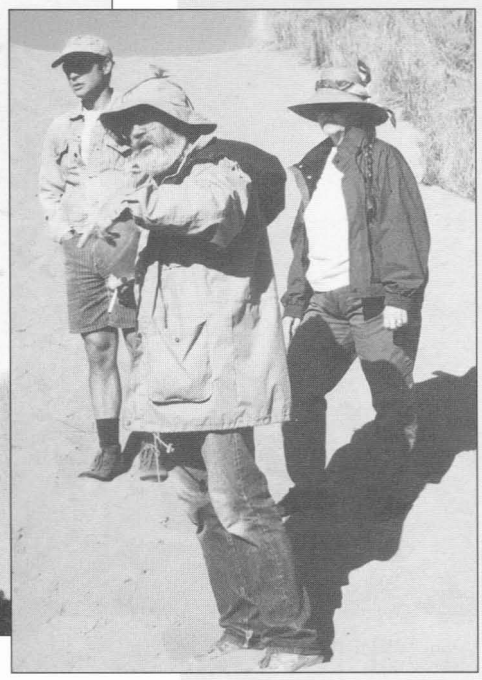
JUDE CLARK-WARNERSHIRE



DENNIS SHERIDAN



DENNIS SHERIDAN



MARLA MORRISSEY

Top: The threatened Morro manzanita grows only in the Los Osos dunes.
Middle: Morro blue butterfly
Above: Dave Chipping leads a plant-identification walk.

with a controversial sewer project. While a booming economy fueled building sprees elsewhere, in this broad coastal valley the spineflower and bird's beak and bentgrass quietly went through their life cycles. Monarch butterflies wafted in every fall to cluster in fluttering clumps amid the mountainbalm and manzanita. About 40 native species here are classified as either endangered or threatened, including the tidewater goby and the shoulder-banded dune snail, which have joined the Morro kangaroo rat on the federal Endangered Species List.

As the sewer controversy moved closer to resolution, local residents began to appreciate the fragility of the de facto greenbelt around their community. A backlog of building projects was poised to move forward, waiting for the moratorium to be lifted. Six hundred pristine acres of dune scrub in 19 privately owned parcels separate Los Osos from agricultural fields to the south and east, and the city of Morro Bay to the north. Every single one of those acres is zoned for residential development. Subdivided to accommodate full buildout for the town, the fragile habitat could soon be bulldozed for as many as 1,500 new homes. Most people would have called any effort to save the greenbelt through public acquisition a lost cause. Luckily, Los Osos had Marla Morrissey.

JOHN CHESTNUT

Above: Marla Morrissey with Will Chestnut, son of John Chestnut
Top right: Looking northeast toward Morro Bay, across golden yarrow in bloom
Right: Manzanita and sticky monkey flowers are found in the Morro Bay area.

Like Listening to Music

MARLA MORRISSEY lives with her seven-year-old son Keane and one-year-old daughter Rayne in a converted barn on a dead-end road at the top of Los Osos, on land that includes an oak forest on sand dunes, with trees she says are up to 400 years old. She makes her living mostly as a property manager. Disarmingly soft-spoken, unfailingly positive and polite, she's the gentle dynamo behind a remarkable citizens' initiative to save the Los Osos coastal dunes.

In just two years, the all-volunteer Morro Bay Greenbelt Alliance (MEGA), which she heads, has helped to attract hundreds of thousands of dollars in funding from several agencies. MEGA has also helped to put coastal dune scrub on the radar screen of elected officials, government agencies, and the local press, by creating a support network for purchasing the entire greenbelt.

When Morrissey is asked what moves her, she says it's the thought that species can disappear. "It just makes me sick to think about the loss. I would dream sometimes about the last two kangaroo rats. I don't know . . . it's like listening to music; for some reason I hear this. I feel relief that I would not experience if I were listening and not doing anything. I need to see the vision and work hard."

This story can be read as a recipe for citizens who want to preserve land they love close to home. It started with a modest endeavor. Morrissey thought she would try to landscape her place with endangered species in mind. She talked with people at the U.S. Fish and Wildlife Service, with botanist John Chestnut, and with Dave Chipping, conservation chairman of the California Native Plant Society. "I found out there were 40 listed species right in my backyard, and that this habitat was globally imperiled. So my eyes got big at that point," she said. They agreed to start working toward a larger vision.

"I've referred to MEGA many times in other communities as a model organization created to protect a special local landscape," says one of MEGA's partners and unabashed admirers, Margaret Eadington of the Trust for Public Land (TPL). "They have done so many things right."

The first thing MEGA did right was to believe in the importance of the mission and its chances for success. The second was to steer toward the goal, refusing to be distracted. The third was to form a powerful, knowledgeable team. Along with Chipping and Chestnut, it has wildlife photographers Dennis Sheridan and Marlin Harms on board, and Jude Clark-Warnershire, a community activist. All who have worked with the group agree, however, that "Marla is the heart and soul of the project."

"She never gets sidetracked or considers any outcome other than success," said Chestnut. "She lives and breathes her greenbelt project, and gets others involved in a very positive way," adds Carol Arnold, central coast program manager for the Coastal Conservancy.

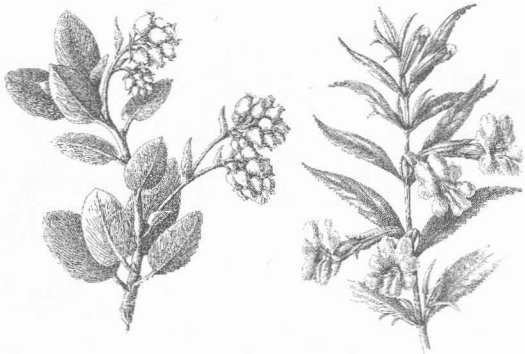
To be sure, neither MEGA nor its leader sprouted from thin air. The Coastal Conservancy and Ray Belknap, executive director of the San Luis Obispo Land Conservancy, had been working to protect this habitat through landowner conservation agreements. Their approach was based on the reasoning that no agency would have the funds to acquire all the properties needing protection.

In 1995, with the help of $100,000 from the Coastal Conservancy, the Land Conservancy undertook a comprehensive inventory of all the parcels in question, recording ownership, acreage, zoning, current use, and habitat values. Maps revealed a continuous band of undisturbed dune scrub, in a rough horseshoe around the town. The western end includes wetlands adjacent to Montana de Oro State Park and

Morro Bay State Park. The northern end terminates at Los Osos Creek as it flows into Morro Bay State Park. The Land Conservancy and Coastal Conservancy prepared a conservation plan that proposed a greenbelt to link the two state parks and provide a permanent wildlife corridor that would also be accessible to the public.

The ground was thus prepared and the seeds planted, so that a citizen force could sprout. Armed with the conservation plan as well as with surveys by the Department of Fish and Game, the U.S. Fish and Wildlife Service, and the California Native Plant Society, MEGA's core group got to work. They produced the well-written, beautifully illustrated 15-page *Proposal to Protect the Los Osos Coastal Dunes,* incorporating data from the conservation plan. In doing so, they realized something interesting:

"There are all these plans and reports and studies just sitting around gathering dust on the shelves," says Morrissey. "We found that when the community is interested in helping these agencies do what they are charged with doing it really catalyzes the situation."



U.S. Fish and Wildlife biologist Kate Symonds has been one of MEGA's chief advisors from the start. "The truth is, agencies simply can't implement their goals without the help and cooperation of the community," says Symonds. For an agency that is often vilified by the press and local governments, Symonds says, it was refreshing to encounter a community that welcomed its presence.

With their attractive *Proposal* as bait, MEGA went fishing, searching out every state and federal agency with a possible interest in their project, ferreting out funding sources. "It was obvious no one agency

Steps to Success

MEGA's recipe for success contains elements important to any effort to save a cherished landscape threatened by development. The Los Osos Greenbelt Alliance is fortunate to have:

- A core group of volunteers willing to step in to protect this landscape
- A committed, organized leader
- Access to studies and documents that detail the area's biodiversity, including endangered and threatened species onsite
- A clearly articulated vision in the form of a plan
- Buy-in from state and federal agencies
- Bipartisan political support
- A positive, nonthreatening reputation for working with landowners
- Access to real estate expertise through the Trust for Public Land and the Coastal Conservancy
- The presence of mind to always say "thank you."

PLANT DRAWINGS BY MARGARET WARRINER BUCK FROM *WILDFLOWERS OF CALIFORNIA*, 1897, BY M.E. PARSONS; PHOTO: MARLIN HARMS

Right: Marla Morrissey (in sunglasses) works with gardeners interested in landscaping for endangered species. Below: Morro manzanita and live oak

MARLA MORRISSEY

could pull this off," says Morrissey. "We needed matching funds. So we divided it up like a big pie and then asked, 'Who are the slices?'"

MEGA made overtures to agencies, land trusts, private conservation organizations, and every elected official. Morrissey called them on the phone. She dropped by their offices. She organized tours for them with botanists and entomologists. "There's so much to see once you improve your observation skills," she said.

Along the way the MEGA group became more and more aware that bureaucracies like BLM, Fish and Game, State Parks, and U.S. Fish and Wildlife are staffed by human beings who care about conservation. But, as Kate Symonds pointed out, they are also understaffed and underfunded. The prospect of having a dedicated, focused community group to shoulder some of the responsibility for coordination and clerical help proved very inviting. "These public servants are all heroes," says Morrissey. "They are wonderful. They go out of their way and work overtime for free and spend their weekends on this because they care as much as we do." Symonds and others offered advice, provided documentation, and wrote letters of support.

IT ALL CAME TOGETHER in March 1998, when MEGA held a momentous meeting at which they formally unveiled their greenbelt plan. To this meeting they invited representatives of agencies and organizations that could advance their plan: the Department of Fish and Game and its acquisitions arm, the Wildlife Conservation Board, which had been trying for 15 years to acquire some properties in the area; the Coastal Conservancy, which had helped to acquire other properties in the area as part of its Morro Bay Enhancement Program; the State Parks Department, Caltrans, U.S. Fish and Wildlife Service, National Parks Service, National Estuary Program, Bureau of Land Management, TPL, Land Conservancy of San Luis Obispo, the local Natural Resource Conservation District, the County, and aides to Congresswoman Lois Capps, Senator Jack O'Connell, and Assemblyman Tom Bordonaro. They all came.

JUDE CLARK-WARNERSHIRE

"The meeting produced a feeling of cooperation and a sense of urgency and opportunity because of the many new participants," said Arnold.

"They brought us all together in one room and made us all feel like we were part of a very important and compelling effort that had a lot of momentum and important people helping and we'd be dumb not to be there," recalled Eadington.

A roundtable discussion followed a slide show of the dunes, exquisitely photographed by Harms and Sheridan, and narrated by Chipping and Chestnut. "The psychology of not being alone and being a part of something bigger was the biggest asset," said Chipping. "It was like the synergy reached critical mass that day."

Driven by local citizens' opposition to development in the greenbelt, agency staff began to explore whether a joint effort to acquire the greenbelt for habitat and open space might be feasible. As though working on a big jigsaw puzzle, they considered the pieces and how they might fit together. As more players stepped forward, the question evolved from "if" to "how" and "when."

That meeting was the clincher. To MEGA, even now it seems miraculous. "We didn't set out to create a coalition, we set out to save the land," reflects Morrissey. But the interagency collaboration they catalyzed has turned out to be the key to effective action.

Political support also began to gel. Aides to O'Connell and Bordonaro began to talk about getting bipartisan support for adding a line item to the budget. Although the funding did not survive the then-governor's pen, the outlook for the coming year looks more promising.

ONE OF MEGA'S RULES is that we never make anyone look bad," says Chestnut. "We want a love-fest here. We are dealing with some extremely conservative landowners, and if we antagonize them it will go badly. You have to keep people talking to you."

The same attitude has permeated the group's internal dynamics, and working relationships have evolved into enduring friendships. "We just don't fight," says Chestnut. "We've kept the egos out of it. We've all observed campaigns that collapsed at the moment of success, and we want to avoid that."

Morrissey echoes his observations with passion. "To let any of that interfere means species could die. Because we are arguing in a meeting? We can't afford to do that."

Yet another secret to MEGA's success is more surprising. Morrissey solemnly holds up her cordless phone and says: "If I had a computer, none of this would have ever happened. I call people up and *talk* to them. The phone is a deep organizational secret." She adds, however, that she has a hidden helper who toils on e-mail: her mother, Betty Morrissey. And then she wants to make sure—giving credit generously is also part of MEGA's success—that her father, Howard, is acknowledged for having taught her how to run a business or an organization. And then there is Sharon Negri, director of the Mountain Lion Foundation, who inspired her and taught her, and Negri's husband, Mark DuBois, who started Friends of the River. Nothing springs from the ground full-blown. The experience of others prepares that ground.

MEGA's efforts have not gone unnoticed by other conservation groups in the county. A community coalition to purchase the 14,000-acre Santa Margarita Ranch some 20 miles inland is following the MEGA model closely and building on many of the relationships that Morrissey's group has established with resource agencies.

"Conservation groups all benefit and learn from others' success," says John Beccia, a Paso Robles kindergarten teacher who is the president of Santa Margarita Area Residents Together (SMART). "In our case, we patterned our conservation document after MEGA's, and we saw right away the benefit of broad agency buy-in. Every acquisition project has its unique aspects, and you have to tailor your efforts accordingly. But networking and creating good working relationships is always critical."

"Fifty years from now, people will know how hard all these people worked to save these places," says Morrissey, the dreamer who dwells in reality. "They are going to stand out as the heroes who saved this place. I have had this thought: I'm taking time away from my children. But then I've seen, this project is *about* the children." ■

Sarah Christie is an environmental analyst with the Environmental Center of San Luis Obispo County.

Los Osos Solution

On November 3, 1998, the voters of Los Osos turned out in droves (76 percent) to approve the formation of a Community Services District. Measure K, a citizens' initiative to wrest local control from the San Luis Obsipo County Board of Supervisors, won 87 percent of the vote.

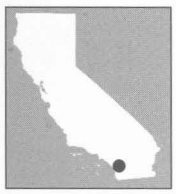
The five newly elected directors are all former activists with the grassroots "Solution Group," which was promoting a low-tech, less expensive alternative to the County's proposed $71 million conventional wastewater treatment facility. They were elected just two days before the California Coastal Commission was scheduled to consider issuing the final permit for the County's controversial project. Their testimony at the Commission's public hearing in Agoura helped persuade commissioners to reject their staff recommendation and allow the community to make its own decision.

On February 25, 1999, the District directors voted unanimously to reject the County's project. One week later, they approved the "Solution Group" plan for an integrated ponding system.

It is uncertain when the State Water Quality Control Board will lift the building moratorium in Los Osos, but with citizens and elected officials now working together, a resolution of the wastewater treatment controversy should be forthcoming.

CITIZEN POWER

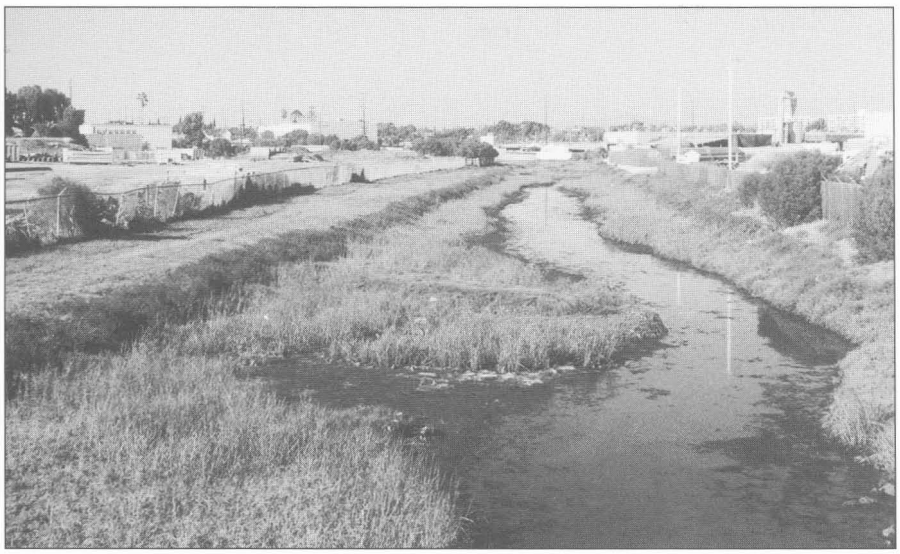
The Miracle of Paradise Creek



GARY TAYLOR

BACK IN 1994, Margaret Godshalk, a teacher at Kimball Elementary School in National City, took her fifth graders to the creek flowing past their school, to look at wildlife. What the children first noticed, however, was the trash. They asked why the creek was so messy and who took care of it. That was the beginning.

Paradise Creek is a tidal creek on San Diego Bay. Upstream it's almost completely paved over or channelized, but just east of the coastal highway a half-mile-long stretch has survived as a sliver of nature, flowing through an old neighborhood of small houses tucked among block-sized industrial structures, past a welding shop, an auto repair and detailing operation, a storage yard for heavy equipment, and past the school. The U.S. Army Corps of Engineers straightened this stretch of the creek in the 1950s but did not encase it in concrete. As it flows into Paradise Marsh, part of the Sweetwater Marsh complex west of the freeway, the creek catches the eye because it is straight; it doesn't meander, as tidal creeks naturally do. But its banks are green.



TED GODSHALK

Margaret Godshalk grew up in National City, which lies north of Chula Vista and south of San Diego. She lives within walking distance of Paradise Creek, with her husband Ted and their small son. The population in the neighborhood of Kimball School is mostly Hispanic and of very low income.

That class excursion six years ago, with the children's shocked questions, was the beginning of the Godshalks' engagement with Paradise Creek—an engagement that flourished, and led to accomplishments they never could have imagined.

Ted, a city planning commissioner, became curious about the creek's sorry condition and made inquiries. "It's city-owned property but the city really didn't maintain it," he found. "They said it was under the jurisdiction of the Army Corps. Nobody was really interested."

The children started to clean up the banks, with the Godshalks' supervision. "It was very much a joint venture," said

GARY TAYLOR

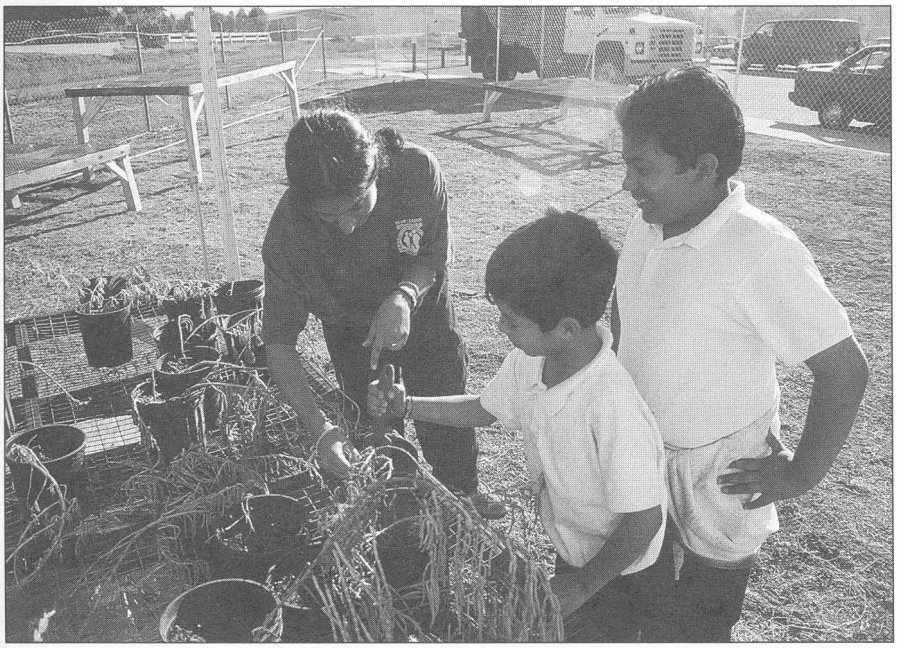
Kimball Elementary School students Tiger Godshalk, Ivan Ochoa, Santacruz Reyes, and Mayra Valencia stand at the entrance mural.
Left: Paradise Creek looking north from West 22nd Street; a boardwalk is planned along the left bank.

Margaret. "The students really wanted to do it." As they worked, they saw crabs, horned snails, and egrets, as well as various wetland plants. Then Ted learned of a city plan to build a street across the creek, and imagined the egrets scared away, the children's nature studies disrupted. "We figured the only way to keep the street from being built was to come up with a better idea," he said.

One thing led to another. Ted approached the redevelopment agency: how about an educational park, a place where children could study a wetland? The redevelopment agency agreed to provide $5,000 for a concept plan for a park that would connect the creek, the school, and a small neglected park next to the school. Gary Ruyle, of Schmidt Design, produced a plan. Godshalk took it to the National School District officials and got their support. Then he went to the City Council, and got its approval. He could go ahead, he was told, if he could find the money.

At that time, Godshalk was preoccupied with his duties as a stay-at-home parent of a toddler, while Margaret taught at Kimball. Could he actually raise the substantial funds required? He decided to try, proceeding "in a series of small steps."

He dropped by to see the city engineer, who discovered that some sidewalk money was available. That paid for a walkway. He engaged the interest of the City's Parks and Recreation Department, which decided to assign Jim Ruiz, director of Parks and Recreation, to be project coordinator. That boosted the status of the proposed park. It was more than just an idea now. Ruiz persuaded the Public Works Department to offer an unused corner of its maintenance yard, so that an upland area could be added to the park. The fences that had blocked access to the stream were removed. Police offered to



TED GODSHALK

Egret Club members Cesar Martinez (center) and Roman Fonseca (right) learn about pickleweed from AmeriCorps NCCC team leader Jasmine Rahooli.

YOU ALWAYS HEAR HOW NATIONAL CITY IS ONE OF THE POOREST CITIES IN THE STATE AND NATION. THE GOAL IS FOR THEM TO FEEL THE RICHNESS AROUND THEM . . . IF ONE OF THEM SAYS 'I WANT TO BE A MARINE BIOLOGIST,' THAT WOULD BE ICING ON THE CAKE.

provide safety surveillance. One step led to the next, and support grew.

Thanks to a National City resident who works for Congressman Bob Filner, an application form arrived for the National Park Service's Rivers, Trails, and Conservation Assistance Program. Godshalk applied for help from the program and was approved. Peg Henderson, a planner, came down from San Francisco.

What she first saw was "a classic example of a neglected urban creek. It wasn't real promising," she said, "but the interesting part was, a community member was the chief proponent and he was very determined. Then I visited the site and sensed that it was something special. The contrast between the creek and the adjacent industrial uses is both stark and encouraging."

Henderson's technical assistance helped park advocates, who now included parents of Kimball children. A leaflet was published, in English and Spanish. The park was now a project in the making. "Peg's help gave us the credibility we needed," Ted said. "When we went to the city and said we had the National Park Service working on this project, I think it opened their eyes."

Margaret and two other teachers won a grant from California State University Dominguez Hills "to further our development in wetland education and set up educational learning centers at the creek," Margaret said. Meanwhile, Kimball School children presented the vision to the Kiwanis Club and other business groups.

Dan Greenwald, president of the National City Chamber of Commerce, was delighted by all these events. As owner of Greenwald's Autobody and Frameworks, on the creek's southern bank, for years he saw "an ugly mess" on the creek. "Trash, cups, tires, shopping carts . . . it was appalling," he said. "When I saw the kids out there working on the creek, I said I'd gladly support them." He donated funds for garden tools and other supplies and helped create the Egret Club at Kimball. Its members dedicated themselves to watching out for the creek and picking up trash. In addition, he agreed to have expensive landscaping next to his building removed because it was not indigenous to the creek ecosystem.

The momentum was building. The County provided $5,000 for cleanup through the good offices of Supervisor Greg Cox. The Coastal Conservancy pitched in with $50,000 for a saltmarsh enhancement plan. Godshalk applied for a grant from Power Bar, Inc., and received $4,000 toward building a small nursery for propagating riparian plants. AmeriCorps members arrived to pitch in. "They took out nonnative plants," said Margaret, "relocated some pickleweed and saltgrass, harvested some seed to see if it would grow, put in upland plants, and built an observation platform so that kids could take bird counts and watch the change of seasons and the migrations from the same place."

IN NOVEMBER 1997, a binational community art project, inSITE, was taking place, sponsored by the National Endowment for the Arts. David Avalos, Margaret's brother and an established artist, opted to create a mural with Kimball School fifth graders. The mural now frames the proposed entrance to the future park.

State Assemblywoman Denise Ducheny, whose office sits only a few blocks from the creek, heard about the park project during a City Council meeting and toured the site with some city officials. She came to the mural's unveiling. As chair of the Assembly Budget Committee, she saw to it that $700,000 in state funds was allotted to the the Coastal Conservancy for Paradise Creek Educational Park.

"We're always looking at projects that have multiple benefits, and this was a classic example," said Ducheny. "First, you're beautifying a redeveloping part of the city. Second, you're improving the quality and flow of water going into Sweetwater Marsh, an important resource and wildlife refuge. Third, you have the opportunity to do it right next door to a school, where you can involve children in learning how to care for the creek and use it for a variety of lessons. And if the vision develops as planned, you create a passive recreation area right in the heart of an intense commercial-industrial area."

And so it was that, in 1999, enough funding had been secured to create an educational park focused on a tidal creek habitat, with walkways, a shade structure for picnics, and educational observation stations. A nonprofit organization has been formed, Paradise Creek Educational Park, Inc., to carry out educational programs.

The San Diego Port District, which has signed on as park partner for two years, is providing books, binoculars, hand-held microscopes for field kits, and a digital video camera that will be used to create a bilingual tape for children.

Now the Godshalks envision well-informed children leading tours of parents and friends, in English and Spanish. They envision high school students mentoring elementary school children and being mentored themselves by university students. Their own son, nicknamed Tiger, is now four and already "a creek kid," his father said.

Back in 1994, the Godshalks could never have imagined all this would grow out of a simple walk down to a neglected, trash-strewn creekside.

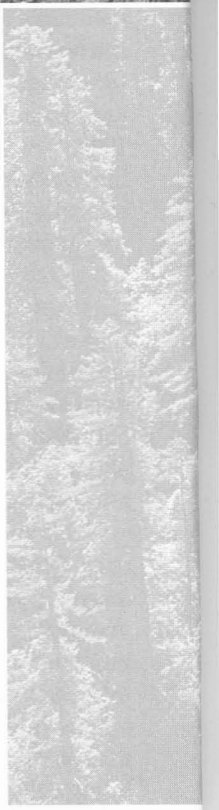
And what of the teacher who led the excursion that sparked all this? What does she hope the children will gain from it? "To begin to appreciate the beauty in their own community," she said; "to take pride, become protective. You always hear how National City is one of the poorest cities in the state and the nation. The goal is for them to feel the richness around them. And if one of them says, 'I want to be a marine biologist, or to do what Ms. Godshalk did,' that would be icing on the cake. But the hope is that all of them know: 'I can make a difference.'" ■

Gary Taylor, a freelance writer, lives in Encinitas.

Margaret and Ted Godshalk

GARY COX

SANCTUARY FOREST ARCHIVES



GARY COX

Sanctuary Forest Saga

JIM HIGHT

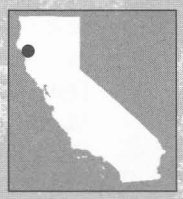
ON THE EASTERN slope of the King Range, the Mattole River slices north and west through steep canyons and grassland valleys to a remote, windswept estuary near Punta Gorda. A half-dozen small hamlets are sprinkled along its 65-mile length, and most of the basin's residents live on scattered homesteads and ranches.

Because the Mattole is so isolated from California's river of humanity, large sections of the basin still host healthy populations of rare and endangered fish and wildlife. Steelhead trout, chinook and coho salmon spawn in the creeks; northern spotted owls and northern goshawks roost in forest canopies; and rare amphibians feast on insects in the relatively intact riparian zones. But the Mattole basin also holds lots of valuable timber, including hundreds of acres of economically prized old-growth redwood and Douglas fir.

For more than a decade, conflicts have flared between timberland owners and newer settlers who were drawn to the area for its remarkable beauty and ecology. While the timber battles in the Mattole never gained a national spotlight like that trained on the "Headwaters" grove to the north, the issues have been similar and the antagonisms often just as heated. But in the headwaters region of the Mattole River, a community of forest defenders has managed to protect nearly 10,000 acres of biologically important forests and rangeland without directly engaging in a single protest or lawsuit.

Sanctuary Forest, Inc., is a land trust made up of people who love the Mattole and value its ecosystem beyond measure. The group's board and core constituency include full-time residents as well as

Left: Rondal Snodgrass, (left), and watershed resident Bonnie Glantz among big trees in the Women's Sacred Grove
Above: A 1989 clearcut scarred Vista Ridge.
Background: Old-growth redwoods and Douglas fir in the heart of the Sanctuary Forest



ALLAN RIDLEY

Rondal Snodgrass with visiting college students in Sanctuary Grove

cabin owners, organic farmers, small manufacturers, a vintner, and a riverside monastery of Cistercian monks.

Long before they incorporated the land trust, residents had in common a belief that their corner of the world was not only beautiful but a vital component of a fragmented ecosystem. To the east and west were state, federal, and tribal lands dedicated to wilderness values. The Upper Mattole, although private land, was largely virgin forest, ideal habitat for wildlife and fish and a critical corridor linking surrounding public lands.

Then in 1986, residents learned that the Collins Pine Co. of Oregon was selling 1,200 acres of old-growth redwoods and Douglas fir in the Upper Mattole. Several log-hungry timber companies were lining up to bid for the land.

Myriam Dardene, then abbess of Redwoods Monastery, called the first citizens meeting. "From the beginning, she cultivated [the idea] that we had to buy these properties," said Rondal Snodgrass, executive director of Sanctuary Forest. "We could not ultimately protect the forest through demonstrations and legal actions.

"She and the abbess who succeeded her also cultivated in us (the idea) that if you strongly visualize and go forward with faith, the money will follow," said Snodgrass. "They have centuries of doing this. Their order goes back to the 12th century."

THEY MANAGED TO PROTECT NEARLY 10,000 ACRES OF FORESTS AND RANGELAND WITHOUT DIRECTLY ENGAGING IN A SINGLE PROTEST OR LAWSUIT.

The fledgling group targeted two parcels for acquisition, which they christened Dream Stream and Yew Creek. To qualify for the bidding, they had to raise $40,000 immediately.

They asked friends and relatives for donations; they wrote to people who had visited the monastery; and they mailed an appeal to a list of donors that the Nature Conservancy provided. Some members pledged their personal savings.

They raised the $40,000 in time for the bidding, and then they lost the land to Eel River Sawmills of Fortuna.

But one of the owners of Collins Pine noticed how seriously the little group of backwoods conservationists had worked

to buy the two parcels. "He called me from a hotel in Eureka," remembers Snodgrass, "and said, 'We put in a good word for you with Eel River Sawmills. Why don't you go to them and see if they'd sell you some of the properties?'"

A delegation met with company president Dennis Scott, taking with them some news that they knew would clinch the deal: Sanctuary Forest had managed to get money for Dream Stream and Yew Creek included in Proposition 70, a state parks and wildlife bond measure. Scott agreed to hold off logging the two parcels until the election.

The bond measure passed in June 1988, the state Wildlife Conservation Board bought the parcels, and Sanctuary Forest became more than a name. The land trust has used this modus operandi ever since, acting as a catalyst for ecological preservation rather than a conservation landlord. While it has purchased some land directly, most of the 3,600 acres it has conserved were purchased by public entities or larger nonprofits—principally Save-the-Redwoods League. To protect some key parcels, the group has found "conservation buyers"—people willing to purchase acreage with preservation covenants attached to the deed.

LANDOWNERS DETERMINE THE FUTURE OF THIS LAND—ARE THEY GOING TO SELL THEIR LAND? ARE THEY GOING TO DEVELOP IT?

This year, the Sanctuary Forest has had much to celebrate. On February 16, it was awarded the first Land Trust Achievement Award ever granted by the Trust for Public Land in San Francisco. And a couple of weeks earlier it grasped a victory that was particularly sweet because it emerged phoenixlike from the ashes of an earlier defeat.

In 1987, as Sanctuary Forest was negotiating with Eel River Sawmills for Dream Stream and Yew Creek, the timber company was submitting timber harvest plans for other groves in the Upper Mattole. An ancient Douglas fir grove called Vista Ridge became a lightning rod for environmental protest, but after a year of demonstrations, vigils, and litigation, the 80-acre grove was logged.

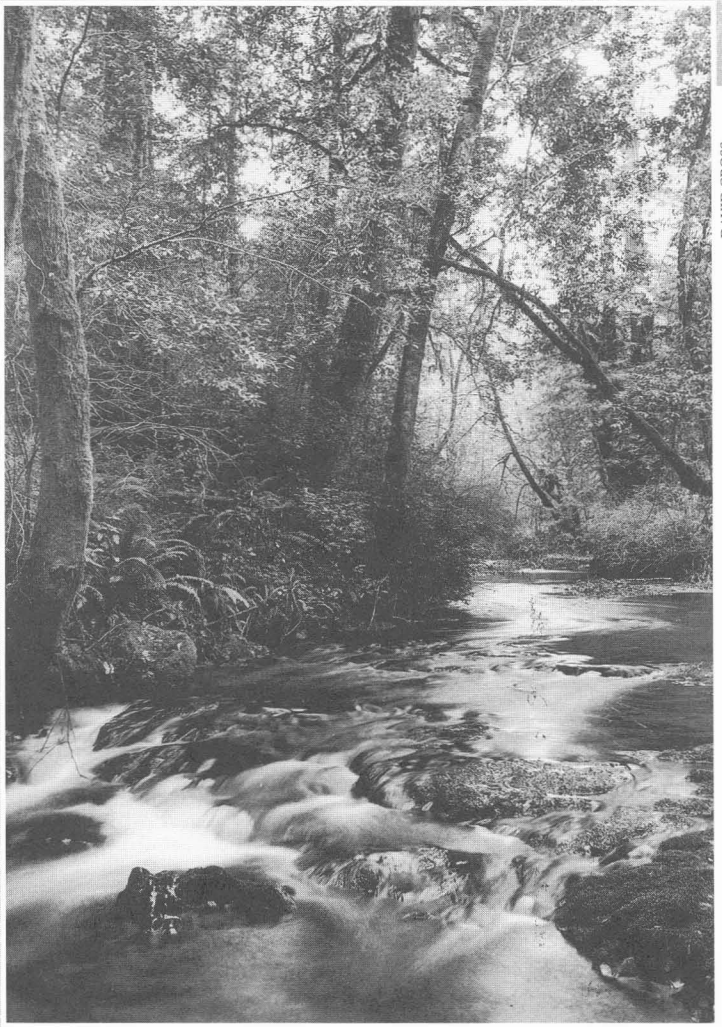
Although it considered the environmental activists to be allies in preservation, Sanctuary Forest had stayed out of that fray. Then in 1998, Eel River Sawmills and Barnum Timber Co. prepared to log two tracts of virgin forest adjacent to Vista Ridge. The land trust approached the companies to negotiate a purchase; both companies agreed to wait while the group raised the necessary $1.25 million.

A key factor in these negotiations was the fact that both companies were locally owned, and their principals had a history of positive dealings with Sanctuary Forest. "They haven't sued, they haven't harassed," said Bob Barnum. "They've worked with us . . . in good faith."

The $1.25 million goal was reached in January when Sanctuary Forest received a $1 million grant from the Paul G. Allen Forest Protection Foundation of Bellevue, Washington, along with a $250,000 loan (which it will repay when the land is sold to the state.)

Allen is a billionaire co-founder of Microsoft. He established his foundation in 1997 to protect old-growth forests in the Pacific Northwest; Sanctuary Forest was its first California grantee. "Paul has a particular affinity to the redwood forests of northern California . . . from his experiences as a kid traveling through the giant redwoods," said Foundation vice president William Pope.

The tracts purchased from Eel River Sawmills and Barnum Timber included logged-over Vista Ridge, now green with young stands of Douglas fir and redwood planted by the former owners. That clearcut has become "a teacher," according to a Sanctuary Forest statement. "What has become 'ugly' and injured has value and has a profound place in the lineage and linkage to the entire forest."



DAVID CROSS

Mattole River headwaters near Virgin Grove

Soon after, Save-the-Redwoods League purchased the 200-acre Lost River old-growth grove on the Upper Mattole for $5 million. And the state legislature put up $2 million for more acquisitions, to be selected by a cooperative group that includes Sanctuary Forest and state and federal agencies.

By 1998, the last of the privately owned old-growth forest in the Upper Mattole was protected. Now Sanctuary Forest is shifting its strategy from facilitating land purchases to conservation easements. The land trust already holds easements on 6,000 acres, but says that acreage many times that cries out for protection.

"We're looking at thousands of acres, the future of which is going to be determined by the landowners," said Snodgrass. "Are they going to sell their land? Are they going to develop it?"

With a recent grant of $8,700 from the Coastal Conservancy, Sanctuary Forest has begun a public information campaign to inform landowners about the benefits of easements and to dispel the misconception that conservation easements "lock up" land from timber or agricultural production.

"The easement language is determined by what rights and restrictions the landowner agrees to put on that property," Ben Moorehead, associate director of Sanctuary Forest, explained. "We have two easements (totaling 1,700 acres) that promote the return of old-growth forest structure while allowing for sustainable forestry."

In fact, Sanctuary Forest has come to believe that timber companies can make good neighbors—especially considering the alternatives. "Because of Barnum and the other industrial timber companies, there's still vast open space that's essential for wildlife and the fishery," said Snodgrass.

And in a small mountain community, good relationships among neighbors are vitally important. Snodgrass is particularly gratified about the mutual respect that's been engendered between Sanctuary Forest and Barnum Timber Co., which still owns 7,000 acres in the Upper Mattole. "Their forester has led Sanctuary Forest interpretive hikes," he said, "and we've been able to take people onto Barnum land and have a dialogue. We're going down two paths, but we're not going in opposite directions."

This neighborly peace in the Upper Mattole is refreshing on the North Coast, where environmental conflicts have etched a deep chasm between pro- and anti-timber camps. But the real beneficiaries will be the coho salmon, southern torrent salamander, red tree vole, and other rare and endangered creatures who need permanent sanctuary from the march of extinction. ■

Jim Hight is a writer who lives in Arcata.

Victory at Age 82

SHE WAS A SMALL, ELDERLY lady, with hair pinned back in a bun, wearing a pink sweater that looked hand-knit. When she stepped to the microphone at the Coastal Conservancy's January meeting, only one item remained on the agenda: the proposed acquisition of a seven-acre piece of land, the last piece needed to complete the Miller-Knox Regional Shoreline in Richmond, on San Francisco Bay.

It was late in the day, but Lucretia Edwards, 82, captured everyone's attention and held it as she told how she and a small group of allies had worked for half a century to realize this park. "Those of us who have been involved all this time were young when the whole thing began and now we are old, indeed our ranks have thinned," she said.

She had come to support the purchase "not purely for the selfish sense of accomplishment we would experience; rather, for the joy that this definitive action would mean to the literally thousands of people who enjoy and are nurtured by this park physically, psychologically, and spiritually. For in an impacted industrial city, it is a healing place for many who desperately need the beauty, freedom, and serenity that it provides."

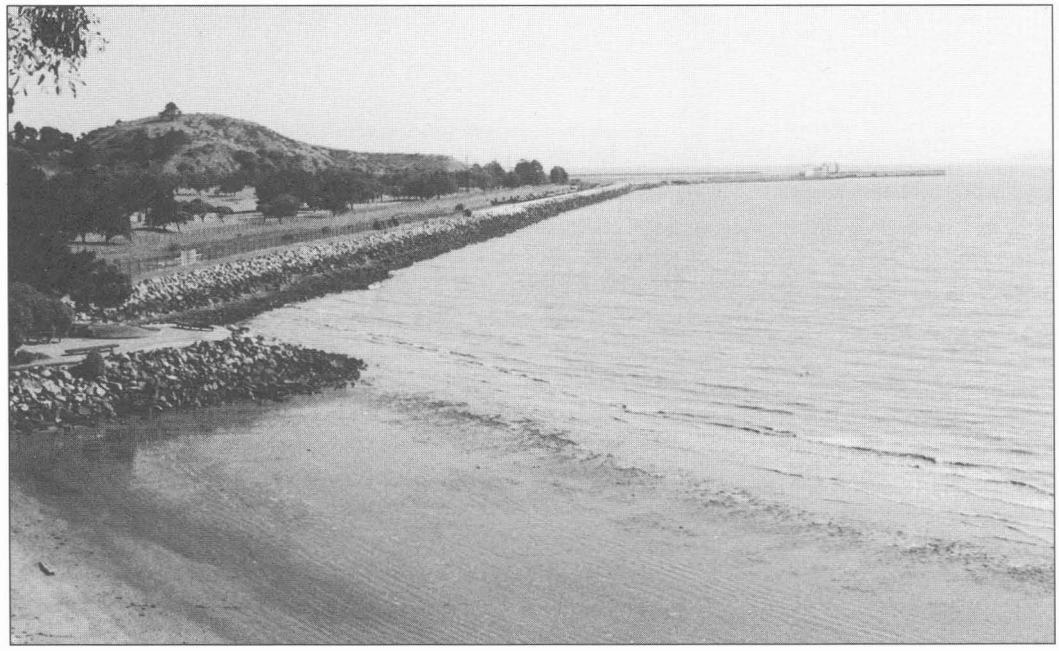
Lucretia Edwards and her husband, the late Thomas Edwards, moved to Richmond in 1948. He was a captain on a tanker for Chevron and later a tugboat docking pilot. "There was no public access to the bay on all of Richmond's shoreline," she said. "Indeed, Point Richmond was the only shoreline residential mile in a city staunchly committed to industrial development. We had to trespass to swim, fish, or revel in the solace of the bay."

Homeowners didn't mind neighbors crossing their property, but when fishermen started coming from other parts of the city, No Trespassing signs went up. The Edwardses, dismayed, gathered a few allies, organized the Contra Costa Shoreline Parks Committee, and "began to explore the possibility of making these simple but important pleasures available to the people who lived and worked here. But at first neither the City nor the Park Board were particularly interested," she told the Coastal Conservancy.

"In 1962 there were rumors that the top of Nicholl Knob, a little hill, was to be sold for high-rise apartments. Knowing that this would mean the end of our efforts to persuade the Park District of the possibilities of a park on the filled flatland below, my husband and I purchased the lots on the top of the hill." Then they "practiced 'divide and conquer' tactics and brought the [East Bay] Regional Park District's

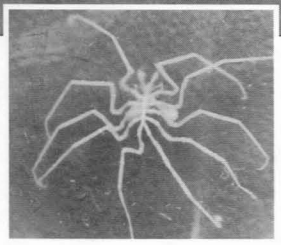
(continued on page 31)

Above: Lucretia Edwards
Below: Looking south along Miller-Knox Shoreline in Richmond



PHOTOS THIS PAGE: DEWEY SCHWARTZENBURG

The Wonders of Joel Hedgpeth



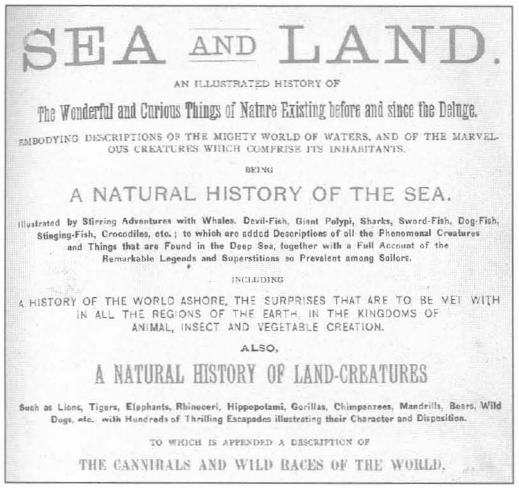
RASA GUSTAITIS

Photographs courtesy Joel Hedgpeth

IN 1919–20, WHEN JOEL W. HEDGPETH WAS EIGHT OR NINE YEARS OLD and living in Oakland, he loved to explore his grandfather's extensive library. One day, on the bottom shelf, he found a book that opened a world to his imagination.

This book, by J. W. Buel, was about four inches thick and had a calf-brown binding, like many of the library's legal volumes. But its title was *Land and Sea: An Illustrated History of the Wonderful and Curious Things of Nature Existing before and since the Deluge.* On the frontispiece, a blue expanse was crowded with whales, sea horses, sharks, and other swimming creatures. Above them, against a pink sky, a polar bear was attacking a walrus on an ice floe; at the bottom, a giant octopus with enormous eyes held a writhing naked man.

Turning the pages, Joel read of the Beginning of the World, Wonders of the Primitive Sea, Monster Saurians Feeding Off Each Other. He read of Beautiful and Curious Fishes and the Luminous Ocean. He read why the ocean is salty and the rain is not, of reasons for believing in the existence of sea serpents, and reasons for doubt.



SEA AND LAND.

AN ILLUSTRATED HISTORY OF

The Wonderful and Curious Things of Nature Existing before and since the Deluge.

EMBODYING DESCRIPTIONS OF THE MIGHTY WORLD OF WATERS, AND OF THE MARVELOUS CREATURES WHICH COMPRISE ITS INHABITANTS.

BEING

A NATURAL HISTORY OF THE SEA.

Illustrated by Stirring Adventures with Whales, Devil-Fish, Giant Polypi, Sharks, Sword-Fish, Dog-Fish, Stinging-Fish, Crocodiles, etc.; to which are added Descriptions of all the Phenomenal Creatures and Things that are Found in the Deep Sea, together with a Full Account of the Remarkable Legends and Superstitions so Prevalent among Sailors.

INCLUDING

A HISTORY OF THE WORLD ASHORE, THE SURPRISES THAT ARE TO BE MET WITH IN ALL THE REGIONS OF THE EARTH, IN THE KINGDOMS OF ANIMAL, INSECT AND VEGETABLE CREATION.

ALSO,

A NATURAL HISTORY OF LAND-CREATURES

Such as Lions, Tigers, Elephants, Rhinoceri, Hippopotami, Gorillas, Chimpanzees, Mandrills, Bears, Wild Dogs, etc. with Hundreds of Thrilling Escapades illustrating their Character and Disposition.

TO WHICH IS APPENDED A DESCRIPTION OF

THE CANNIBALS AND WILD RACES OF THE WORLD.

So entrancing were the chapters about the sea that he returned to them again and again, perhaps (he thought later) not even getting to some of the wonders on land, which were described in the book's second part. Even if not everything was as written and illustrated, as he even then suspected, he wanted to know more of this world.

That year Joel lived with his mother and eight of her sisters in the 29-room Victorian house of his maternal grandfather, a successful attorney, at 929 Chestnut Street. Joel's father, a highly skilled blacksmith, was often away working in distant places. Next door was the home of Henry Hemphill, "an internationally known collector of seashells and marine artifacts. The collection, stored in cabinets and arranged on cards, was another wonder of my early years," he recalls.

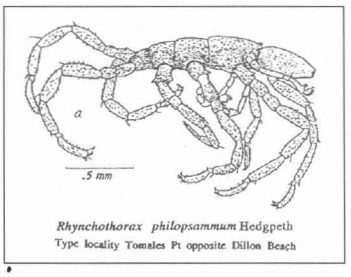
Now, at age 88, Hedgpeth says Buel's book and Hemphill's collection were important in setting his life on course toward aquatic biology. A copy of *Sea and Land* stands in his own wonderful library, along with other treasured works. His own voluminous writings range from a long list of articles on sea spiders, the *Pycnogonids*, to philosophical essays and verse. His *Introduction to Seashore Life of the San Francisco Bay Region*, published by University of California Press in 1962, is still in print and widely used. Among works he has edited and revised are Edward F. Ricketts's *Between Pacific Tides*, and volume 1 of the *Treatise on Marine Ecology and Paleoecology*, a classic work he produced while at the Scripps Institution of Oceanography between 1951 and 1957.

Hedgpeth is an eminent marine biologist, but he is also known as a fierce opponent of "thoughtless engineering" and a passionate advocate for living rivers and the ocean. As a child and youth, he saw destruction being inflicted on rivers by giant water projects, and was deeply affected.

"When I was four or five years old," he remembers, "my parents had taken me to Madera County to spend Christmas with my paternal grandparents in their little house by a big granite outcrop on the south side of Whiskey Creek, east of North Fork. It was a snowy icy Christmas and my father had taken me out toward evening for a little walk along the stream bank. The water was flowing dark and swiftly around the rocks and disappearing underneath slabs of surface ice. I asked: 'Daddy, where is the water going?' He answered: 'Down to the ocean.' Somehow I knew that was far away.

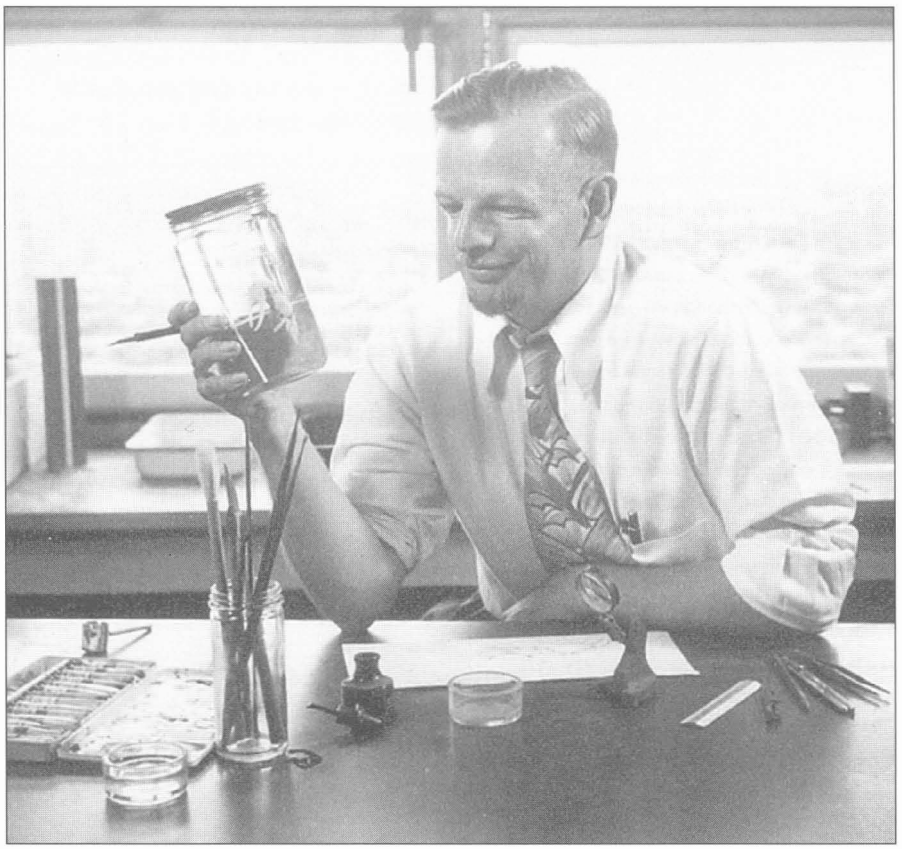
"The water of Whiskey Creek no longer reaches the sea via the San Joaquin River, for it is now held by Friant Dam, built over my father's birthplace and his father's homestead on Dry Creek. It should never be forgotten that Governor Pat Brown, in his eagerness to divert the San Joaquin River, effectively destroyed the salmon population in the river by selling its water down the ditch without an iota of consideration of protection for the fish."

At that time, nearly everyone believed in "progress," and dams were progress. Water that flowed to the ocean was "surplus



Opposite page lower left: *Pentanymphon antarcticum*
Left: Title page from *Sea and Land*
Above: *Rhynchothorax philopsammum* Hedgpeth

At Pacific Marine Station, 1949



water," and fish didn't count for much. In 1921, when he was ten, he witnessed the construction of the Hetch Hetchy Dam, which would soon flood a valley as beautiful as Yosemite, and he began to hate progress. Joel was living with his parents in the small town of Mather, in the Sierra foothills, at the time. Work was increasingly hard to find for a blacksmith and the family moved often. He went to a different school just about every year, but that year there was no school at all to go to. Instead he watched and learned.

In 1939, he was hired by the Bureau of Reclamation as part of a field crew to study the salmon runs while the Shasta Dam was being built on the Sacramento River. "It had been assumed by the engineers who designed the dam and were already digging pits for the concrete blocks that there were hardly any fish in the river," he recalls. "Well, nobody had counted them.

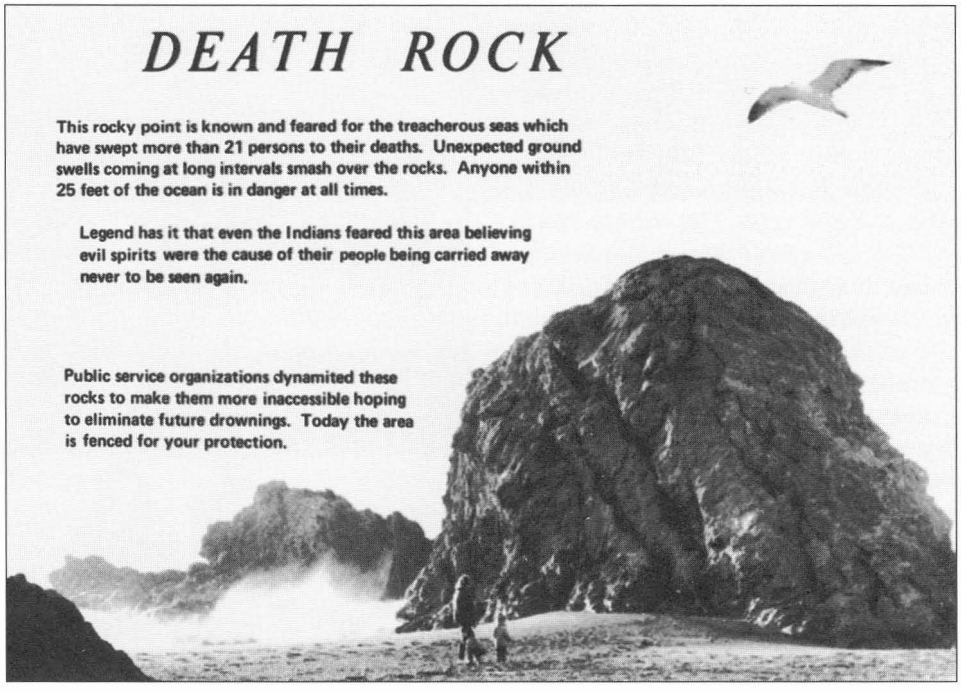
"An attempt to count salmon was finally made at Redding in 1939. The actual count was 21,894, but the total run was estimated at 27,000. So the people who had agitated for the study were right, there turned out to be many more fish than the engineers and politicians had thought. But the structure of Shasta Dam would be too high for any sort of ladder or elevator that could handle the fish. The loss of the run would have to be an unanticipated sacrifice to thoughtless engineering."

Hedgpeth made his voice heard in public hearings, articles, and letters to editors. In a commentary published in 1947 in *American Scientist,* he wrote: "Progress, as the concept is now entertained, is essentially a pernicious doctrine. . . . When spelled with a capital letter by politicians and advertising agencies, Progress is a specious excuse for the continued rape of the environment in behalf of maintaining and increasing our material civilization."

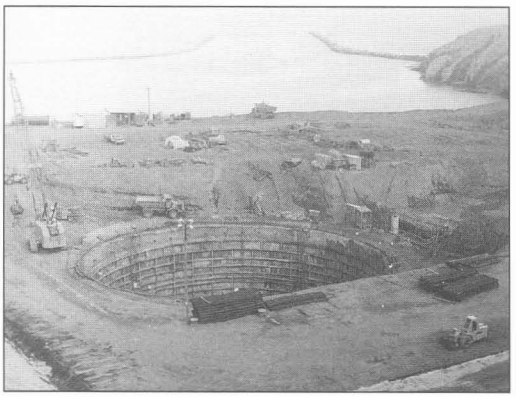
He fought against the California Water Project, a proposed nuclear power plant on Bodega Bay, and other projects, arguing in behalf of fish and other aquatic creatures. He sang, played his Irish harp, and told funny stories. With obvious delight and deadly wit, he attacked sloppy scientists and ignorant politicians. Some very serious people in positions of power came to know him as a curmudgeon, a "snail-darter type," even a misanthrope. Kindred spirits love him for the very things that infuriate his opponents.

In a curriculum vitae submitted for security clearance at Scripps, he listed under "Professional society memberships": "Founder, Society for the Prevention of Progress, 1944." The president of this society, investigators might have learned, was Jerome Tichenor, a poet of elusive character who was so closely associated with Hedgpeth as to qualify as a fellow traveler.

Tichenor surfaced at Scripps during the 1950s, while Hedgpeth was there, and reappeared on the Sonoma coast a few years later,



In the 1920s, ten people were swept off Death Rock at Wrights Beach in Sonoma County and drowned. After more drownings and rescues, this sign was posted, attached to an enormous driftwood log. Within a week it was stolen. "So we put it in a steel frame, with heavy-duty bullet-proof glass," said Supervising Ranger Rick Lawton. Again it disappeared, frame and all. Eventually a much less attractive sign was designed. In the past ten years, 20 people drowned at Sonoma Coast State Park and a few more died in falls from cliffs. Rex Grady, a lifeguard for 17 years, tells of drownings and rescues in his book *Let Ocean Seethe and Terra Slide,* available from him at P.O. Box 583, Occidental, CA 95465. ($17.24 includes shipping.)



Left: Hole in Bodega Head
Above: Hole in the Head Day, October 1963

"WE HAVE THE DUTY TO LEAVE THE GOOD THINGS OF THIS EARTH REASONABLY WHOLE SO THAT OUR CHILDREN CAN STILL BE THE SAME HUMAN BEINGS THAT WE ARE." —Hedgpeth, 1947.

when Hedgpeth was director of the Pacific Marine Station of the University of the Pacific at Dillon Beach. The name of Hedgpeth's maternal grandfather was also Tichenor.

Tichenor's *Poems in Contempt of Progress,* edited by Hedgpeth, were published by the Clandestine Press in 1965. They contain verse that would be inappropriate to reproduce in a magazine that could fall into the hands of the innocent, as well as the "Ballad of Bodega Head," sung on Hole in the Head Day in 1963 during the Battle of Bodega Head. The Pacific Gas & Electric Company, in cooperation with the University of California, was about to build a nuclear power plant on a Sonoma County headland. The project was moving forward quietly, without any public notice or review, until Hedgpeth got wind of it and got the word out. Alarmist verse by Tichenor fueled the resulting furor. Eventually, a network of earthquake faults was discovered near Bodega Head, and the project was scrapped.

This association between Tichenor and Hedgepeth was trouble, and it may help to explain why Hedgpeth, at age 88, is still at it, writing letters to editors, attending hearings. He continues to delight in pointing out sloppy research in journals and books, but is kind and generous to those who seek him out for advice and information.

"Is it true that you used to sit on a rock in La Jolla and play your Irish harp while your students were collecting in the tidepools at 5 a.m?" *Coast & Ocean* inquired on a recent visit to Dr. Hedgpeth at his home in Santa Rosa.

A wicked look flashed across his face. "Not at La Jolla. They don't get up that early in La Jolla."

"There is still only one member in the Society for the Prevention of Progress?"

"Yes. A number of people have applied."

"What preoccupies you now?"

"Three things," he said. "One has to do with sea spiders, a matter of classification. The second is how to save tidepool critters from the kiddies. The third is drowning. People don't read books or pay attention, and—what's more serious—they don't read signs. Several years ago some people came from Sacramento to Schoolhouse Beach [Sonoma County]. The mother was setting up the stove to prepare dinner. She told her child to play in the sand. She looked up and he wasn't there anymore. I don't think they ever found him.

"There was another case recently, and this time they found the body half a mile up the coast. Every one of those beaches has a sign telling you plainly that they're very dangerous. South of Monterey three women in the same family drowned—grandmother,

(continued on page 31)

CITIZEN POWER

Forgotten Waterways See the Light of Day

LISA OWENS-VIANI

AT THE TURN OF the century, three great urban planners had a common vision for the East Bay's cities. They saw streams flowing freely, bordered by parklands that would weave through the urban landscape like lush green ribbons and connect with bayside and hilltop parklands.

Frederick Law Olmsted, Charles Mulford Robinson, and Werner Hegemann urged Oakland, Berkeley, and other cities to acquire strips of land 100 to 500 feet wide along the creeks while the land was still undeveloped and relatively cheap. Robinson, for example, recommended that Oakland connect these riparian strips into a park around Lake Merritt—a much larger one than now exists. With a few exceptions, however, their suggestions were ignored. Instead, most of the East Bay's streams were buried in culverts or constrained in concrete channels, as were many other urban creeks in California.

LISA OWENS-VIANI

In the early 1980s the seeds of a movement to protect what was left of these hidden waterways—and to uncover them where possible—began to sprout throughout the state. Today, California has more than 100 "friends of creeks" groups engaged in activities ranging from basic preservation to volunteer monitoring, educational and community awareness programs, and restoration.

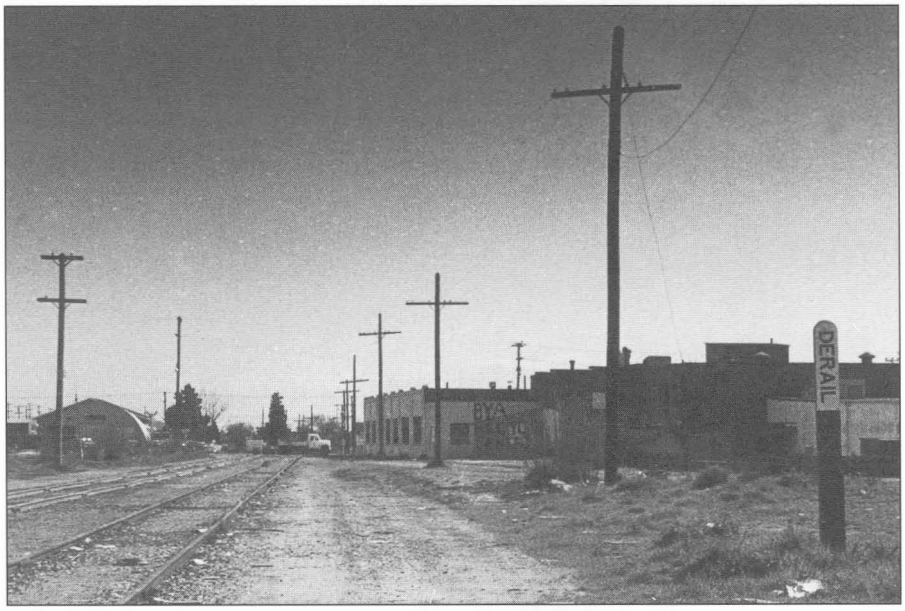
The hearth of the urban streams movement is Berkeley. One of the first streams in the country to be "daylighted" is located here. In 1983, as the city was about to convert an abandoned railroad yard at Addison and Bonar Streets into a park, a small group of citizens—including David Brower, Richard Register, and Carole Schemmerling—requested that landscape architect Doug Wolfe be allowed to dig up about 200 culverted

PHOTOS THIS PAGE: GARY MASON

feet of Strawberry Creek as part of the project. Schemmerling, then a city parks commissioner, and now Bay Area Coordinator of the Urban Creeks Council, recalls that when she first suggested the idea of bringing the creek above ground, the other commissioners "just stared at me blankly."

Some people, however, could more easily imagine the benefits of such an undertaking. One needed only to walk upstream, to the University of California campus, to witness the possibilities. For the University had heeded Olmsted's advice, and there Strawberry Creek flowed freely, creating a pleasant glade bordered by ferns, trees, and grasses, with paths meandering alongside it.

Eventually, Berkeley's Parks and Recreation Commission gave the go-ahead, warning Wolfe that the entire project—including the creek—had to be completed within a budget of $580,000. Not only did unearthing the creek cost less than 10 percent of the total budget, but the restoration was so successful—and Strawberry Creek Park so popular with residents—that the city dug up several more creeks and is now exploring the feasibility of opening another three-block stretch of Strawberry Creek, downtown, as well as the stretch of Derby Creek that flows beneath People's Park.



Left and top: Strawberry Creek Park, at Bonar and Addison Streets in Berkeley, was created along a restored stretch of the creek. Above: The park site before daylighting

Creative Solutions

ELSEWHERE, TOO, the urban streams movement is gaining momentum. Creeks have recently been uncovered in Minnesota, Colorado, Illinois, Georgia, and Washington, and similar projects are proposed in Massachusetts, Oregon, and Pennsylvania. Closer to home, the City of Arcata uncovered Jolly Giant Creek, while in Los Angeles, activists and nonprofit organizations are trying to free stretches of the Los Angeles River from their concrete straitjacket and to reinvigorate a proposal made in the 1930s by two of Olmsted's sons for a Los Angeles River greenway.

At the second Western Urban Streams Conference, in San Luis Obispo April 11–13, it was obvious that a growing number of governments and public agencies are realizing that free-flowing creeks are not only public amenities, they also can carry stormwater at least as effectively as storm drains, and with lesser maintenance costs. Open creeks with vegetated banks also help to filter urban runoff, improving the quality of the water that eventually finds its way to bays and oceans, says Don Freitas of the Contra Costa County Clean Water Program. Creekside vegetation can absorb sediment and take up pollutants, while concrete channels and culverts do neither. And ironically, while culverts and channels are designed to move water from one place to another as quickly as possible, they frequently become clogged with trash and cause flooding. Both Berkeley and Oakland have adopted ordinances to protect open creeks from activities that would destroy their natural vegetation or inhibit their flows. The Berkeley ordinance also prevents development within 20 feet of the top of creek banks.

Students from Thousand Oaks School pull weeds before planting native plants (right), and color door hangers warning against dumping in streams (below).

PHOTOS THIS PAGE: RAY ADAMS

In many other cities and counties, public works officials still find it hard to believe that riparian or creekside vegetation can be more effective than riprap and concrete in stabilizing banks or providing flood control (see p. 29). But citizen activists are prompting institutions to change, says Ann Riley, a pioneer in the urban streams movement. She is the founder and leader of the Waterways Restoration Institute, probably the most active professional stream restoration group in the country, and has led several workshops for the U.S. Army Corps of Engineers and other public agencies on restoration techniques. The Corps—long considered an enemy of free-flowing waterways—now has bioengineering and other less damaging concepts in its repertoire. For example, it sometimes uses willow and dogwood cuttings and bundles (called "poles" and "fascines") to stabilize eroding creek banks. "The Corps is considering ecosystem values too now," says Riley.

Although the urban creeks movement is nationwide, the hub of daylighting activity is the East Bay, home to the Waterways Restoration Institute, Urban Creeks Council, and environmental consultants with solid experience in this work.

In 1991, a 250-foot stretch of Blackberry

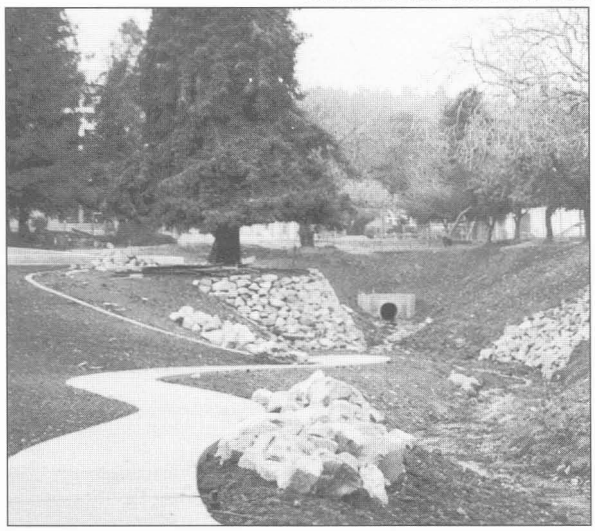
PHOTOS THIS PAGE: LISA OWENS-VIANI

Creek buried beneath the schoolyard at Thousand Oaks School in Berkeley was uncovered. The project was funded by a $144,000 grant from the California Department of Water Resources to the school's PTA and the Berkeley Unified School District. Science teacher Ray Adams has used the creek as the focus for K–5 classes. His students researched the history of the creek, tested its pH and dissolved oxygen levels, and monitored its flow. They observed the creek and its wildlife. Some of the most exciting student work was in the form of art and poetry, Adams says. Many students became very protective of the creek. When they saw dogs in the creekbed, they called the owners' attention to the damage being done.

Among the few East Bay streams to have survived mostly above ground are Codornices Creek in Berkeley and Sausal Creek in Oakland. The first was probably saved thanks to Annie Maybeck, wife of the architect Bernard Maybeck and a founder of the Hillside Club, which urged planners and road builders to keep creeks open wherever possible. Sausal Creek survived because the City of Oakland took the farsighted planners' advice and in the 1940s bought parklands alongside the creek. Both Codornices and Sausal now have active citizen allies, and both provide refuge to residents and wildlife in the midst of chaotic cities.

Most of Codornices Creek escaped burial in the Berkeley hills, as did some other creeks flowing through parks and gardens, but it vanished underground in the flatlands—not forever, though. Within the past two years, two stretches have been restored, largely because of the efforts of stream activists. In 1994 a 430-foot stretch, once slated to become a parking lot, was daylighted on University-owned land; in 1997 another 100 feet were freed from a straightened channel just downstream. Now Codornices Creek once again flows openly for almost its entire length of about five miles. It's still underground beneath north-south–trending streets and I-80, but creek advocates have a vision: they see those streets and a section of the highway replaced by bridges someday, allowing the creek to be completely open. That might have been pure fantasy a decade ago. Now it's an idea that just might be considered if circumstances create an opportunity.

Despite these successes, however, urban stream advocates know that they must stay



Top: Baxter Creek restoration is transforming the channel into more naturally meandering shapes. Above: Blackberry Creek just after daylighting

alert to new development pressures that could undermine their achievements. Late in 1998, for example, the Friends of Codornices Creek were alarmed to learn that a religious community, Congregation Beth El, planned to pave a driveway through an oak grove next to a free-flowing stretch of the creek in the Berkeley hills, and a parking lot on a culverted section that the Friends hoped to daylight someday. Harry Pollack, president of the Congregation Beth El board of directors, said the creek is in "terrible shape" on the site because its banks are very steep and frequently slide.

Pollack vows that whatever the Congregation ends up doing will "make the creek better, one way or another." Those "ways" are sure to be debated in the months to come. One hopeful sign is that Beth El has retained the Waterways Restoration Institute to study the creek. In March, the Institute presented several options at a community meeting. They said the creek would be stabilized best by daylighting the underground section.

Meanwhile, advocates for Baxter Creek, in nearby El Cerrito, are fighting to keep the Albertson's grocery chain from building on top of a free-flowing branch of this creek. Two years ago, the City of El Cerrito daylighted an upstream branch in Poinsett Park, a small city park, as part of a storm drain renovation program.

"People have different interests and ideas about what should or should not be done with [creeks]," says Josh Bradt of the Urban Creeks Council. "It's hard to address everyone's interests, but it can be done. It takes comprehensive planning and creative solutions." Bradt adds that while more public agencies are viewing restoration as a viable alternative to culverts, in some areas it is the general public that hasn't yet "seen the light." "People have become accustomed to a landscape without many streams," says Bradt. "It takes them a while to get used to the idea of all these riparian areas in the middle of a city."

Among cities, Oakland is leading the way in making creek care part of official city business. It has created several staff positions devoted to improving and protecting Oakland's creeks. One employee has the full-time task of responding to complaints of illicit dumping or discharges into the creeks. Others are responsible for community awareness programs, holding workshops on erosion control for creekside property owners, and supervising students in the City's youth job program, Team Oakland, in creek work. The Team cleans out trash and removes invasive, alien plants—particularly ivy, scotch broom, and acacia—and replaces them with natives.

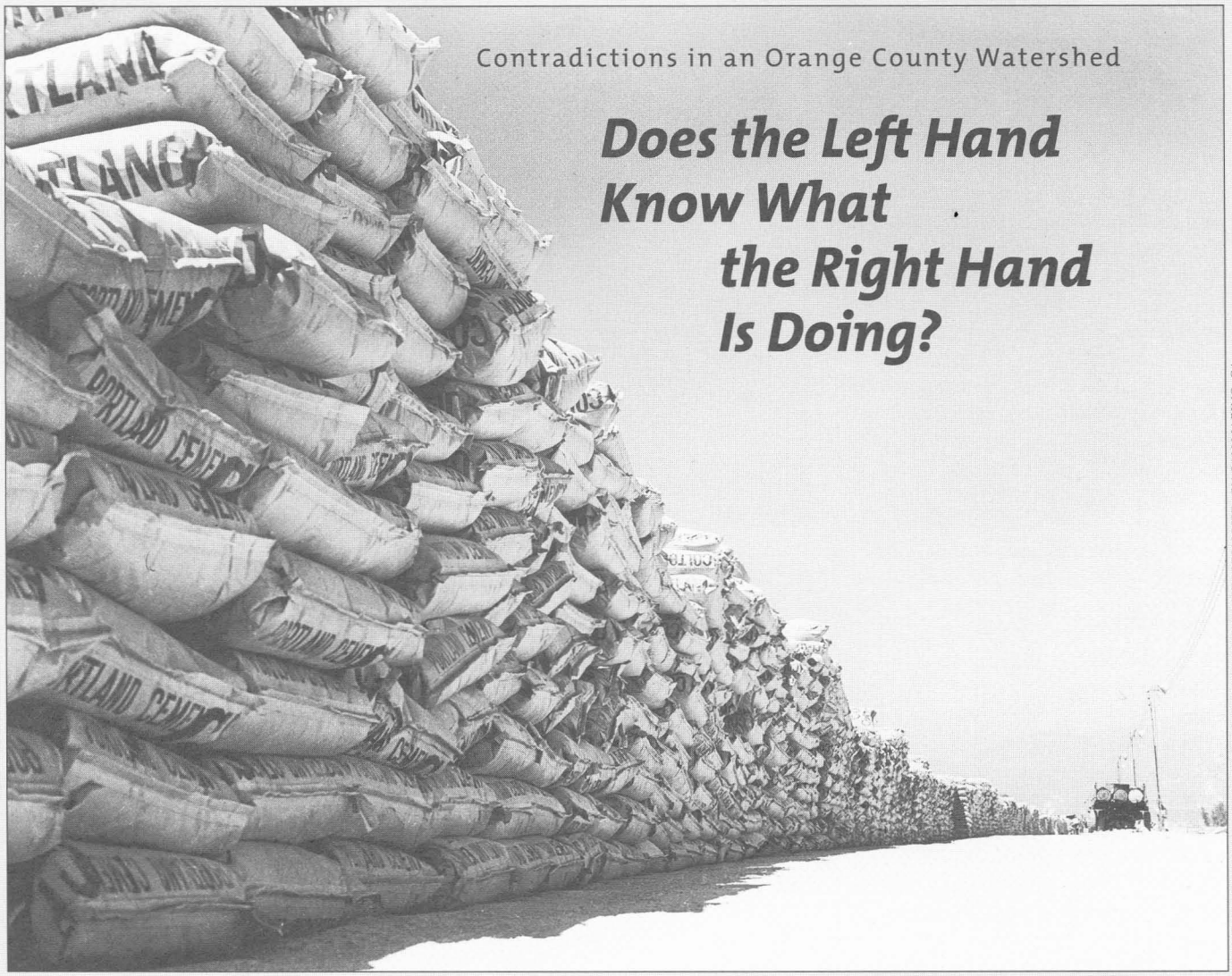
In Foothill Meadows Park, Team Oakland cleaned up Peralta Creek, created a mural, and installed it on a fence. At one end of the painting the creek is shown coming out of an outfall pipe amid old tires, cans, and bottles. At the other end the creek flows through trees and flowers, with wildlife nearby. The Team also designed and distributed fliers and doorhangers asking residents and local businesses to refrain from polluting the creek.

Can more urban streams be rescued and reclaimed as city amenities? The opportunity to create the cityscapes envisioned by Olmsted, Robinson, and Hegemann is gone, but what has happened in the past few years is clear evidence that the story isn't over. These stretches of wildness will only appreciate in value in today's urban world, where natural areas have all but disappeared. As more urban residents reconnect with these revitalized waterways, and more planners and policy makers perceive urban streams as something of value, the natural landscape could once again become an integral part of our cities. ■

Lisa Owens-Viani is assistant editor of California Wild *magazine.*

Members of Team Oakland's Fruitvale Team measure the width of Peralta Creek in Foothill Meadows Park.

LISA OWENS-VIANI



"DICK" WHITTINGTON COLLECTION, COURTESY THE HUNTINGTON LIBRARY, SAN MARINO, CA

Contradictions in an Orange County Watershed

Does the Left Hand Know What the Right Hand Is Doing?

SEAN WOODS

IN THE UPPER NEWPORT BAY Ecological Reserve, the state is spending more than $7 million this year in an attempt to save one of the largest remnants of a saltmarsh ecosystem in southern California. Sediment has been flowing down San Diego Creek into the bay at so great a rate that tides can no longer flush it all out and the upper bay is filling in. So for months, a contractor has been dredging this sediment out of the bay, loading it onto a barge, and hauling it offshore for disposal. Meanwhile, the Army Corps of Engineers, the County of Orange, and the Coastal Conservancy are studying what can be done in the upper watershed to reduce the flow of sediment and keep contaminants out of the 752-acre reserve.

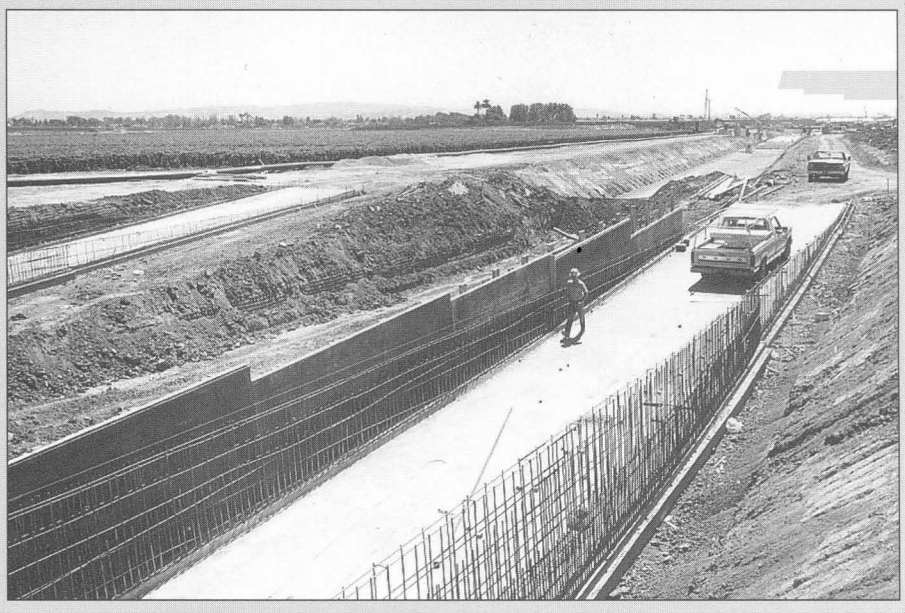
Such costly interventions may be futile, however, in light of environmental destruction in the upper watershed, where earth-moving machines are cutting deep into the rolling foothills of the Santa Ana Mountains, leaving giant gashes of exposed soil and gravel that will add to the sediment flow into the bay when the rains come.

Above: No, this is not a 1999 image, nor is it from San Diego Creek. This cement was used for the Los Angeles River in the late 1930s.

The sedimentation problem in Upper Newport Bay began in the 1960s, when San Diego Creek was channelized as a flood control project and sent directly into the bay instead of through the San Joaquin Marsh. Now millions of cubic yards of mountains are being moved to carve new toll roads through the hills for new subdivisions on acreage that only a few months ago nurtured citrus groves and vegetables. While elsewhere in California long-buried streams are being resurrected from concrete and enlivened with willows and other natural streamside plants, here development practices still resemble those employed when the Los Angeles River was straightened and encased in concrete in the late 1930s. Parts of San Diego Creek and its tributaries, which drain a 118-square-mile watershed, are being confined to concrete-lined troughs to protect new developments from floods.

The Irvine Company is the largest private landowner in Orange County and the biggest of the upper watershed developers. Defend the Bay and other citizen groups are urging the

Right: A multi-use trail being built beside channelized Peters Canyon Wash, main tributary of San Diego Creek, 1998
Below: Working on Peters Canyon Wash



PHOTOS THIS PAGE: SEAN WOODS

company to adopt more environmentally sensitive methods of flood control: to allow streams to meander naturally in wider channels, to provide greenbelts between streams and developments, and to preserve open spaces where creeks could flood. Bob Caustin, founder of Defend the Bay, charges that the Irvine Company and other powerful entities have plowed over environmental regulations. Dave Kiff, assistant to the city manager of Newport Beach, is more tempered in his criticism. "The Irvine Company has done a lot of environmental harm but it has also done a lot of good," he says. "They are trying to be 'good neighbors' and we are working with them to adopt a broader perspective of flood control."

"We have attempted to retain soft-bottom areas where possible" in the creek, says Sat Tamaribuchi, the Irvine Company's vice president for environmental affairs. About a mile of the nine-mile stretch in the area being developed is to be preserved in a natural state, he says. When the 93,000-acre Irvine Ranch property is built out (that is, when all developable land has been developed), more than 35 percent of the total acreage will remain in open space, including 21,000 acres committed as part of the county's habitat conservation plan. Sediment flow will diminish, Tamaribuchi contends, as urbanization continues on hillsides and agricultural land. Not everyone agrees, however.

Fast-paced development on a massive scale has created the need for a variety of costly interventions to counteract environmental damage. A section of the Foothill Transportation Corridor—one of three new toll roads being constructed by a "virtual corporation" that will be dissolved as soon as the project is finished—has been built below the water table. Consequently, more than 1.3 million gallons of groundwater a day have to be pumped to keep the road from being submerged. In 1998 the Regional Water Quality Control Board granted a permit to the Transportation Corridor Agency, a joint powers agency set up for the toll road construction, to dump this water into the bay.

Although this water contained high levels of nitrates from surrounding farmland, the Transportation Corridor Agency and the Water Quality Control Board concurred that the untreated discharges would not negatively impact the bay. Defend the Bay disagreed, sued the Agency, and prevailed in court; the Transportation Corridor Agency was subsequently required to build a treatment facility to "denitrify" the pumped groundwater before discharging it.

Downstream, more than ten nonprofit organizations and public agencies are working to protect and enhance the Upper Newport Bay Ecological Reserve, which is managed by the Department of Fish and Game. But upstream, citizen watchdogs are scarce and scattered. "There is very little environmental support" in the many housing developments and in cities including Irvine, says Jack Skinner of Stop Polluting Our Newport. "That's part of the problem: a lack of awareness of the impacts that these communities have on the bay and the coast."

On a recent spring day, the tributaries of San Diego Creek churned brown as they gurgled toward the bay. Last year, during the El Niño winter, immense volumes of this sediment-laden water scoured deep trenches and undercut stream banks. From Serrano Creek alone, over 400,000 cubic yards of silt and mud flowed into the bay, much of it the result of an upstream housing development.

The Coastal Conservancy is currently launching a Watershed Enhancement Plan to identify areas for restoration as well as to save some of the rapidly vanishing remnants of open space.

Sean Woods, an environmental consultant, works with the Coastal Conservancy.

Victory at Age 82

continued from page 19

board members, one at a time, to lavish picnics to show off the glorious view and the temptingly vacant flatland below."

That flatland had once been part of the bay. It had been diked and filled with sediment dredged from Richmond's inner harbor. The fill was found too unstable for building, however, and had therefore become available for a park. "We eventually succeeded in selling our park idea to the Park District, which purchased our Nicholl Knob lots from us in 1972 for the price we had paid for them plus the taxes incurred," Lucretia Edwards concluded. "We now have a park that serves our diverse population with generous room for all."

With pleasure and admiration, the Coastal Conservancy approved $400,000 to the East Bay Regional Park District for the acquisition of the desired seven acres (see p. 38). Later, Lucretia Edwards reflected: "Some things take longer than others." ■

—*RG*

COURTESY LUCRETIA EDWARDS

This 1915 photo shows railroad tracks running on a dike to Ferry Point. The diked part of the Bay was later filled.

Joel Hedgpeth

continued from page 23

mother, and daughter. These people came from Kansas. So I told Steve Webster [director of education for the Monterey Bay Aquarium], 'Your aquarium is a public nuisance because it invites so many people who are unfamiliar with this coast who then start walking on the beach.' I suggested he start a movement to put up signs in every hotel and motel room. I'm trying to write a little essay now on this subject for Ed Ueber [director of the Gulf of the Farallones National Marine Sanctuary] so he can stick it into next year's tide table instead of some of the useless things in there."

"And sea spiders?" asked *Coast & Ocean.* "I read in your oral history, I think, that you became interested in them because they're so strange, nothing but legs."

"That's right, yes. There's been argument about how to classify them. They have a curious assembly of different qualities that extends all the way to the outer structure of the tissues. They have this or that in one direction, maybe toward crustaceans, and in another direction they're related to horseshoe crabs. So in effect they stand alone among the arthropods. I thought I might like to make a kind of swan song and declare them completely segregated from all other arthropods rather than be kicked around from one side to the other."

"And the kiddies and tidepool critters?"

"Kids wear hiking shoes with spikes, and they pick things up. I went out one day on a Sunday afternoon in winter to the Fitzgerald Marine Reserve [San Mateo County]. The tide was low and I saw this guy with a great bucket full of critters and out of his jacket poked my *Seashore Guide,* which has notes in it saying, 'Don't Take Things Off the Seashore.' I just watched him in horror. He was already leaving the beach with all this stuff. Some years ago some students at San Diego State set up a card table just asking what people were bringing from the beach and what they planned to do with it. And people had no idea, of course, what they would do with all the things they were taking."

Hedgpeth wanted to look up a lifeguard, Rex Grady, who had written a book about drownings on the Sonoma coast, titled *Let Oceans Seethe and Terra Slide.* (Had he, too, read Buel?) So we drove to the Sonoma Coast State Park office at Duncan's Landing. It was Grady's day off, but Supervising Ranger Rich Lawton would pass him a message. Would Dr. Hedgpeth sign his copy of *Seashore Life?* He would.

It was already dusk by the time we turned back, with Hedgpeth—or was it Tichenor now?—singing a song in Welsh, then a Swiss ballad in German, in an amazingly strong voice for a man of his years, interspersing songs with stories. "It all reminds me of the inscription on the statue of Puck across the street from our nation's capitol," he concluded: "'Lord, what fools these mortals be!'" ■

Joel W. Hedgpeth's oral history, Pycnogonids, Progress, and Preserving Bays, Salmon, and Other Living Things, *is available from the University of California, Berkeley's Bancroft Library Regional Oral History Office. For information phone: (510) 642-7395; FAX: (510) 642-7589; e-mail: roho@library.berkeley.edu.*

Idle Thoughts on Botticelli's Venus

Venus was portrayed by Botticelli
Delivered to the world on half a shell,
With a modest hand across her belly
Like some gawky adolescent belle.

Now my dear if you should ever stand
Naked by some nymph enchanted sea,
I hope you will not clutch with awkward hand
What every man would like to see.

—Jerome Tichenor

Elkhorn Slough Sea Otters

ANNE CANRIGHT

Photographs by Frank S. Balthis

"SEX?" "MALE."

"Grizz?" "Medium light."

"Behavior?" "Traveling and feeding."

"Prey?" "Washington clam, a big one, 2.5 paws."

"Depth and temperature?" "Seventeen feet, water 52.7, air 76.2."

"Wait, it dived. Let's time it."

The Otter Catechism ceases momentarily as four pairs of eyes scan the water around the skiff, waiting for the animal to surface. Soon, sploosh, up it pops, with two more clams, one on its belly, the other clutched in its leathery little paws. Whap whap, gnaw gnaw—it's quickly feasting again.

"Seventy-six seconds. Got it. Okay, done with number fifteen. Where's sixteen?"

We're working our way up Elkhorn Slough on a warm October morning, flowing effortlessly with the flood tide. Tom Kieckhefer, a director of the Pacific Cetacean Group (PCG), and his research associate, Barbara Voss, come every Monday, rain or shine, to do a number and distribution survey—one of many otter-related studies being conducted along the California coast generally, and in Elkhorn Slough specifical-

Top left: A raft of sea otters bobs in Elkhorn Slough. Bottom left: Mike Harris (left) and Jack Ames, of the California Department of Fish and Game, transfer a captured otter from net bag to kennel. Above: Julie Hymer, stranding coordinator for the Monterey Bay Aquarium's Rescue and Care Program, plays "surrogate mom" for an orphan pup in the Aquarium tidepool, as an adult wild otter watches.

ly. Today a student intern and I add our eagle eyes to this watchful work.

Elkhorn Slough, which winds some seven miles inland from Moss Landing, is one of California's largest remaining wetlands, a seasonal estuary with freshwater input only during the winter months and a high degree of oceanic influence the rest of the year. A soothing place of sparkling blue water, mudflats studded with probing shorebirds, and expanses of pickleweed, all surrounded by rolling hills and farmland, it is also a National Estuarine Research Reserve, and it lies directly at the head of the Monterey Bay submarine canyon. As an otter habitat, it is unusual, since sea otters in Monterey Bay generally prefer the kelp forests that occupy the rocky areas along the coast. It is also unusual in that otters seem to be actively establishing a colony here—an activity that in the past has been restricted to the extremes of their current range, between Año Nuevo and Half Moon Bay in the north and below Purisima Point in the south.

As an otter habitat, however, the slough has certain drawbacks. One is the influence of boats, both in the working harbor of Moss Landing and along the length of the estuary itself.

IT'S AN UNUSUAL HABITAT FOR SEA OTTERS . . . THEY PREFER THE KELP FORESTS THAT OCCUPY THE ROCKY AREAS ALONG THE COAST.

The slough is frequented by kayakers, anglers in motorboats, a pontoon boat that carries sightseers, and others. These watercraft not only pose a physical risk to swimming and rafting sea otters, but many also release toxins into the water, including petroleum products and antifouling agents used in boat paint.

A second problem is linked to the fact that the slough is surrounded by agriculture. Pesticides, fungicides, and heavy metals enter the water in runoff, especially during the rainy winter months. All these compounds become concentrated in the flesh of filter-feeders such as clams and worms—which in turn are eaten by otters. Unfortunately for the otters, it is likely that these chemicals suppress the immune system, leading to increased levels of disease.

On the positive side, the slough is relatively sheltered, which can be a real

advantage during heavy winter storms. In fact, this amenity may be what first enticed small numbers of sea otters through the Moss Landing Channel and into the slough during the 1980s. These early visitors didn't settle in for good but returned to their preferred kelp forest foraging grounds early each summer. Between 1994 and 1995, however, the mean number of otters observed in the PCG weekly surveys jumped sixfold—from four to 24. Not only that, but once the winter storms had passed, this group of mostly juvenile males stuck around. And the number of permanent residents has been growing. This year Kieckhefer and Voss have counted anywhere from 30 to upward of 70 individuals every week.

Why Do They Come?

ON TODAY'S SURVEY we observe 45 otters, mostly young males, along a five-mile stretch from the Moss Landing jetty to Kirby Landing. More than half of the animals are rafted up at Seal Bend, a protected spot. They hang out in a few compact groups, more or less motionless, paws tucked under chins or over eyes or ears, hindflippers aimed skyward. The rest are traveling or feeding or grooming singly, and one energetic pair is splashily cavorting.

The purpose of this census is quite simple: because otters have not been found in a slough environment before, little is known about how they use this habitat, which in many ways, such as availability of prey species and ease of foraging, is very different from the otter's typical haunt, the kelp forest. Indeed, it remains unclear just how many of the animals actively feed in the slough; some may be coming in exclusively to rest. This is one question that researchers hope to tackle as observation of the slough otters continues.

Another focus of interest in the PCG surveys is gender distribution. Although most of the otters we see today are males, some young females have also made their way into the slough, and mother-pup pairs have been observed. If enough females were to take up residence, this could become a permanent colony—provided the food holds out, either in the slough itself or in easily accessible kelp forests nearby.

Among the otters that arrived in the slough in the winter of 1994–95 was Taylor, a young male released from the Monterey Bay Aquarium Sea Otter Research and Conservation (SORAC) program. The following year, says SORAC biologist Michelle Staedler, other young graduates of the aquarium rehabilitation program moved on their own from Monterey to the slough, where they joined the burgeoning colony. This behavior caused staff to consider a change in release strategy: instead of letting rehabilitated otters go from a Monterey location, maybe it made sense to transport them to the calmer waters of the slough for release.

The SORAC program embarked on this experiment in early 1997, when two "early weaners," a 14-week-old male and a 12-week-old female, were

Top: Karen Drayer monitors tracking equipment used for observing otters in the wild.
Bottom: A sea otter chews on the Wilson trap that captured him.

found stranded off Moss Landing. They were kept in a rehab tank for a while, then released in the slough—the first of 11 tank-raised otters released there so far. Although not all stayed put, some are now among the otters counted in the PCG's weekly surveys.

The biggest success story of the SORAC program's Elkhorn Slough release experiment is that of a female found at five weeks of age off Carmel in March 1997. Still in her natal pelage and bouyant as a cork, she was unable to dive for food. At the time, the aquarium was bursting at the seams with otters in need of help, and there weren't enough staff to undertake the time-consuming job of serving as "surrogate moms" to this youngster. So they put her in a tank with the Moss Landing female, and the two bonded. During the three-plus months the two were together, before the older otter was taken to the slough in July, the little one learned just what it takes to survive as an otter. When it came time to release the youngster the next month, the slough seemed the best bet, largely because it was a sheltered place with lots of food. Although her "mentor" was still at the slough, says Staedler, and "we probably mused that wouldn't it be interesting if the two met up at some point," that was not a factor in the decision to release the little one there.

Once on her own, she did famously. She gravitated to the tidal channels on the northern side of the estuary, where she hauled out on the pickleweed, pulled crabs and small invertebrates off the mud, and bit off clam siphons. A few months later she moved down to the main harbor of Moss Landing, where she has been thriving for the past year, munching down the biggest clams she can find.

CLOSE CONTACT BETWEEN HUMANS AND OTTERS IS GENERALLY UNWISE FOR BOTH SIDES, NO MATTER HOW FRIENDLY.

Clams, of course, are not typical otter fare; in kelp forests, otters seek out abalone, sea urchins, crabs, snails, and other rock-dwelling invertebrates. But in the muddy slough bottom the menu changes, both in the type of prey available and in the number of species otters forage for.

What otters eat and the size of their prey are key concerns of the PCG sur-

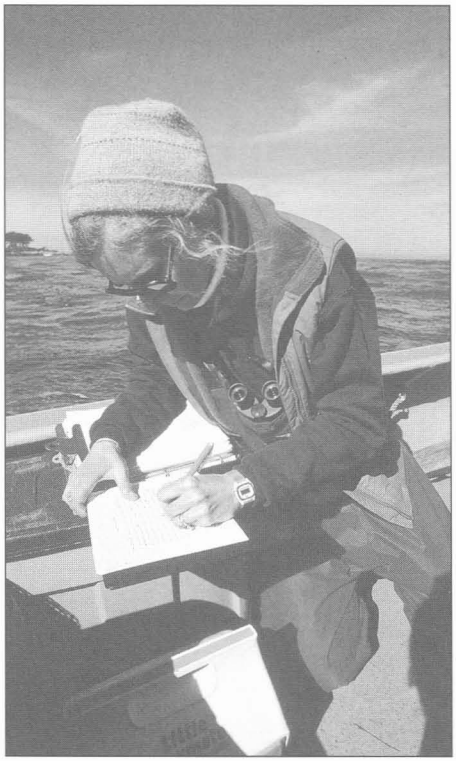
Left: A captured otter is checked for oral lesions. Below: Ellen Faurot-Daniels, Michelle Staedler, Dave Casper, and Julie Schwartz prepare an otter for tagging and identification.

veys because research elsewhere has shown a strong relationship between prey size and otter residence in an area. The food that slough otters most covet seems to be Washington and gaper clams, but they also feed on fat innkeeper worms, cancer crabs, mussels, and possibly hermit crabs. Clams and worms can burrow as deep as two feet into the soft sediment of the slough—which means it takes quite a bit of energy to dig them out. Otters therefore compromise: instead of going for the very biggest—and deepest—clams, they seem to prefer medium-sized ones, which are easier to get at.

As we all know, easily extracted resources tend to disappear rather quickly. Researchers suspect that once the medium-sized bivalves are eaten up, the otters may well leave to seek out clammier pastures, as their Alaskan cousins have been observed to do in similar situations.

COULD THE SOUTHERN SEA OTTER BE A SORT OF "CANARY" SPECIES, AN INDICATOR OF THE WELL-BEING OF OUR NEARSHORE WATERS GENERALLY?

"If we see the otters moving out of the area, and can show that the size of prey has gotten smaller, that will be good news for the kayak businesses at the mouth of the slough," says Kieckhefer—in that it might forestall a need to place limits on boat rentals. Some boaters simply don't grasp what "too close" is when it comes to wildlife viewing, Voss observed. "On Labor Day alone we saw more than 50 kayakers at Seal Bend. One just about ran over a mother and pup." Within the past several years, too, one wild otter and one that had been rehabilitated by the Aquarium and had made its way up to the slough were found dead, says Staedler. Both "had broken ribs and looked like (they) had been hit by a large object." The presumed culprits were reckless boaters. Part of our survey today therefore includes the number of boaters, as a gauge of potential human impact in these new otter feeding grounds. If such incidents continue, these data may contribute to curtailing the number of kayakers on the slough. If otters move out on their own, though, that issue will disappear along with them.



Biologist Michelle Staedler takes field notes for an otter study.

Close contact between humans and otters is generally unwise for both sides, no matter how friendly. This October, a SORAC otter named Thelma was taken to the slough for release. Unfortunately, Thelma didn't behave quite as she should have. Instead of foraging for food, she spent her time swimming up and down the slough as fast as her little flippers could propel her. Then she hitched a ride on a kayak to the Moss Landing Yacht Club, where she proceeded to entertain the clubgoers for the rest of the day. Aquarium staff decided it would be best to pick her up. As they sat in their boat scanning the water for her, a pair of kayakers approached and asked for assistance. "Uh, could you help us get this otter out of our boat?"

Thelma, who had lost some 15 percent of her body weight during her slough adventure, is now back at the Aquarium. She will be moving to a new home—in captivity. For all the cases of successful rehabilitation, there are always a few otters that simply fail to adapt to life without humans.

Toxicity Studies

WHILE KIECKHEFER, Voss, and other researchers study otter behavior and distribution, still others are concerned with less easily observable aspects of otter ecology, including prey toxicity and blood toxicology. Two studies, one just starting up, the other entering the final analysis stage, focus on these matters. Mark Stephenson, of the California Department of Fish and Game (DFG), will be undertaking a risk assessment study, funded by the Friends of the Sea Otter, the Monterey Bay National Marine Sanctuary, and the DFG Oiled Wildlife Care Network, to analyze the risk to sea otters from pesticides and heavy metals in their prey. The study will comprise three parts: a general literature search, since no good data exist for sea otters specifically ("we have to go from rats to minks to river otters" to figure out the risk loads of sea otters); pesticide analysis of the prey proper; and plugging the data into a model, the point being to see if daily intake exceeds what is safe.

If the results indicate that the toxins in otter prey are at unhealthily high levels, says Stephenson, the solution may well lie in part in working more actively with farmers to improve agricultural management—in particular, the creation of buffer zones to hold back pesticides from washing into the slough. "Farmers are starting to really get interested" in such projects, he observes. Daniel Mountjoy, of the U.S. Department of Agriculture Natural Resources Conservation Service, agrees. During the past four years, he says, 52 growers of the 200 or so in the

Elkhorn Slough watershed have enrolled in projects aimed at slowing farm runoff rates. The effort thus far has focused on steeper farmlands, where the risk of heavy runoff is greatest. Continuing this effort and expanding it to include other growers may well be the key to the continued health of the slough—and of the slough's otters, if they stick around.

The second study, involving the investigative talents of researchers at the University of California Santa Cruz and Davis, the Department of Fish and Game, and the Monterey Bay Aquarium, is broader in scope and focuses on the analysis of blood samples. According to veterinarian Dave Jessup of the DFG's Oiled Wildlife Veterinary Care and Research Center in Santa Cruz, this year blood was drawn from 30 animals at three locations: Pleasure Point in Santa Cruz, Cannery Row in Monterey, and Elkhorn Slough. The samples will be compared with blood drawn earlier from otters in various locations in Alaska and at Avila Beach, the site of an oil spill in the early 1990s. All the blood is being tested for heavy metals, pesticides, and other indicators of the impact of pollution on otters' well-being. The California samples are also being analyzed for viruses.

The study has been motivated in part by a well-publicized die-off in the southern sea otter population. Between May 1995 and May 1998 the population along the California coast declined by over 11 percent, from 2,377 to 2,114. In addition, from spring 1997 to spring 1998 the number of pups dropped by nearly 50 percent. Necropsies have shown that some 40 percent of otter deaths are due to infectious disease. Is that rate alarming? No one really knows. As Andrew Johnson, SORAC program manager, points out, "Unfortunately, we do not have years of data that we can refer to that would show trends and new significant causes of mortality. More work is needed."

The bloodwork being done is an important step in this process, for it will establish some baseline levels on which future studies can expand. One focus of the bloodwork is to determine incidences of such diseases as protozoal encephalitis, herpes, so-called canine distemper, and leptosporosis. As for analysis of pollutants, such as PCBs, petroleum, heavy metals, and pesticides, it is quite likely that by compromising the immune system they render the animals more susceptible to diseases.

Rescue and Care Program volunteers release an otter after rehabilitation.

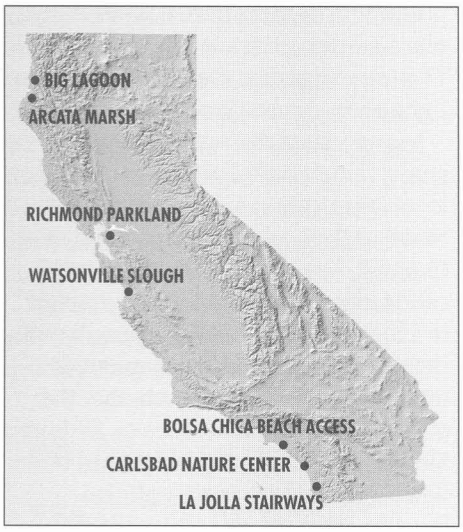
The impact of these substances, which are carried to the sea through storm drains and streams, is felt throughout the sea otter range. The slough has the added disadvantages of receiving agricultural runoff and of harboring filter-feeding prey that concentrate pollutants in their tissue. Does that place slough otters at a higher risk? This investigation may shed some light on that question.

Jessup views this work as a pilot study. If high pollutant levels or high levels of infection are found in the blood of the healthy sample population, that will, he says, have "serious implications for the survival of the sea otter" in California, and further research will definitely be needed. A key point of interest, says Staedler, is whether the otters in specific areas, such as Elkhorn Slough, have higher toxin counts, or whether levels are fairly uniform because animals are dispersing back and forth. If the latter proves to be the case, we will have a partial answer to the "are they feeding in the slough or are they just resting there" question.

Could the southern sea otter be a sort of "canary" species, an indicator of the well-being of our nearshore waters generally? Certainly as a population with limited range, sharing a relatively small gene pool, and living on a largely exposed coastline, they have a lot to tell us about biodiversity and ecology. As our small group motored back down the slough, slowing at Seal Bend to take one last look at the otters resting, swimming, and feeding in the sparkling sunshine, I was struck by the dedication of people like Kieckhefer and Voss, who every Monday, rain or shine, are out there looking, looking, waiting for the splash of an otter. Otters are a well-loved symbol of the central coast of California. They are also a key component of local ecosystems—including, for the moment at least, that of Elkhorn Slough. Thanks to studies like the ones I've described we'll know that much more about them—and about their future in our waters. ■

Anne Canright is a contributing editor to Coast & Ocean. *She lives near Elkhorn Slough.*

Coastal Conservancy News



IN THE FIRST THREE MONTHS of 1999 the Conservancy approved several projects to protect resources and expand public access along the California coast and on San Francisco Bay. New projects include:

ACQUISITION ON BIG LAGOON

THE COASTAL CONSERVANCY approved $400,000 in March to help the Save-the-Redwoods League purchase 135 acres of forest and wetlands on the southern end of Big Lagoon, in Humboldt County, from Louisiana-Pacific Corporation for $1.3 million. The League's share is $900,000. The land borders Big Lagoon Bog, one of four remaining California fens, and will serve as a buffer for its protection. The League expects to donate the property to California State Parks to be included in the Henry A. Merlo Recreation Area.

WATSONVILLE SLOUGH ACREAGE

THE OPEN SPACE ALLIANCE of Santa Cruz County will purchase and protect 38 acres in the heart of the Watsonville Slough system with the help of the Coastal Conservancy and the County. This acreage, the Cardoza Ranch, supports freshwater marsh, oak woodland, and grassland habitats, as well as about 20 acres of farmland. Both agricultural and natural resource conservation easements will be put into place after acquisition. Then the property might be either resold to a farmer or rancher, or retained by the Alliance or other nonprofit organization or public agency for habitat restoration and lease of the farmland. The Conservancy approved $500,000 for the purchase in January, of which $480,000 is a reimbursable grant. The County is providing $200,000.

BOLSA CHICA BEACH ACCESS RAMP

THE CITY OF HUNTINGTON Beach will build a full-access ramp to Bolsa Chica State Beach with the help of $68,000 from the Coastal Conservancy. The ramp will allow beachgoers, including wheelchair riders, to travel easily from the intersection of the Pacific Coast Highway and Seapoint Street to the pedestrian/bicycle path behind the beach, parallel to the highway. Beachgoers have been sliding down the bluff, thereby causing erosion. Construction will begin soon.

CARLSBAD NATURE CENTER

WITH THE HELP of $300,000 from the Coastal Conservancy, approved in February, the Agua Hedionda Lagoon Foundation will establish a nature center near the eastern edge of the lagoon in Carlsbad, on the San Diego County coast. This center will have educational facilities and displays, and will provide meeting space for groups dedicated to conservation and public access. It is meant to be a focal point for community efforts to preserve the region's coastal lagoons and to build a network of public trails. The 2.5-acre site and 3,800-square-foot building will be donated by the Kelly Land Company, which plans a development of 800 residences on 433 acres of adjacent land. The nature center is expected to open by spring 2000.

MORE PARKLAND FOR RICHMOND

THE EAST BAY REGIONAL Parks District hopes to buy seven bayfront acres between Miller/Knox Regional Shoreline Park and Ferry Point Park in Richmond with the help of $400,000 authorized by the Conservancy in January. This purchase would make it possible to link two segments of the San Francisco Bay Trail, to restore seasonal wetlands on the property, and to expand the popular Miller/Knox park.

Big Lagoon, with the forest land to be purchased in the foreground

NEW LA JOLLA STAIRWAYS

ALSO IN JANUARY, the Conservancy authorized $120,000 to the City of San Diego to replace two deteriorating stairways to La Jolla Cove. The City will contribute $80,000, and will maintain the stairways.

La Jolla Cove is a marine preserve and, with its adjoining bluffs, is home to a rich diversity of marine life and birds. The cove's beach has over 800,000 visitors a year.

ARCATA MARSH IMPROVEMENTS

THE COASTAL CONSERVANCY approved $75,000 for the City of Arcata in February to restore and protect wetland habitat and improve visitor services at the Arcata Marsh and Wildlife Sanctuary. In partnership with the Conservancy, Department of Fish and Game, and the Janes Creek Flood Control District, the City is undertaking a $150,000 effort to restore and protect wetlands at McDaniel Slough and lower Janes Creek, and to improve visitor services at the Marsh.

Other News

WANT TO HONOR A COASTAL CHAMP?

THE NATIONAL OCEANIC and Atmospheric Administration seeks nominations for the 1999 Walter B. Jones Memorial and NOAA Excellence Awards for Coastal and Ocean Resource Management. Individuals, organizations, state and local government agencies and their employees may be nominated May 1 to June 30. The awards honor outstanding contributions to maintaining healthy coastal and ocean resources in balance with human use. For more information, phone: (301) 713-3070, ext. 170; e-mail: jonesaward@ocean.nos.noaa.gov; or see the web site: www.nos.noaa.gov/jones_award.html.

SUMMER COASTWALKS

COASTWALK IS OFFERING HIKES along the entire California coast this coming summer, following the California Coastal Trail where possible. Each hike will last four to eight days. Participants will visit beaches, marshes, parks, museums, lighthouses, and other coastal attractions, walking from one to 10.5 miles each day. They will also have opportunities to fish, canoe, swim, and watch wildlife. On some nights hikers will camp out; on others they will stay in hostels, or in unusual sites including Fort Ross, the Monterey Bay Aquarium, Scripps Institute of Oceanography, and aboard the *Star of India,* a three-masted tall ship.

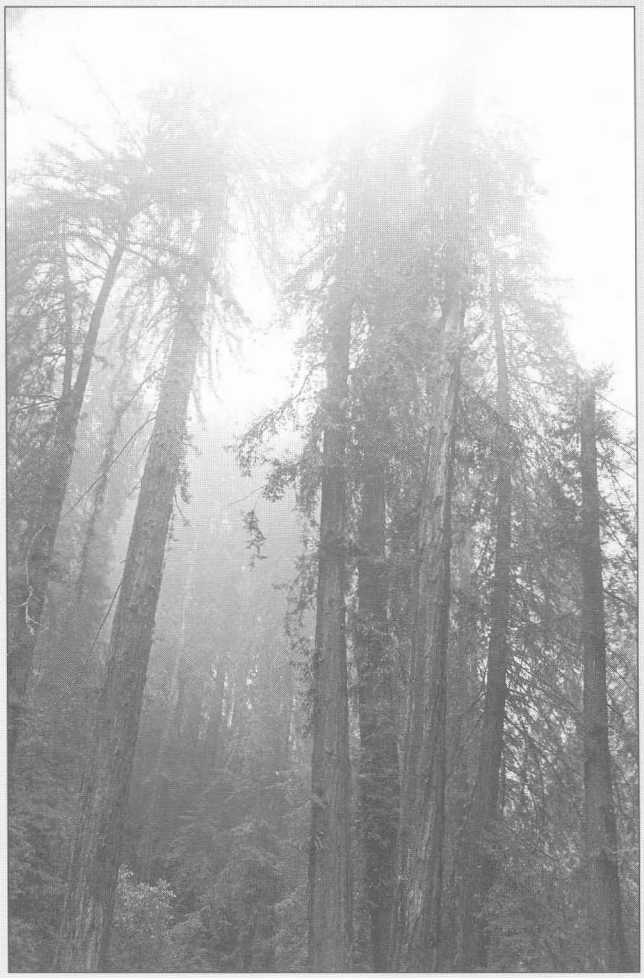
Most of the hikes are easy or moderate (along the north coast, alternate routes are available for some difficult stretches), and children are welcome. In some counties, hikers may join for single days. Fees (including dinners and transport of gear) are $39 per day for adults, $21 for fulltime students, and $16 for children 12 and under. Scholarships are available for students.

Coastwalk is a nonprofit organization dedicated to completing the California Coastal Trail and preserving the coastal environment. For more information, write to Coastwalk, 1389 Cooper Road, Sebastopol, CA 95472; phone or fax: (707) 829-6689; e-mail: coastwalk@sonic.net; or check their web site: www.sonic.net/coastwalk.

THE IMPORTANCE OF FOG DRIP

IT HAS LONG BEEN KNOWN THAT OLD REDWOOD FORESTS create their own microclimate by trapping moisture that drifts in from the ocean as fog. But only recently has a scientist shown how important that water source is to the forest ecosystem, and how dependent it is on the presence of the tallest trees.

In a three-year study conducted at ten sites north of Arcata and south of Crescent City, plant ecologist Todd E. Dawson of Cornell University and the University of California found that when forests are intact, fog drip provides as much as 45 percent of a coastal redwood's annual water use, and that some understory plants depend completely on water that drips from the giant trees' foliage to the ground. In an intact forest, 34 percent of the hydrologic input was from fog drip in an average year during the study period. After logging, however, the annual fog input plunged to 17 percent.

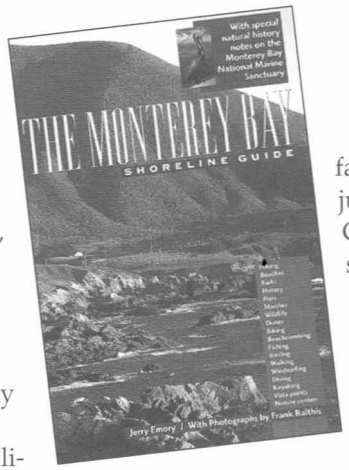


CHARLES KENNARD

When big trees are removed, a hole is left in the canopy, allowing sunlight to reach the ground and moisture to escape. It's as if a hole had been cut in the roof of a greenhouse. Dawson's study is published in the January 1999 issue of the journal *Oecologia.* He can be reached at ted4@cornell.edu.

The Monterey Bay Shoreline Guide, by Jerry Emory. Photographs by Frank Balthis. University of California Press, Berkeley, and Monterey Bay Aquarium, 1999. 308 pp., $16.95 (paper).

GOOD GUIDEBOOKS are meant to be used in the field, not read, so this review should be considered a preliminary look at *The Monterey Bay Shoreline Guide,* a joint publication of the University of California Press and the Monterey Bay Aquarium. Having said this, if good guidebooks need to be about natural history and ecology as well as about locations and facilities, then this guide will—no doubt, in my opinion—become a well-worn volume on many users' bookshelves. Indeed, it may quickly become the unofficial guidebook to the Monterey Bay National Marine Sanctuary.



Not stopping at Monterey Bay, Jerry Emory's guidebook describes much of California's central coast, from Point Año Nuevo to Point Sur, because, as the author observes in the introduction, "not only are all these lands and nearshore environments ecologically related, but there are simply too many fantastic places to visit just north of Point Santa Cruz and immediately south of Point Pinos."

The book covers the expanded topics of natural history, environment, and marine and coastal ecology very well. Perhaps the best features in this regard are the numerous "sanctuary notes"—short items on subjects ranging from sand dollars to slough sharks to the great Monterey Submarine Canyon. In my initial "visits" with the guide, I have already learned many things about Monterey Bay that I didn't know before. One minor quibble: had an expanded series of maps been included, this handy volume could have been even more useful. I heartily recommend you get your own copy at the earliest opportunity. I doubt I'll be without mine when I next return to Monterey Bay to explore its vast offerings.

Marc Beyeler, a long-time Coastal Conservancy staffer, was responsible for the Conservancy's Guide to California's Public Piers *and the* Pocket Guide to Orange County Beaches, *both published in conjunction with the University of Southern California Sea Grant Program.*

What goes around comes around? In 1958, the *San Francisco News* printed this drawing by cartoonist Al Tolf, who worked with railroad historian Roy Graves to assure accuracy in a nostalgic portrait of a bygone era. The Bay Bridge, automobiles, and the elevated Embarcadero Freeway put an end to it all. Now, however, the ugly freeway is history, Ferry Plaza is being spruced up, streetcar service is returning to the Embarcadero, and plans for an even grander fleet of 100 ferries are being considered. This cartoon is one of 33 illustrations and 200 photographs in *The Ferry Building: Witness to a Century of Change, 1898–1998,* by Nancy Olmsted, published by the Port of San Francisco and Heyday Books (240 pp., $30 paperback).

NEW AND INTERESTING (SEE PAGE 3)

Totem Salmon: Life Lessons from Another Species, *by Freeman House. Beacon Press, Boston, 1999. 224 pp., $24 (hardcover).*

Voice from the Sea: Reflections on Wildlife and Wilderness, *by Margaret Wentworth Owings. Monterey Bay Aquarium Press, Monterey, 1998. 230 pp., $19.95 (paper).*

From the Redwood Forest: Ancient Trees and the Bottom Line—A Headwaters Journey, *by Joan Dunning, photographs by Doug Thron. Chelsea Green, White River, VT, 1998. 272 pp., $24.95 (paper).*

Turkey vulture by Joel Albert

"NATURALLY THEN, THE MOUNTAINS, THE CREATURES, THE ENTIRE NONHUMAN WORLD IS STRUGGLING TO MAKE CONTACT WITH US . . . THE ANIMALS ARE SIGNALLING TO US IN OUR DREAMS OR IN FORESTS; THE WHOLE EARTH IS RUMBLING AND STRAINING TO LET US REMEMBER THAT WE ARE OF IT."

—From a travel journal by David Abram

Coastal Conservancy

CALIFORNIA COASTAL CONSERVANCY
1330 BROADWAY, 11TH FLOOR
OAKLAND, CA 94612

BULK RATE
U.S. POSTAGE PAID
PERMIT NO. 1
BERKELEY, CA

Also in this issue:

Sea Otters Try a New Diet

Saving Redwoods, Creeks and Coastal Scrub

Fog Drip