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C a l i f o r n i a

# Coast & Ocean



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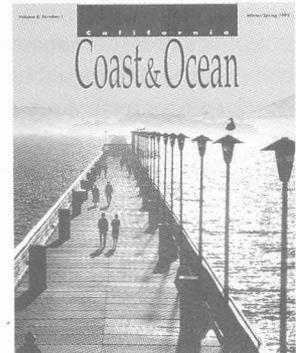
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*These humans  
are getting  
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BRANT WARD

*Yeah! Let's hop on the next space shuttle.*



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CALIFORNIA ACADEMY OF SCIENCES

## From The Executive Office

by Peter Grenell

California's present economic woes have renewed the squabble over how much environmental regulation is enough. The notion that environmental protection and economic development conflict creates a bogus dilemma. In fact, there is solid evidence that the two can complement each other, given vigorous state leadership to help faltering industry move in directions that will guarantee a sustainable future. California's North Coast timber controversy provides a good case in point.

People who live in the region and who know the forests—loggers, woodworkers, and environmentalists alike—have been pushed at each other's throats by economic and tax systems whose incentives foster (a) short-term gain for the few through use of junk bonds and other gimmicks to finance leveraged corporate buyouts that must be paid for by environmentally destructive massive clear-cutting of forests; (b) export of raw lumber and jobs out of the region, and even the country; and (c) lack of long-term investment in industrial and regional futures, at the expense of local and regional business, local government, citizens, and the forest ecosystems.

Facing the same situation, Oregon has moved to revitalize its distressed wood products industry, which employs more than 65,000 people and is the largest industry in the state, by introducing the European concept of "flexible manufacturing networks."

Legislators and others from Oregon and Washington learned of these networks during travels in Europe under sponsorship of the German Marshall Fund of the United States. In Italy and Denmark, they found an "economic transformation led by networks of small businesses and supported by a web of

industry associations, cooperative institutions, and regional agencies," they reported in the fund's newsletter *transAtlantic Perspectives*. They found that a significant feature of northern Italy's economy is a strong wood furniture and furnishings industry consisting mostly of networks of small producers, joined through an association that enables them to cooperate and, at the same time, leaves room for independence and competition. The association enables small producers, together, to bid on large jobs that would be beyond the reach of them individually. The association also supports them in other ways, such as joint warehousing and raw materials stockpiles—including logs from Oregon! "It was quite a shock for those of us who had considered ourselves economically superior to find that what we produced was merely a commodity going into someone else's high-quality finished products," the U.S. visitors reported. "How can they do this? was our automatic question."

Cooperation grew in response to the competition small Italian firms faced from imports produced in other countries with lower wages. The Italians realized that to survive they had to move to higher-value production and that they could only do this by working together. The networks with their fascinating combination of cooperation and competition now link not only woodworkers but also machinery makers, and those in apparel,

ceramics, and other industries.

The results are impressive. The Emilia-Romagna region, from which this example is drawn, went from seventeenth to second in per capita income among Italian regions in under 20 years.

Oregon responded to this eye-opener first by establishing an interim legislative committee to develop a strategy to help workers and communities affected by timber harvest reductions cope. The premise was that government could provide funds and incentives to try networking, but that it would be up to the private sector to take the lead. An opportunity was seen to increase value-added processing by shifting from the commodity-based wood products industry.

Ultimately, the legislature established a Wood Products Competitiveness Corporation, with a board appointed by the wood products industry, and the power to promote networks. The corporation can provide grants, technical assistance, broker training, support for research and development, industrial extension activities, and marketing.

California could explore such producer network approaches, not only for North Coast timber, but for other economic sectors and regions. Such an approach to development would lessen pressures for massive clear-cutting to maintain local livelihoods. It would facilitate attempts to promote more environmentally sensitive sustainable forestry, and would ease the way for the development of further employment possibilities through forest land restoration and management. The California Department of Forestry's forest landowner stewardship incentive programs, coupled with various nonprofit land stewardship activities, and with approaches such as that of the Coastal Conservancy to watershed restoration, could complement the development of wood products business networks. □

***"It was quite a shock for those of us who had considered ourselves economically superior to find that what we produced was merely a commodity going into someone else's high-quality finished products," the U.S. visitors reported.***

# Ebb and Flow

## Conservancy Actions in December

•Both clapper rails and container shipping should benefit from the recreation of the **Sonoma Baylands Tidal Marsh** on 322 acres of diked hay field in southern Sonoma County, at the intersection of Highway 37 and Lakeville Highway. The Coastal Conservancy approved the design and implementation of the project in the southern portion of the 830-acre property, which was purchased by the Sonoma Land Trust with Conservancy funding.

A new perimeter flood control levee will be built, with a series of peninsulas, to allow the return of full tidal action to the site while protecting low-lying subsided lands and transportation corridors nearby. The peninsulas will break up wind-driven waves and protect the levee from erosion, and they will cause sediment to build up along the inner edge of the new marsh, developing high marsh habitat. The central portion of the marsh will have greater wind and wave erosion and foster low marsh habitat. Both habitats are important to endangered species, including the salt marsh harvest mouse and California clapper rail. Over 2 million cubic yards of dredge material could be used in the marsh restoration, benefiting the shipping industry in San Francisco Bay. Lack of approved sites for dredge spoils disposal prevents necessary deepening of shipping channels.

•The Coastal Conservancy approved the **Fairview and Talbert Regional Park Enhancement Plan** in December and authorized disbursement of up to \$1.3 million to the county of Orange for its implementation on the Fairview and North Talbert properties, 97 acres east of the Santa Ana River, between Victoria Street and the city of Costa Mesa's Fairview Park in Orange County.

The project is part of the Santa Ana

River Enhancement Program, which encompasses over 600 acres of largely degraded wetlands, former flood plain lands, and coastal scrub along the Santa Ana River and within three miles of its mouth. Restoration of this area has been phased because of complexity and high cost. Phase I has been completed by the Army Corps of Engineers on 92 acres of the 192-acre West Newport property as part of the \$1.5-billion Santa Ana River widening project. The Fairview and Talbert Plan, constituting Phase II, will allow the county to recreate some native grasslands and woodlands, and to construct trails and overlooks as part of a coordinated program for a much larger area that is to become an "ecological staircase" comprised of salt marsh, brackish marsh, and freshwater wetlands, with transition to native woodlands/grasslands at the upper reaches of the area.

The Conservancy will fund most of the enhancement and access improve-

ments on the North Talbert and Fairview properties in Phase II. The county will operate and maintain these improvements in perpetuity, and will fund restoration proposed on the South Talbert property (Phase III), as mitigation for future county public works projects.

•The Conservancy approved the acquisition of 73 acres in the **Tijuana River National Estuarine Research Reserve** by the city of San Diego, using \$430,000 authorized in 1981. Coastal sage on this land provides valuable habitat and buffers nearby wetlands from erosion. The purchase of this land, in three parcels adjacent to the Mexican border, brings the total acreage in public ownership within the 2,531-acre reserve to 2,365. The private owners of the remaining 166 acres are unwilling to sell at this time. This Conservancy-approved acquisition expends all state and federal funds now available for purchase of the remaining private holdings within the reserve.



NELIA FOREST

## Oakland Estuary Park

With \$140,500 from the Coastal Conservancy, matched by \$70,000 of its own funds, the city of Oakland has built barrier-free access improvements at Estuary Park. These include a floating dock, accessible by ramp, and ramps to the picnic area. A restroom has been retrofitted and is now fully accessible, as are the drinking fountain, fishing pier, and parking lot.



## Shorebird Park at Berkeley Marina

Shorebird Park, at the Berkeley Marina, has improved barrier-free access thanks to \$277,265 from the Coastal Conservancy matched by \$200,000 from the city of Berkeley. Curb cuts and paving now allow people with limited mobility to enjoy 285 feet of trails. New tables and benches have been provided.

• As part of a multi-agency effort to both prevent further degradation of the Malibu Creek watershed and enhance its resource values, the Conservancy authorized up to \$85,000 to the Topanga-Las Virgenes Resource Conservation District toward preparation of a restoration plan for the watershed and the creek's coastal lagoon. Additional funding will come from the Santa Monica Bay Restoration Project (\$50,000) the Las Virgenes Municipal Water District (\$50,000), Cal Trout (\$15,000), and the U.S. Department of Agriculture's Soil Conservation Service (\$400,000).

The Malibu Creek watershed encompasses 105 square miles in Los Angeles and Ventura counties; the lagoon is in the city of Malibu. The watershed has been studied by a task force of local, state, and federal agencies, with substantial involvement by local citizens, during the past nine months. As a result of the work of this group, in which the Conservancy has been an active participant, a comprehensive planning effort for the watershed will be undertaken this year.

• The Conservancy authorized funding to implement the Vessel and Gear Staging and Repair Space Program element of the **Local Marine Fisheries Impact Program**, which is designed to address the cumulative impacts on the com-

mercial fishing industry from development of oil and gas resources along the state's coast. The agency approved:

- \$175,000 to the Port San Luis Harbor District to improve several commercial fishing vessel repair facilities within the harbor
- \$325,000 to the city of Morro Bay to construct a commercial fishing gear storage area within the city
- \$30,000 for the purchase of storage containers to improve and operate a commercial fishing gear storage area in Santa Barbara.

• The Conservancy approved up to \$200,000 to the **East Bay Regional Park District** for the construction of a bicycle/pedestrian trail and bridge around the northeast portion of San Leandro Bay, near Oakport and High streets in **Oakland**. This project will connect the east and north shores of San Leandro Bay and extend the San Francisco Bay Trail to East Creek Point at the mouth of the Oakland Estuary. It will tie into facilities at Arrowhead Marsh and Doolittle Drive, and will be accessible by public transit as well as private vehicles. The Park District will contribute \$238,315 to the **San Leandro Bay Trail and Bridge** project.

• The Conservancy approved the enhancement plan for the 737-acre **Burdell**

**Ranch** on the Petaluma River in **Marin County** and authorized up to \$475,000 to the Marin County Open Space District toward acquisition of the property, which lies between two units of the Petaluma Marsh Wildlife Area managed by the Department of Fish and Game and the open space district. Much of the acreage consists of diked historic baylands that support extensive seasonal wetlands even while being used for grazing and hay production. The rest of the property is on higher ground that provides a critical upland complement to the wetland habitat. Market value for the property has been set at \$8.2 million due to zoning on the ranch, which permits commercial and industrial development. The American Land Conservancy has negotiated an option and purchase agreement with the ranch's owners, providing for cash purchase. The Department of Fish and Game has committed \$1.48 million toward the purchase. As of this writing, the AmericanLand Conservancy is seeking the balance of the funding from other public agencies and from private sources sufficient to exercise its option, with title to the property to be vested in two or more public entities.

• To prevent fines collected by the San Francisco Bay Regional Water Quality Control Board from being lost, the Conservancy authorized up to \$9,000 to the **Marin Audubon Society** for an enhancement plan for the **Gallinas Creek wetlands**, at the end of Mitchell Boulevard, San Rafael. The funds will be used in implementing the plan. Historically, the site would have provided habitat similar to that at the adjacent Contempo Marsh, with dense salt marsh vegetation and tidal fluctuations. However, the site has been filled and now, except for two marshy depressions, is mainly upland habitat with ruderal vegetation and a few nonnative trees.

# Conference Log

## **Environmental Justice**

The Coordinating Council of the Southwest Network for Environmental and Economic Justice will be guests of the Havasupai Nation at a meeting in the Grand Canyon, June 18-20. Delegates from California and seven other states will learn of the Havasupai's seven-year struggle against plans to mine uranium on the rim of the canyon, according to Richard Moore, a co-chairman of the network, and will plan joint action on "industrial, military, and municipal injustice" issues of common concern.

The gathering is among several regional meetings planned in response to a "Call to Action" adopted at the First National People of Color Environmental Leadership Summit, which brought some 250 participants from the United States and abroad to Washington, D.C., October 24-27, to discuss "environmental racism" and launch a movement for "environmental justice." The central issue of the gathering was the perception that the costs of environmental degradation are borne disproportionately by people of minority and poor communities; and that environmental organizations and agencies have failed to take account of this inequity. Conference participants charged that predominantly white environmental organizations were ignoring the tendency to site toxic waste dumps, municipal landfills, and hazardous industries in poor and minority communities, and were thereby guilty of "environmental racism."

The Washington meeting was sponsored by the Panos Institute, a nonprofit organization that works to raise public understanding of sustainable development, and the United Church of Christ. It followed a letter sent in early 1990 by the Gulf Coast Tenants Organization and the Southwest Network for Environmental and Economic Justice to eight major na-

tional environmental organizations, accusing them of racism in their hiring practices. Conference participants included delegates of groups in Central America, Hawaii, the South Pacific, the Caribbean, and Africa.

A "Call To Action" adopted at the conference demanded "an immediate end to the systematic murder of peoples of color through global environmental genocide," an end to "the deliberate targeting of communities of color and the lands of indigenous people as dumping grounds for hazardous wastes and radioactive materials, and the production of pollutants," a "ban on the export of hazardous waste and radioactive materials," and "the right to live in healthy communities, free of the illness and disease spawned by environmental degradation, which affects our children, youth, and families." Also adopted were 17 *Principles of Environmental Justice*. The first is: "Environmental justice affirms the sacredness of Mother Earth, ecological unity, and the interdependence of all species, and the right to be free from ecological destruction."

*Running Grass*

*Running Grass is the founder and director of the nonprofit Three Circles Foundation, dedicated to the advancement of multicultural environmental education in California.*

## **Upcoming Conferences**

The symposium, **Interface Between Ecology and Land Development in California** will be held at Occidental College in Los Angeles, May 1-2, in conjunction with the annual meeting of the Southern California Academy of Sciences. Intended to bring together people involved in research, environmental consulting, and governmental policy, it will include sessions on biodiversity and habitat loss, mitigation and development, restoration of damaged communities, and urban

wildlife and corridors. For information, write to Jon Keeley, Biology Dept., Occidental College, Los Angeles, CA 90041-3392, or call (213) 259-2697.

A scientific symposium, **Science and the Public Trust Doctrine**, will be held May 7 at the Sacramento Convention Center. Sponsors are the San Francisco Estuary Project, State Lands Commission, California Academy of Sciences, East Bay Regional Parks District, and the Regional Parks Foundation. Biodiversity and the Endangered Species Act will be discussed. Call (916) 322-6877.

**The First World Congress on Tourism and the Environment** will be held in Belmopan, Belize, April 27-May 1. Participants will discuss the management and development of natural resources upon which tourism depends and the economic potential of nature-based tourism. Special focus will be on coastal zone management, including wetlands, mangroves, beaches, reef systems, and small island development. Field seminars throughout Belize are planned. (See *Coast & Ocean*, Winter/Spring 1991, for a report on Belize's efforts to protect its coral reef.) The congress will be conducted in English. Registration is \$175; the seminar fees are \$95. For information, write to First World Congress, Ministry of Tourism and the Environment, 19 Mayflower St., Belmopan, Belize, or call: 501 08-22542; FAX: 501 08-22862.

**California's River Heritage**, a conference on conservation issues, policy, and implementation, will be held May 18-19, at the Radisson Hotel in Sacramento. Governor Pete Wilson will present the State of California's rivers agenda for the year 2000. Registration is \$95. For more, call 1 (800) 752-0881 or write to University Extension, UC Davis, Davis CA 95616-8727.

# THE COLORS OF GREEN



by Thomas W. Gwyn

**G**reen can safely be said to be the "official color" of environmental awareness. It is associated with things natural, with fertility; it means fresh, wholesome, organic. But to people of color, environmental groups and agencies tend to appear in another light. They look glaringly white: led by white people in the interest of white people, oblivious of—and sometimes in conflict with—the interests of minorities. This discrepancy has vital implications for the future of California's coast.

Demographic trends indicate that people of color—black, yellow, brown, and red—will soon constitute the majority of the state's population. Yet the various interests currently represented in debates over how to manage the Pacific Ocean and its coast do not include the points of view of the emerging brown majority. As a Coastal Commissioner (one of three nonwhites among the 12), I am charged with trying to balance the competing interests seeking to use the resources of the state's coast, within the context of the Coastal Act. The Coastal Commission processes about 2,000 actions a year: permits, appeals, amendments, revocations, consistency determinations, etc. During my first 18 months on this job, I recall only two black applicants, maybe four black witnesses commenting on applications before us (one was Whoopi Goldberg), and only one black professional representing an applicant. Similar numbers apply for Hispanics and Asians.

Clearly, minority citizens are not significant players before the Coastal Commission. The same can be said of other agencies and organizations dealing with environmental issues. Yet the future of California, and of the nation, is increasingly brown. The constituency for environmental issues of the future is brown.

According to the 1990 Census, 42.8 percent of the state's population was composed of minority groups. Immigration is expected to add 500,000 people more a year through 1995, with two-thirds, or 330,000 of each year's immigrants being Asian or Hispanic. [Martha F. Richie, *American Demographics*, March, 1989.]

Minorities already compose 54.4 percent of the state's school population, according to the State Department of Education. (Hispanics: 34.4 percent, blacks: 8.6, Asians: 7.8, Filipinos: 2.2, Pacific Islanders: 0.5, American Indians and Alaska Natives: 0.8, and Pacific Islanders: 0.5).

As whites become a minority in California, the emerging brown majority's diverse interest groups will inevitably maneuver into positions of policy influence. What will they see to be in their self-interest?

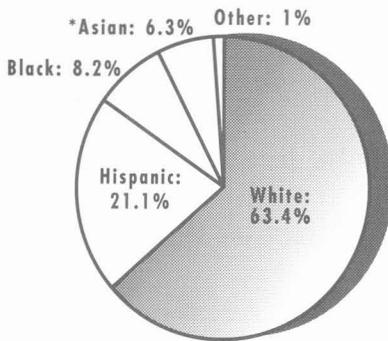
What if a random sample of black and Hispanic young men, between the ages of 18 and 25 (voters) could choose between a taxpayer subsidy to save trees and a job program to cut down those trees? How much would you be willing to bet that they would choose to save the trees?

*Demographic trends indicate that people of color—black, yellow, brown, and red—will soon constitute the majority of the state's population. Yet the various interests currently represented in debates over how to manage the Pacific Ocean and its coast do not include the points of view of the emerging brown majority.*

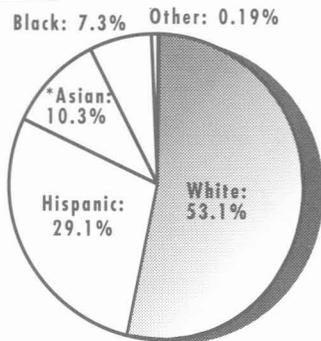


## Who Lives in California's Coastal Counties?

**1980**



**1990**



**More Hispanics and Asians and fewer whites live on California's coast. The black population dipped slightly in the last decade.**

\* Asian category includes American Indians, Eskimos, Aleuts and Pacific Islanders, according to the Census Bureau.

Source: California State Census Data Center.

## Environment for Justice

Consider some indicators of the environmental context for black Americans today:

- One-third of all blacks live in poverty.
- Black infant mortality in the United States exceeds that in many so-called under-

developed nations. In Alameda County, the death rate for blacks is three times the rate for whites, 18.3 per 1,000 versus 6.9 per 1,000.

- Homicide is the leading cause of death for black males aged 15 to 34.
- Black life expectancy is declining.

In light of such facts, it may be obvious why minority community leaders do not spend substantial energy on the coastal zone, marine and riparian habitats, endangered species, and other typical environmental issues. For us, the environment includes what you might call social justice issues. Because environmentalists are often oblivious of these issues, they can become our opponents. A case in point is the current conflict between the Port of Oakland, which needs to dredge shallow channels and dispose of dredge spoils, and those who protest that spoils disposal will harm endangered species.

I work for the Port of Oakland, which is one of the major container ports in the world, and the largest port in the San Francisco Bay area. It is a major generator of jobs and opportunities in this area, particularly for minorities. The port itself employs only about 600 people (about 65 percent of them ethnic minorities), but it generates over 44,000 jobs in the region and over \$4 billion to the regional economy. Among the tenants of the seaport, terminal operators, shipping companies, and other port-connected businesses, 45 percent of the employees are members of racial or ethnic minorities. Among tenants of the Oakland International Airport, which is also part of the port, 52 percent employ minorities. Clearly, the port is a valued resource for minority jobs and therefore worth protecting.

Some environmentalists and regulators would gladly shut down the Port of Oakland as a way to protect the winter run chinook salmon in the Sacramento River, which the National Marine Fisheries Service

recently ruled to be a threatened species. We see a major struggle between minority communities and environmentalists as efforts are made to declare that the San Francisco Bay is a critical habitat for this species, and that the disposal of dredge sediment is the cause of the salmon's decline. All dredging is threatened in the bay. As there are no other designated and approved disposal sites in the area, a deepening of shallow channels has stopped. Without dredging, silt and sediment from upstream would fill in the shipping channels and make commercial navigation impossible. The port would, in effect, be shut down.

## Whose Endangered Species?

Some will ask: "Don't we want to maintain biological diversity? Don't we need to save the winter run chinook salmon?" But who asks the questions on behalf of the survival of endangered young black males? Are we to maintain plant and animal diversity at the expense of human and ethnic diversity? Where should the balance be struck?

The environmental response that shipping can go to Los Angeles/Long Beach or to Seattle is cavalier, arrogant, and totally unacceptable. What about the people who depend on the port? And the city of Oakland, which has invested millions of local public dollars in its port? How will these and similar questions of balance be resolved? Who and/or what survives?

The environmental movement can raise big money and mobilize thousands of adherents to the cause of the spotted owl, species of mice, riparian habitats, benthic life forms, and the like. So far \$25 million has been spent to save condors. Maybe the official endangered species designation should be pursued for black juveniles. Would that focus attention on our habitat restoration (housing) programs for people in the inner city? What about mitigation programs where negative impacts on young black males can be projected? Don't we know more about providing a nurturing environment for pregnant teens than we do about protecting juvenile salmon?

# A Vision for North Richmond

**F**or decades, winter floods meant mud in the living room and backed up sewers to the people living along Wildcat Creek in North Richmond. There were times when you needed a rowboat to get around. So when Contra Costa County at last announced a flood control project in the early 1980s, residents were relieved. The design of the project, however, was troubling.

The county planned an open channel, with a covered box culvert in front of Verde School to allow the muddy waters coming down from the Berkeley hills to shoot through. "The creek goes right in front of the school and the water's velocity would have been great. It would have been a danger to the children," said Lillie Mae Jones of the North Richmond Neighborhood Council. "If a child fell in, he would not even have a root or anything to hang on to."

Others, meanwhile, worried that the project, as designed, would accelerate damage to the salt marsh habitat of at least two endangered species, the California clapper rail and the salt marsh harvest mouse. The channel

was to end at the upper end of the salt marsh, speeding up the buildup of sediment there.

Persistent interest in these issues from resource agencies, legislators, and citizens groups, and some financial assistance from the State Coastal Conservancy, eventually led to an alternative project design, which included enhancing the marsh as habitat.

The flood control project was completed. The Chevron Corp. assumed responsibility

for implementing the enhancement plan adopted by the Coastal Conservancy. Plans were drawn up for a trail along the creek. All this activity sparked another idea: to make the most of the improvements by creating an environmental study program at Verde School.

North Richmond is one of the poorest communities in the Bay Area. Its population is largely African-American, Hispanic, and Asian. Its problems range from children dealing crack, to inadequate law enforcement, to toxic industrial pollution. "It's a minority community that's gone along to get along, never demanding nothing, trying to survive," said Lillie Mae Jones. "It has no hopes."

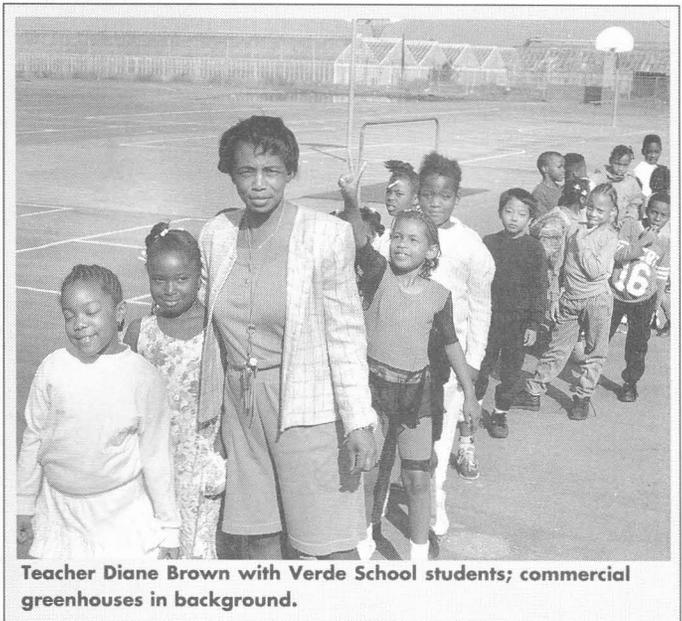
The children at Verde School are energetic and bright eyed, but weariness shows in the face of a teacher who has been there six years. The school district ran out of money last year, and this year the teachers had to take a nine percent pay cut. "We lost a lot of teachers," said Diane Brown, who teaches a first and second grade class. "The newer teachers find it very discouraging, so they're leaving." There was no money to launch a new environmental study program.

Now, however, something much more ambitious is in the works. Dale Bartlett, a community development consultant, is working with the neighborhood association, with funding from the city of Richmond, for the creation of an outstanding \$2-million regional nature interpretive center. It would be built beside the creek, on an eight-acre city-owned lot, to "serve as a community center and a regional educational resource for all age groups," he said, as does the Chula Vista Nature Interpretive Center, for instance. The 5,000-square-foot dome-shaped building would also have a 900-square-foot greenhouse. The rest of the lot would become a Little League ball field.

"To put a facility like that in this kind of

community flies in the face of the mainstream mind set," Bartlett said. Usually, environmental programs are brought to poor, minority communities by "white staff with Vibram sole shoes, coming in a bit like they were walking into the Amazon. But here people would see something they helped create, and that sends a signal."

Though the future of the project "stands in that narrow abyss between the idea and government funding," Bartlett believes that the necessary support will materialize. This belief rests in part on an appraisal of the political prospects, but also on what he takes to be a promising sign. On Earth Day, 1990, when Verde children were planting trees at the school, he said, an egret landed

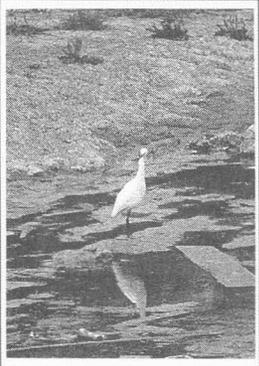


DEWEY SCHWARTZENBURG

in the creek, amid trash and litter. To Bartlett, this was encouragement to pursue the dream.

A picture of a Verde student planting a tree was featured on the front page of the *San Francisco Chronicle* the following day. The trees, however, did not live for long. Bartlett said someone came and pulled them out because they had been planted without required permission. Verde principal Maureen Hill said that because of the drought, they were insufficiently watered and dried out. Someone took them out during the summer, she said.

Other things have begun and gone nowhere in North Richmond, including bright-eyed children's lives. Will the lost Earth Day saplings or the egret prevail as the stronger omen?  
—RG



## Coastal Commission Responds to the Diversity Challenge

Recognizing that a sound program is fully "dependent on public understanding and support," the Coastal Act requires the Coastal Commission to provide all the state's citizens with the "widest opportunity for public participation." Last fall, responding to the rapidly changing complexion of California's population, the Commission committed itself to a four-pronged initiative to increase minority and ethnic diversity in all aspects of its operations, including:

- Steps to identify and remove any impediments to successful minority recruitment and retention in regular staff positions, including an evaluation of class specifications and testing procedures

- Expansion of the Commission's coastal resources education program's focus on urban schools with a broad mix of ethnic representation, including developing ethnically sensitive extensions to its award-winning Adopt-A-Beach Curriculum and raising funds to bring inner-city kids to the shore as part of Adopt-A-Beach

- Creation of minority internship opportunities through innovative approaches to funding and support

- Initiation of an outreach program to encourage minority participation in all aspects of the Commission's work, including a "Listeners' Bureau" to personally meet with minority leaders and communities to share concerns.

The Commission's commitment has already produced change. Special provisions sought by the Commission were made law last session by Senator McCorquodale's bill, SB 154, allowing it to use the nationwide reach of minority intern recruitment and support services of the Environmental Careers Organization (formerly CEIP). Two of these proposed internships will assist in implementing the other aspects of the Commission's minority involvement plan.

The Commission has also contacted over 100 leading minority and ethnic community leaders and organizations to ask their help in finding funding support for the minority internships, recruiting mentors from among minority professionals, and engaging in dialogue with the Commission.

While the Coastal Commission is but a small state agency, and a tiny part of the environmental landscape as a whole, its work to bridge the gap between environmental and minority concerns could prove the vanguard of the future.

—Jack Liebster,  
Coastal Commission Information Officer

### Access for All

Anyone who fails to see the importance of considering such questions will fail to understand why people of color find themselves at times pitted against the environmental movement. Both communities, however, need to broaden their horizons to include each others' concerns, or both will lose. If trees are to be saved, this should not be done at the expense of jobs. The task is to find ways to create jobs by protecting trees, for everyone's benefit. Dialogue is essential, for three reasons:

First, we in the minority communities need the benefit of the environmental community's understanding of the interdependence of the world's plant, animal, and mineral species. We must understand the consequences of unwise use of the world's resources, for we bear a disproportionate share of those consequences.

Second, we deserve a seat at the table where environmental decisions are being made. We may well make different decisions, based on different needs and aspirations. We will learn, we will discuss and negotiate. Sooner is better than later.

Third, unless the environmental movement can find a way to capture the allegiance of people of color, it will be at a significant disadvantage in the future. At the same time, people of color could use new allies, or renewed allies, from environmentalists' ranks. We not only have unfinished business in our centuries' old struggle to move toward parity, we are losing ground. If environmentalists value the future involvement of minorities, or the emerging new brown majority, in their issues, they would do well to invest time and energy in supporting us on our issues.

As Coastal Commissioner, I am often reminded that whites who settled in California, and pushed out the resident Native Americans, have been able to develop the coast and generate wealth for themselves and their heirs. Those who have been pushed out or kept out, by policies and cultures that blatantly discriminated against people of color, were denied the option of coastal development as a way of generating wealth

# A Park for Barrio Logan?

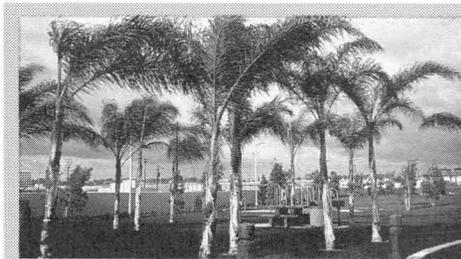
Just north of the soaring white and blue arch of the Coronado Bay Bridge, Crosby Park is a bright apparition on the drab, aging industrial East San Diego waterfront. With palm trees waving above well-tended grass, it seems transposed from some new suburb. Restroom, play structures and arbor glow in postmodern hues of pink, yellow and blue. A high cyclone fence surrounds the park. One gate is open and nobody is inside.

Completed in 1990 by the Port of San Diego at a cost of \$1.5 million, this green island is the product of long struggle. To deputy port director Dan Wilkens and some members of the largely Hispanic communities of Barrio Logan and Logan Heights, Crosby Park represents the end of long, acrimonious controversy. To some others, it is evidence of public agencies' disregard for this poor minority community's rightful claims.

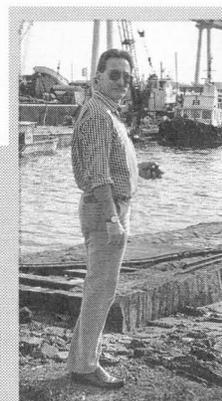
For 18 years, neighborhood organizations tried to get access to their waterfront, which is mostly occupied by industry here. They pinned their hopes on a vacant 5.4-acre lot at the foot of Crosby Street. The Chicano Park Steering Committee saw the site as a chance to realize a vision for extending Chicano Park, famous for its murals on pillars supporting the bridge accessway, "all the way to the bay." The Harborview Community Council focused on getting waterfront access and space for active sports. In 1986, an architectural model for such a park was unveiled. Developed by architect Eugene Ray's environmental design class at San Diego State University, it included a soccer field, basketball and volleyball courts, playgrounds, and a center for environmental art, on the 5.4 acres. Council president Al Ducheny told *La Prensa San Diego* that this model embodied "the

composite ideas of the community."

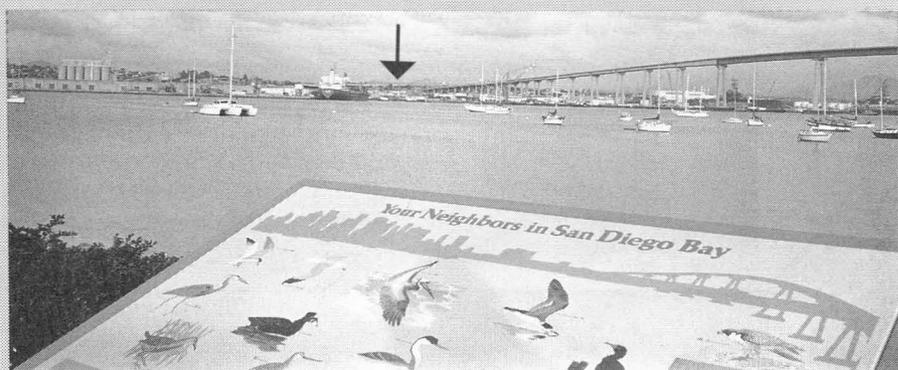
The Port of San Diego would not relinquish the entire site, on the ground that it was needed for a ship repair facility or other deepwater-dependent use. It agreed to yield, first, a 20-foot walkway, then 2.2 acres, and finally, 3.2 of the 5.4 acres, and to build a park with picnic tables, barbecue grills, a concession stand, and restrooms. The California Coastal Commission twice rejected the port's proposal, raising questions about whether another ship repair facility was needed, then agreed to the smaller park. It is now "90 percent complete," said Wilkens. Discovery of a liquid asphalt and gasoline leak from adjacent fuel tanks has stalled the shoreline part of the project, as well as plans for a connecting viewing pier. A bioremediation process now underway is expected to be completed late this year. After regulatory agencies approve, construction of a waterfront walk and pier can begin, Wilkens said.



Crosby Street Park.



Al Ducheny.



From the Coronado shoreline, Crosby Park disappears amid the industrial waterfront.

"They spent a lot of money, we got this park, and it's a real nice park except it doesn't work," said Ducheny, escorting a visitor on a tour one recent afternoon. "We envisioned an active park, this is a passive park, and after 18 years we are still waiting to get to the water. And did you ever see a park more inaccessible than this?"

From the law offices of his wife Denise Moreno Ducheny (which he manages) on

busy Logan Avenue, we had come down Crosby, crossed the Tijuana trolley tracks, Harbor Boulevard, some Santa Fe Railway switching yard tracks, and pulled into the parking area, only to find all spaces occupied. Workers in the adjacent ship repair facility use them, said Ducheny. We parked a block away and walked in. The port has completed access improvements across the tracks at a cost of some \$400,000, Wilkens said. More parking spaces may be added, along with another half-acre of land, during the project's last phase.

"I'm not sure whether people in other communities have had to fight like this over 200 feet of waterfront," said Ducheny, looking out over the bay through the fence. "In fact, at the same time as the Coastal Commission finally gave us 3.2 acres, they

handed Coronado 22 acres of recreation land [for a regional shoreline park across the bay]. Coronado is an affluent community with a Hispanic population of maybe two percent compared to Barrio Logan's 90 percent His-

panic, five percent black."

The next-nearest waterfront access, Embarcadero Marina Park, is about a mile north as the crow flies but inaccessible to anyone in Barrio Logan without a car. This pleasant, tree-lined stretch of recreational shoreline was built in the 1980s entirely on dredge spoils in front of new hotels, near the convention and visitor center. It includes a handsome viewing pier. —RG

*Some will ask: "Don't we want to maintain biological diversity?"*

*Don't we need to save the winter run chinook salmon?"*

*But who asks the questions on*

*behalf of the survival of*

*endangered young black*

*males? Are we to maintain*

*plant and animal diversity at*

*the expense of human and*

*ethnic diversity?*



that could be passed on to heirs. As we tighten rules and regulations to make coastal development more difficult because we want to correct past abuses, many of the past developers get to "grandfather" their developments: they are exempt from the new rules. The next guy comes along wanting to do what his neighbor has done, and we do not allow him. "Pioneers" of color on the coast will have to pay a high price because they do not have the right grandfathers.

As California's population grows, and the proportion of minorities increases, the pressure on coastal resources will also grow. Already tension exists between minority young people who want to hang out at beaches and residents who can afford to live along our coast. If there is not enough beach to go around, how do we resolve the sharing and preservation of the coast?

The coast is still a land of opportunity. The growing population represents a growing market for the provision of services to those who will seek access. From T-shirt shops to restaurants to hotels, motels, a variety of additional visitor-serving uses may be needed. What process exists to assure that minority businesses get a fair chance to provide those services for a profit? What would be fair?

We have to develop ways to plan and manage the use of coastal resources in a manner that balances the values of natural resource protection against the values of equal opportunity and visitor-serving uses. For this, an aggressive effort is required from all concerned. Diversity of early input should be a specified and ongoing goal of

environmentalists and regulators. At the same time, communities of color must share the burden. The challenges to us include: 1) accepting opportunities to participate in the processes that seek to examine and resolve environmental issues; 2) broadening our perspectives and priorities to include critical thinking about environmental issues and the interest of their communities; and 3) aggressively pushing our perspectives into environmental policy debates.

On the coast, nationwide, and worldwide, opportunities will grow for both employment and business development in the environmental area. We will need increasing numbers of biologists, geologists, air and water quality professionals and technicians, chemists, and physicists. Young people of color must begin to get training in these fields to take advantage of opportunities, and to provide leadership and expertise for our communities to help guide us as we consider our policy options.

I trust there is no disagreement that minorities have been victims of discrimination in this country, and that discrimination continues to this day. In the case of blacks it is now clear that we pursued opportunities where we saw open doors and where we saw a chance to serve the interests of our community. To date we have found neither in the environmental community or in careers that would lead to developing skills in areas dealing with environmental and resource issues.

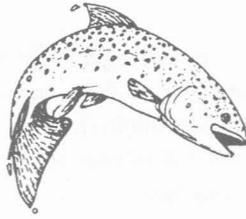
Unless this changes, and the environmental programs, including those for coastal and ocean management, come to reflect the demographics of the state, we may find that the question posed early on: "Protect trees or provide jobs cutting trees?" will deepen the chasm between the minority whites and the brown majority. If that happens, we all lose. There are better ways to move toward our shared future. □

*Thomas W. Gwyn is chairman of the California Coastal Commission, a member of the board of the State Coastal Conservancy, and director of governmental affairs for the Port of Oakland. This article was adapted from a paper he presented July 10, 1991, in a co-plenary session of Coastal Zone '91.*



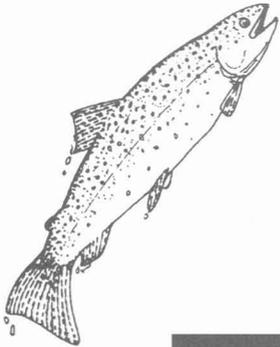
SALIM YAQUB, COURTESY OF CALIFORNIA TOMORROW

SPECIES  
WARS 2



# Animals out of place

by Rasa Gustaitis and  
Regina McGrath

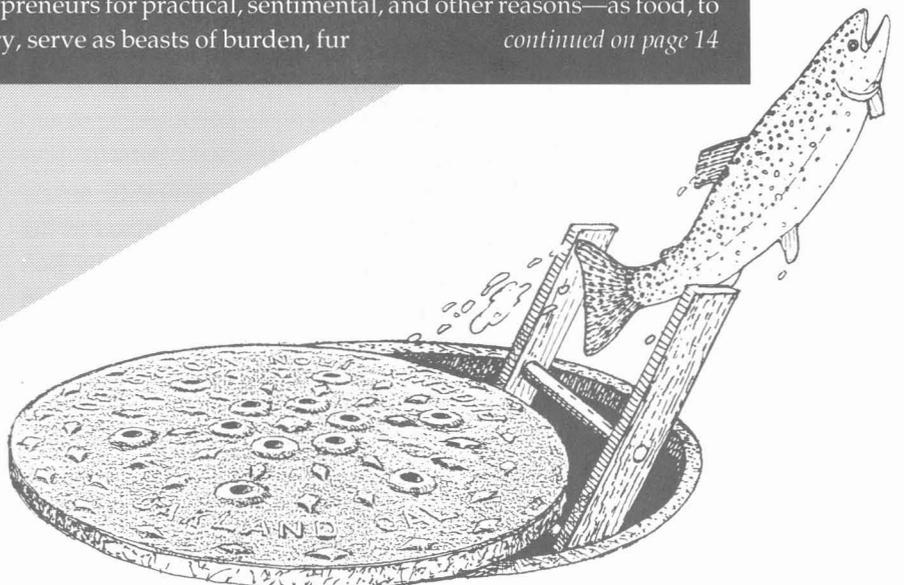


**P**eople are moving across time zones and crumbling borders at an ever-accelerating rate, and they are taking other life forms with them, inadvertently or on purpose. As a result, myriad organisms are spreading into new environments, vastly changing existing plant and animal communities.

"This worldwide process, gathering momentum every year, is gradually breaking down the distribution that species had even a hundred years ago," the eminent British ecologist Charles S. Elton wrote in his pioneering work, *The Ecology of Invasions by Animals and Plants*, published in 1958. "We are seeing one of the great historical convulsions in the world's fauna and flora."

Perhaps nowhere is the mingling of native and exotic species—and the frequent conflict among them—more evident than in California, particularly along the coast. Alien organisms have been arriving here for more than three centuries as stowaways on ships and in ballast water, with domestic animals and in feed, in passengers' luggage, and in other accidental ways; and they have been deliberately imported from every corner of the world by immigrants and entrepreneurs for practical, sentimental, and other reasons—as food, to remind of the old country, serve as beasts of burden, fur

*continued on page 14*



ILLUSTRATIONS BY JOHN WEHRLE

bearers, and, increasingly, as pets.

"One-third of the fish fauna in California are exotic" according to James Carlton, director of maritime studies at Williams College and a specialist in animal invasions. "There are more than 2,000 introduced established plants. In many freshwater and marine areas all you see are introduced species. In some places in San Francisco Bay, it's

100 percent. In a weedy lot in San Francisco, every single species may be introduced,

down to the

l a s t

environment, undergo population explosions that wreak havoc with native plant and animal communities already weakened by loss of habitat to *Homo sapiens*. The tiny Chinese clam, which probably arrived here in the ballast water of a ship from Asia sometime in the early 1980s, had spread through much of San Francisco Bay by the end of the decade and may be filtering most of the phytoplankton out of the water. More slowly but as efficiently, the introduced red fox now thrives in coastal marshes, raiding the nests of the endangered California clapper rail.

### Managing the Unmanageable

What to do about such invasions is a major issue for natural system and agricultural managers and for policy makers at the federal, state, and sometimes local level. To let matters take their course may risk catastrophic losses as species vanish and crops are destroyed.

"The world's future has to be managed," Elton declared, dismissing "any idea of complete *laissez faire*" in affected or threatened ecosystems. But managed toward what purpose, and how? Are all invasions undesirable? On what grounds does one decide? Thorny questions of values, economics, and policy may be involved.

From the economic perspective, some alien invasions have turned out to be tremendous suc-

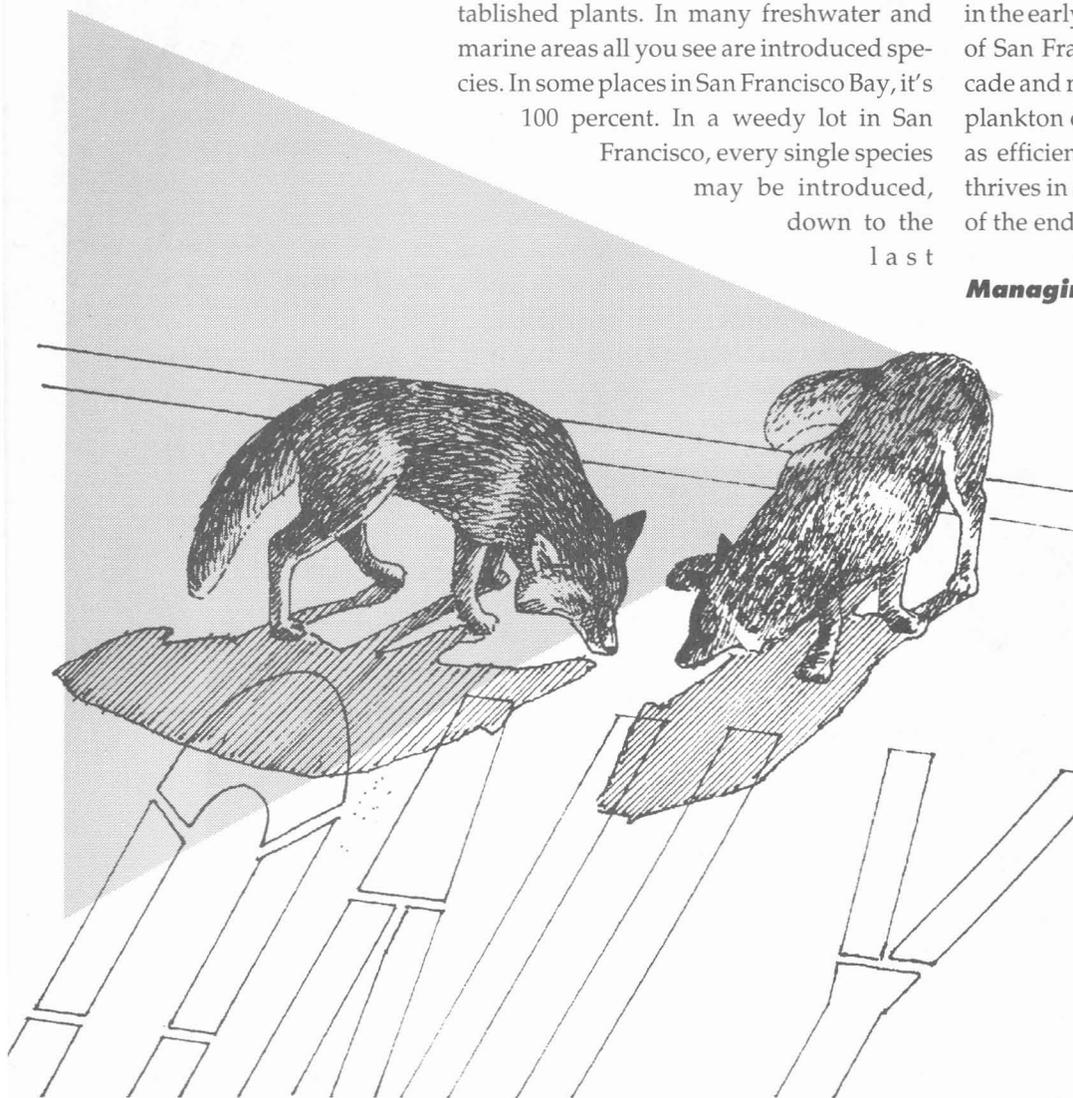
cesses, and management now aims to enhance them, as in the case of the striped bass, Carlton points out. "But what is the striped bass eating? At whose expense has it been established? We don't know. The societal value of this fish exceeds what it has replaced, and nobody is asking. Striped bass could not be introduced in 1992. Studies would show enormous impact. But in 1871, when it arrived, there was a very different environmental ethic."

In Washington state, the Japanese clam is the basis of a multimillion dollar industry.

little thing in the soil."

Since 1775, more than 40 exotic terrestrial vertebrates became established in the state, according to a list compiled by Ron Jurek of the California Department of Fish and Game.

Most imported species do not become established, and of those who do, most do not become major invaders. Some disappear, and some find a niche and become naturalized with little noticeable impact on the ecosystem. But some, lacking the predators or other constraints of their native envi-



It arrived accidentally with oysters in the 1930s and is now raised in monoculture farms. The Oregon Department of Fish and Wildlife is considering introducing it and has created a controversy by proposing as a potential site the state's only national marine reserve. So here economics clashes with another goal: to protect an existing ecosystem from further disruption.

Other invaders are clearly *non grata* economically as well as ecologically. In the Great Lakes, the zebra mussel, which probably entered through the Saint Lawrence Seaway in the ballast water of a ship from Europe, is clogging industrial and municipal water intake pipes and boat motors, colonizing fish spawning reefs, and may lead to the extinction of some native mussels. It was first noticed in 1983 in Lake Erie and is now also in Lake Michigan and Lake Superior, as well as in the Mississippi and Illinois rivers. Boats are the most opportune vehicle for its spread. But wildlife biologists suspect that it can also travel over dry land attached to birds' feet or feathers.

"At one extreme, no one wants rats, AIDS, and the zebra mussel," Carlton concluded. "At the other, striped bass, Japanese clams are seen as valuable. The diseases, pathogens, and parasites usually fall in the negative camps. In between these two, though, are most introduced species, their situation very muddled by lack of information on their role in the environment and different perceptions of the species." In Connecticut, citizens are embroiled in a controversy about the mute swan, a European species. Some find it to be aesthetically pleasing and a definite asset. Others consider it obnoxious, say it chases children, scares boaters, frightens off ducks.

The efforts of the U.S. Fish and Wildlife Service and the California Department of Fish and Game to eradicate the red fox from wildlife sanctuaries along the California coast have met opposition from a small but passionate group of fox defenders who either do not care or do not agree that unless the foxes are killed, the California clapper rail may lose its last chance to recover from the brink of extinction (see *Coast & Ocean*, Summer 1991, and letters in Fall issue).

## **No Silver Bullet**

There are three lines of defense against species deemed to be undesirable: exclusion, eradication, and management to control geographic distribution and limit population. In some cases, nothing will work. (Carlton predicts that the zebra mussel will spread across two-thirds of the country and reach California. Jerry Maclean of the U.S. Fish and Wildlife Service in Minnesota says that may be, but at this point it is speculation.) Those who seek to exclude undesirable species are often thwarted by citizens who don't share their concerns. In fiscal year 1989/90, the California Department of Food and Agriculture intercepted at the state's borders with Oregon, Nevada, and Arizona 372 "animal pests," including an alligator, a kangaroo, a reindeer, 24 monkeys, and two vultures. It blocked entry to 3,234 insect pests, including the sweet potato weevil and sunflower beetle. It also excluded 74 kinds of nematodes, and 521 plants classified by the state as "weed pests."

Sometimes, biopolitics plays a role. Feral pigs and feral cats are damaging native ecosystems but cannot be eradicated for political, as well as practical, reasons. The pigs are a favorite hunting species and are therefore protected, even though they are not native (see *C&O*, Summer 1991). Cats have many human friends and supporters (see p. 28).

The choice among management methods may be difficult because of lack of information about effectiveness, impact on other species, value questions, and costs. Methods range from application of lethal chemicals to construction of physical barriers, to sophisticated tinkering with natural processes, introduction of counterpests, and habitat improvements. Technological fixes may cause new problems. As in medicine, so in alien species control, there is no "silver bullet."

All too often, Elton observed, we have moved around organisms as though they were chessmen, oblivious of life's interconnections. (As late as the 1960s, Fish and Game and sports fishermen, acting on their own initiative, introduced fish from elsewhere into the state's lakes and streams.



**Most imported species do not become established, and of those who do, most do not become major invaders. Some disappear, and some find a niche and become naturalized with little noticeable impact on the ecosystem. But some, lacking the predators or other constraints of their native environment, undergo population explosions that wreak havoc with native plant and animal communities already weakened by loss of habitat to Homo sapiens.**



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**“The great prairies?  
They’re gone. Instead you  
see millions of square  
kilometers of wheat, corn,  
rye, sheep. The face  
of North America  
has changed.”**

▶

This displaced many native fish. Now Fish and Game is expending enormous effort to try to preserve what is left of some natives. See p. 20.) “Management should not be just like a game of chess,” Elton wrote. It should be “more like steering a boat. We need to learn how to manipulate more wisely the tremendous potential forces of population growth in plants and animals, how to allow sufficient freedom for some of these forces to work amongst themselves, and how to grow environments—for example, certain kinds of cover—that will maintain a permanent balance in each community.”

### **Coming Full Circle**

While dealing with specific invasions is important, Elton wrote, “one must try to see the whole matter on a broader canvas.” There was a time, about a hundred million years ago, when animals ranged far more broadly than they do now across the face of the earth, he pointed out. They moved wherever they could tolerate the climate and other environmental characteristics. When the continents drifted apart and rising mountains confined the animals to smaller regions, they adapted in diverse ways to local conditions, producing the vast variety of life forms we know today.

In the 1860s, Alfred Russel Wallace, a contemporary of Charles Darwin, mapped the distribution of animals throughout the world. He divided the earth into six great regions and classified animals accordingly. These regions became known as Wallace’s Realms and long served as the bedrock of the science of biogeography. Elton pointed out that because of human activity Wallace’s Realms had broken down, and suggested that in the future the world might again have a more cosmopolitan fauna and also a simpler biology. Carlton, however, points out that the diversity of San Francisco

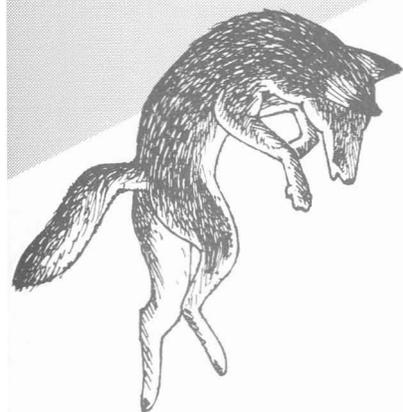
Bay has increased with the addition of 150 nonnative marine and brackish water invertebrates, fish, and algae. “They have altered the environment in dramatic ways, but there is no way to rank the adjustments. It’s a game of musical chairs—everything that was here before is still here, though in a different position!”

“Fine,” comments Michael Josselyn, biology professor at Romberg Tiburon Centers, San Francisco State University. “But the adjustments are usually not in favor of natives.” Extinctions that do take place are usually the result of human activity, such as water diversions and other habitat destruction, though there are exceptions, such as the introduced red fox stalking the endangered clapper rail. “The biggest introduction has been man,” he points out.

The field of invasion biology is still young. “In books on the biogeography of animals and plants of the earth of the last 20 to 30 years, there is only passing reference to introduced species,” Carlton said. “These books describe a world as if it were unaltered by human activity. They describe Tasmania and Australia as a land of marsupials, Ireland without snakes, the vast tundras of the north, the great prairies of North America. The great prairies? They’re gone. Instead you see millions of square kilometers of wheat, corn, rye, sheep. The face of North America has changed.”

Invasion biologists study the changing patterns of the distribution of life on Earth. Their work helps those who must make choices and take action on species introductions. It also puts separate issues into a broader perspective.

In the following pages, we offer some case histories of alien species invasions in California, each illustrating some aspects of the general problem and a management approach. □



**Nightmare  
Come  
True:  
The  
Brown  
snake  
Menace**

**S**ometime in the 1950s, a nocturnal brown snake arrived in Guam, probably as a stowaway on a military cargo plane from Papua, New Guinea. In the years since, it has destroyed most of the birds on the island and has become a nightmarish pest to human inhabitants. It is now spreading to other Pacific islands and is threatening to invade Oahu. Los Angeles is not necessarily out of range.

Of the 18 bird species that resided in Guam before the snake's arrival, nine have been extirpated, six are nearly gone, and three are greatly reduced in numbers, according to the U.S. Fish and Wildlife Service. The four-to-six-foot-long snake, *Boiga irregularis*, climbs trees and gets into nests, eating both the birds and their eggs. It has eaten most of the native lizards; will also eat chickens, rabbits, rodents; and has been reported to kill piglets and puppies, even though these are too large for it to swallow. On Guam it can grow up to eight feet long and weigh 4.5 pounds because of the abundant food supply. Before this reptile arrived, Guam's only snake was a blind burrowing species that more closely resembles a worm.

To humans on Guam, the brown snake is a major nuisance and can be a hazard. It turns up in situations worthy of Stephen King: in beds, wrapped around infants in cribs, in light fixtures, in cabinets. When looking for a place to hide, it can enter houses by dropping from trees and utility wires to rooftops, then slipping down sewer vents into toilets. Its bite causes pain, swelling, and itching in adults, but is more serious for an infant. According to Thomas Fritts, research biologist with Fish and Wildlife, 53 Guamanians were treated for snakebites in emergency rooms between 1986 and 1989. During the eight months between September 1989 and May 1990, 18 people were treated, 14 of them children under six years old. So far no deaths have been recorded.

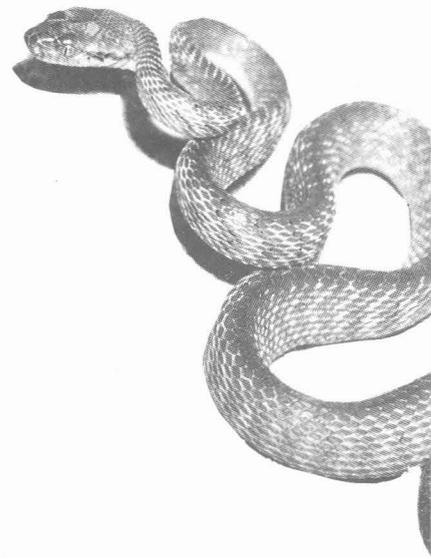
By climbing guy wires leading to power poles supporting transformers, distribution lines, and high-voltage transmission lines,

brown snakes have caused hundreds of power outages—562 between 1978 and 1988. One in 1987 lasted 12 hours and damaged the main generating facilities, at an estimated cost of more than \$250,000. Businesses have lost computerized inventories and food has rotted in freezers. The power authority is trying various methods to keep snakes off high voltage wires. Meanwhile, the *Guam Tribune* has offered prizes for the capture of the largest number of brown snakes. In some parts of Guam, 12,000 snakes have been counted within one square mile.

#### **No Ticket to Ride**

The explosive growth of the introduced snake's population in Guam can be explained in part by the abundant food supply and absence of competitors for food that keep it in check in Papua New Guinea, coastal Australia, and numerous islands in western Melanesia, where it is indigenous, although "even in its native range, there is no predator that specializes in eating the brown snake," according to Gordon Rodda, research scientist at the University of Arizona. However, the birds on Papua New Guinea have evolved some survival techniques.

Will the brown snake spread to other Pacific islands, and perhaps even to California, Florida, and the Caribbean and Virgin Islands? It has already been seen in Wake



THOMAS FRITTS

◀

**We don't expect to have to worry about this in California. But nobody can guarantee that we're safe.**

▶

Island, Kwajalein Island, Saipan, Diego Garcia Atoll, and Oahu. Three snakes were spotted in Saipan in early 1991. "We know one was run over by a car, but the other two escaped into the vegetation," Fritts said. "This could be a repeat of what happened on Guam."

In Oahu, four brown snakes have been seen within the last ten years, most recently in October 1989, when one was discovered in the landing gear of a C-141 transport plane that arrived from Guam at Hickham Air Force Base, next to the Honolulu International Airport. All four were either already dead or killed upon discovery. However, said Fritts, "There could be more snakes on Oahu, since there's a golf course right next to the airport, and the snakes could have crawled off into the vegetation before anyone saw them."

Hawaiians are well aware of the threat. Since 1988, military customs inspectors at Guam search cargo and planes for snakes to prevent the snakes from

hitching a free ride to Hawaii. During the first ten months of 1990, inspectors found 44, according to an article in *Honolulu* magazine. But have all the stowaways been caught? Could some not have crawled inside the engines of cars and trucks? Now dogs are being used to sniff out any stow-away animals, including the brown snake, at Honolulu International Airport and Hickham Air Force Base.

### **Take No Prisoners**

Beyond airports, military bases, and harbors, the Hawaii Department of Land and Natural Resources' Snake Watch and Attack

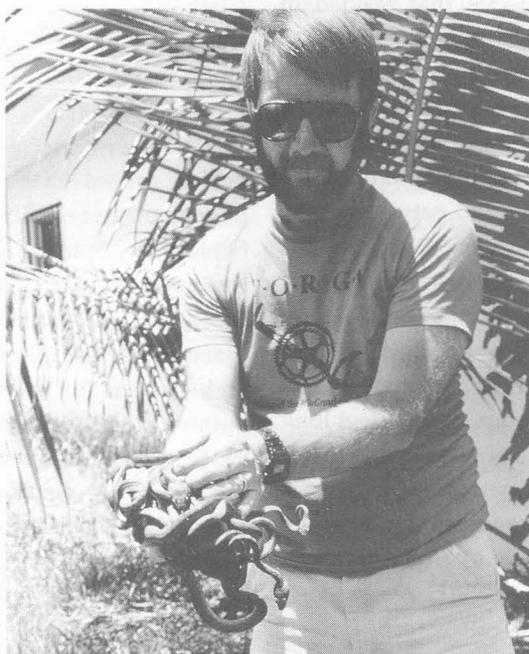
Teams (SWAT) stand ready to go after any fugitive snakes. Hawaii set up four such teams in 1990, one each on Oahu, Maui, Hawaii, and Kauai, each with three to six wildlife biologists and wildlife management assistants equipped with shotguns, traps, and headlamps, said Ron Walker, wildlife program manager, Hawaii Department of Land and Natural Resources. Although they have investigated several false alarms, as of March, they had not yet been called to stamp out an incipient snake infestation. No snake had managed to escape beyond the point of entry (airport or harbors), as far as is known.

Hawaii has no native snakes.

Meanwhile, Fritts and his colleagues are working to develop better traps, baits, poisons, and fumigants for cargo. "There are no miracle solutions, although we've made a lot of progress," he said. They hope for some funding from the Nonindigenous Aquatic Nuisance Prevention Control Act of 1990, which directs the Fish and

Wildlife Service to develop control plans for nonnative species that are disastrous to native species. In Congressional testimony on this legislation, the brown snake was mentioned as an example (so was the zebra mussel).

"So far, the brown snake hasn't been sighted in California, but the possibility of its becoming established there exists, particularly near Los Angeles International Airport," Fritts said. "However," he added by way of reassurance, "that possibility is not as great as the chances of its establishment in downtown Honolulu." Don't leave your luggage unattended. □



**It took only 30 minutes to collect these 16 brown snakes from a fence near a residential area in Guam.**

SCOTT KLOTZBACH



**Life  
Imitates  
Hollywood:  
Alien  
frog  
Out of  
Control**

**I**n a scenario you'd expect in a Grade B movie, the African clawed frog was imported to southern California in the 1940s to be used for pregnancy tests and research, and escaped from a lab. It now flourishes in wetlands and ponds of Los Angeles, Orange, San Diego, Riverside, and Imperial counties, and is spreading farther. It has been found in ponds on Arizona golf courses.

This frog "will eat anything it can get its mouth on, and there is no practical way to get rid of it," says Chuck Marshall, associate fisheries biologist at the California Department of Fish and Game. A poisonous mucus covers its body, protecting it from other predators. "The mucus appears to cause irritation and burning to the mouth, and predators will simply spit out the frog."

This is bad news for the Unarmored three-spined stickleback, an endangered fish species. Not only do the African clawed frogs eat this fish when they get a chance, "their mere presence disturbs the vegetation the fish needs to lay eggs," says Marshall. "They probably also directly compete with the fish for food when they are in the tadpole stage."

Also harmed by the spread of the African invader is the California red-legged frog, which Fish and Game views as a species of concern, although it is not yet listed as threatened. This native frog species is suffering loss of habitat, disturbance by some of the 50 introduced fish species, and by invader predators. It was undermined by human beings who ate the legs, then by the alien bullfrog, which was imported from the eastern United States in 1846 for human consumption after the red-legged frog became scarce. The bullfrog soon began to feast on its red-legged cousin. Now the African clawed frog, too, is preying on the red-legged.

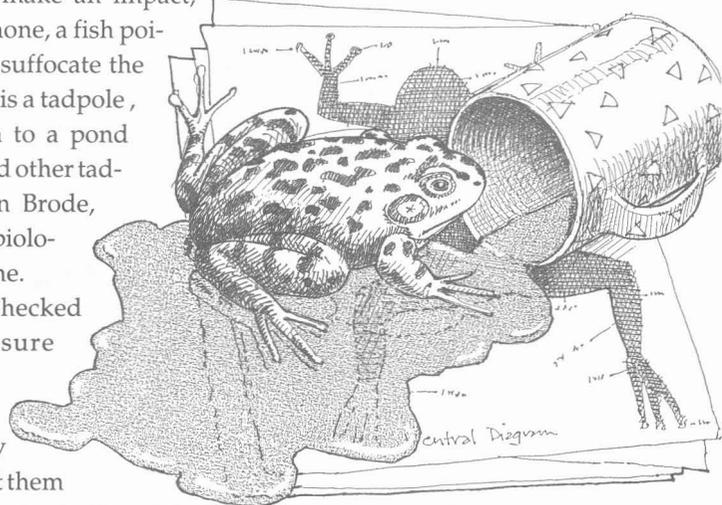
"A rule of thumb when dealing with frogs is that if they meet another frog smaller than themselves, they eat it; if the two frogs are the same size, they mate; and if they encounter a frog larger than themselves, they run away," explains herpetologist Jens Vindum, at the California Academy of Sci-

ences. (The African clawed frog is an exception.) The red-legged frog tends to be about three inches smaller than the bullfrog, which can measure eight inches from snout to vent.

No effective control options have been found. Fish and Game tried trapping in Soledad Canyon on the Santa Clara River in Los Angeles County "but you can never capture enough to make an impact," said Marshall. Rotenone, a fish poison, can be used to suffocate the clawed frog when it is a tadpole, but any application to a pond would kill all fish and other tadpoles too, said John Brode, endangered species biologist at Fish and Game.

Pet stores are checked regularly to ensure clawed frogs are not being sold. Medical researchers can apply for permits to import them for laboratory use. Marshall said he occasionally gets calls from laboratory supply houses seeking frogs from him, but "I tell them they have to come down here and catch them themselves."

"The bullfrog is here to stay. It is now part of the amphibian world of California," said Brode. It appears the clawed frog will have to be accepted too, as it is too late to exclude it, impossible to eliminate or to manage it. □



**Baiting  
Mother  
Nature:  
Stalking**

# fish

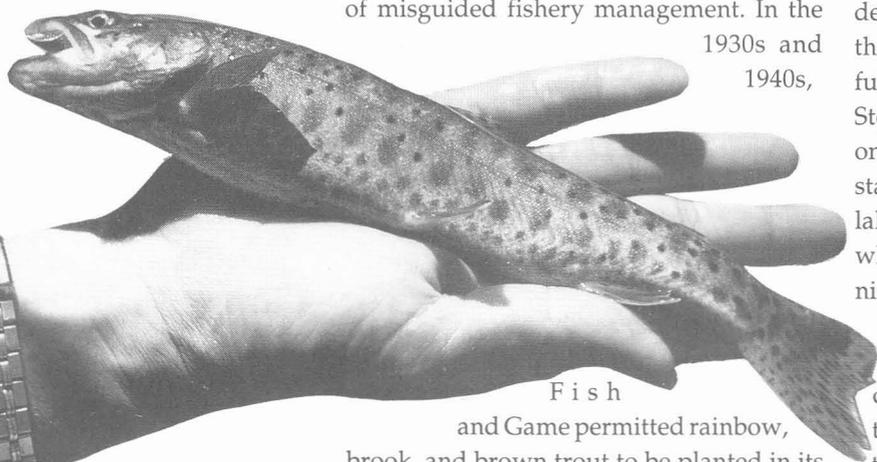
**Invaders**

**T**his year, again, State Department of Fish and Game biologists will climb steep streambeds in the Southern Sierras into the upper reaches of the Little Kern River watershed to kill all the fish in certain stretches of waterway, thus making way for the restoration of California's official state fish, the golden trout, to another part of its ancestral habitat.

The Little Kern golden trout, one of three subspecies of golden trout native to this region, is listed as threatened under the Endangered Species Act, its decline a result of misguided fishery management. In the

1930s and  
1940s,

ERIC GERSTUNG



Lahontan cutthroat trout.

**Fish**  
and Game permitted rainbow, brook, and brown trout to be planted in its habitat, at the request of sportsmen who believed the streams to be fished out. Golden trout interbred with rainbow trout, usually losing much of their brilliant coloration.

In the 1960s, fisheries biologist Daniel P. Christenson found that some pure goldens

still survived in the Little Kern River system, in stretches isolated by waterfalls, and efforts at restoration began. In 1977 the Golden Trout Wilderness was established, including most of this watershed, and a comprehensive restoration program began.

It is a meticulous program. Stream sections that are not already isolated by natural barriers such as waterfalls are temporarily set apart by man-made barriers, then treated with rotenone, a tropical plant derivative that has been used for centuries to catch fish and has been a fisheries management tool in California for decades. The rotenone is dripped into the stream at concentrations that suffocate all fish but do not harm birds, amphibians beyond the gill stage, or mammals, according to Fish and Game biologists. To prevent killing fish downstream, potassium permanganate is dripped into the stream before it leaves the treated section, to detoxify the water. Every section of stream is treated at least twice. When it is found to be free of fish, pure Little Kern golden trout are planted.

The work is hard and dangerous. There are no trails in many places Fish and Game biologists must reach. They walk on large rocks in streambeds through canyons, carrying all their equipment. But they are buoyed by the hope that it all will pay off when the beautiful native trout can be delisted. "We've been working on this since the mid-1970s and I feel we've been successful," said associate fisheries biologist Stan Stephens. "Golden trout were down to 5,000 on less than ten miles of stream when we started. We have treated 68 miles and 11 lakes and only have two creeks to treat, which we hope to finish this year, as well as nine miles of the Little Kern River." Delisting is anticipated in three to five years.

Stephens' main concern now is that due to "pressure by some folks," who want the program finished as soon as possible, the biologists have had to forego some quality control in the form of testing to make sure no aliens or hybrids remain. "We move very slowly, we try to be very thorough," he said. "All it takes is one spring or underground seep sheltering an unwanted trout, and the effort could be set back for years."

In addition, of course, there are the ever-present dangers that someone might at any time illegally reintroduce a nonnative species and that anglers would take too many golden trout. And there is the continuing damage from cattle grazing along some streams, and other habitat destruction that can undermine the restoration team's painstaking work.

### **Almost Extinct**

The future of the Little Kern golden trout looks bright compared with that of the giant Lahontan cutthroat trout, which was the main predator fish in an ancient lake that once covered a large portion of what is now Nevada and part of northeastern California. Up to 40 pounds or more in weight, it was the staple of Paiute Indians around Pyramid and Walker lakes, which are remnants of ancient Lake Lahontan. It was also abundant in Lake Tahoe and favorite game to President Herbert Hoover and Clark Gable. Overfishing, water diversions, dams, and introduced trout have brought this giant to the brink of extinction.

"To restore it to about one percent of the original range, we are currently working on restoring about a dozen streams by removing nonnative fish and restocking pure stock. We have to chemically treat dozens of streams, short sections of creeks in remote areas," said fisheries biologist Eric Gerstung, who is in charge of coordinating the state-wide threatened trout program of Fish and Game. While the major problem on the Nevada side of the remaining habitat are dams and water diversions, in California it's mostly nonnative trout. Efforts to plant the Lahontan cutthroat in Lake Tahoe were unsuccessful because its niche has been occupied by the Mackinaw trout, brought from the Great Lakes.

"In the early part of the century, Fish and Game was run by hatchery people with no education," said Gerstung. "They planted willy-nilly, mixed fish all over the place. People wanted some of everything. They even brought Atlantic salmon. They brought European carp, which became a pest. Most Californians don't like to eat it."

Now, much recurring trouble is caused by people who illegally dump bait minnows into lakes and rivers. That is probably the way the Sacramento squawfish, a native of the Sacramento River and relative of the carp, arrived at Lake Pillsbury, the headwaters reservoir on the Eel River. "It has taken over the river system, and it eats young steelhead and salmon," said Gerstung. No solution is in sight, though restoration of riparian habitat improves the steelhead's chances of survival. Fish and Game biologists are looking for a substitute for rotenone that will only kill squawfish.

### **Mini-Zoos?**

In Frenchman Reservoir in Plumas County, the voracious Northern pike, up to three feet long, with a huge mouth and very sharp teeth, was "so aggressive it even ate young ducks, frogs, and small mammals like the meadow mouse," Gerstung said. "If it got into the Sacramento River, we feared that would be the end of salmon and steelhead and also of striped bass." Fish and Game successfully eradicated it last year.

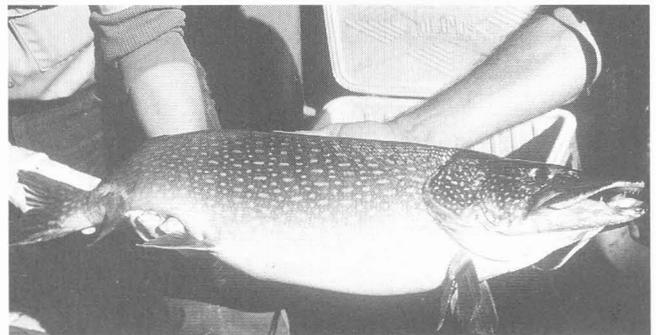
With such a never-ending struggle against aliens, as well as the increasing claims for water for human consumption, what hope is there for the native fish species? Gerstung is glum:

"We're recreating mini-sanctuaries—refugia—kind of enclosed systems, many of them isolated from other drainages by waterfalls; little enclaves of native species. There will be a series of these and their main value will be scientific and educational. There won't be enough for them to be more than that. I hope our salmon and steelhead don't dwindle to the point that all we have are just some little zoos. We still have a few years to turn things around if everybody cooperates." □

◀

**For many decades, the Department of Fish and Game dropped fish from elsewhere into California streams and reservoirs. Now work is underway to save what's left of some highly valued native sportsfish. Meanwhile, careless or reckless anglers keep introducing more alien fish.**

▶



**Northern pike.**

# Bring on the Garlic Butter: snail

## Excess

**A**round 1855, Monsieur A. Delmas (all we know of him is his name) brought some brown garden snails to California from France, to be enjoyed, as is proper, sauteed in butter, garlic, and parsley. Some he turned loose in vineyards on the west bank of the Guadalupe River in Santa Clara County, and some, later, in San Francisco and Los Angeles. "He wanted a touch of home and didn't realize the implications of what he was doing," said biological control specialist Theodore W. Fisher at the University of California, Riverside, in what has to be the understatement of the century.

Today *Helix aspersa* is a most unwelcome presence in gardens and orchards along the Pacific Coast wherever winters are mild. In a wet year it can destroy 90 percent of a citrus crop by eating leaves and scarring the rinds of oranges and lemons, making them unsuitable for sale. It is also a potential road hazard. A mass of snails crossing highways together has been known to cause cars to skid.

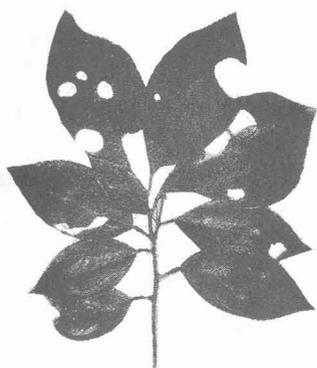
Many weapons have been tried in the unending war against the brown snail: salt, lime, sawdust, or other irritating substances sprinkled around plants and trees; copper foil bands around tree trunks. None have entirely foiled the pest. Now, however, another alien snail has arrived, *Rumina decollata*, and hopes run high. This one is a shining example of a benevolent alien: It eats the

brown snail. Fisher said it was discovered in Riverside in 1966 but probably came here five to ten years earlier, in the soil of nursery plants. It is common around the Mediterranean and, like the brown snail, thrives in irrigated fields. Though it will eat germinating seeds or new seedlings (Fisher suggests some kind of barrier at this time), it prefers dead vegetable matter, and the brown snail, over mature plants or fruit. It also seems to stay put. A colony of 1,900 decollates introduced to a freeway planting in San Bernardino in 1974 had only moved 600 feet three years later.

With high expectations, the California Department of Fish and Game released hundreds of thousands of decollates in orchards in the early 1970s in eight southern counties and Tulare County. Some citrus farmers are now breeding decollates.

Fish and Game hasn't released decollates in northern California on the ground that it might eat native snails. Fisher does not think that's a hazard because the natives, of which there are over 100 species, live in the wild, rather than in cultivated fields. Besides, he says, "the decollate snails are going to wind up in northern California anyway because people transport them, either on purpose or unknowingly in nursery stock."

Meanwhile, a Fresno man offers another solution: use the snails as Monsieur Delmas intended—eat them. "The brown garden snail is by far the most nutritious meat there is—I think of it as a cross between clam and lobster, but the texture is that of veal," says Ralph Tucker, founder of the Snail Club of America, with 700 members. "It has no fat or cholesterol, and is full of vitamins A and C, protein, manganese, calcium, potassium, zinc, copper, and iodine." In 1990, he said, the International Council of Gourmet Foods chose the snail as "gourmet food that has withstood the test of time," beating out caviar. Snails he raises bring him \$.60 to \$1.00 each, he says. Yet, "when I started, [ten years ago] I couldn't find a thing about raising snails, only how to kill them." □



Orange leaves damaged by snails.

# Whistling in the Dark: birds Know No Boundaries

Some of the birds now considered to be major pests were introduced to North America with the best intentions. Such was the case with the Common starling, the House sparrow, and the Rock dove, commonly known as the pigeon. All three now thrive in our cities, and control measures are not always successful. Meanwhile, people continue to buy birds—everything from exotic parrots to mundane ducks—and release them to the environment, either by design or accident, courting more trouble.

"We have met the enemy and he is us," commented Ed Littrell, associate wildlife biologist at the Department of Fish and Game pesticide unit, quoting Pogo's wise saying, which is no less appropriate now than it was when first uttered more than 20 years ago.

Take the starling (*Sturnus vulgaris*), borne from Europe across the Atlantic in 1890-91 on the wings of a grand idea: Some Shakespeare fans wanted to introduce to the New World all the birds mentioned by the Bard, and the starling was one. They imported some 70 pairs and released them in Central Park, according to John L. Long's *Introduced Birds of the World* (1981).

As has happened so often when people tried to move wildlife around like chessmen, the consequences were greater than anyone had foreseen or imagined. The birds did well—very well. By 1942, flocks numbering in the millions had spread as far as California, munching on orchard crops and stock feed, pooping on buildings, developing a reputation as a general nuisance.

Starlings have their charms. They can mimic other birds, door chimes, and many other sounds. It is said that Mozart bought a starling after he heard it whistling a snatch of one of his concertos. But besides doing the above-mentioned damage to human interests, starlings also "aggressively out-compete native birds for nesting holes, causing reproductive depression in such species as the bluebird, swallow, and woodpecker," said Stephen F. Bailey, collections manager of birds and mammals at the California Acad-

emy of Sciences in San Francisco. They do not eat mosquitos, and often displace swallows, which do. Now it appears that they also may be a health menace to humans by transmitting histoplasmosis, a fungus disease of the lung. (Starling and pigeon droppings are hazardous only after they dry for



POINT REYES BIRD OBSERVATORY

Sparrow and starling.

about a year without sunlight, become airborne, and then are inhaled.)

According to Long, at least 119 species of birds have been introduced to North America, 39 of which have become definitely established, 17 probably established, and 63 failed or probably failed. Some were meant to stay in cages as pets, to serve as domestic fowl, or to be exhibited in zoos but escaped. But the starling is not the only one to be deliberately introduced.

The House sparrow (*Passer domesticus*),

◀

**With time, a new balance may develop, including naturalized birds. In the case of the pigeon, the Peregrine falcon has come in as predator. This endangered native raptor is staging a recovery, in part by settling in cities where it roosts on bridges and high-rise ledges.**

▶

also known as the English or European sparrow, was brought by European immigrants as reminder of home. It was also imported to eat plant pests, such as cankerworms, and dropworm, the larvae of the Snow-white linden moth. In pre-automobile cities, the sparrow fed on seeds in horse dung, and proliferated. Though its numbers have fallen sharply, the House sparrow is still considered a nuisance because it will push other seed-eaters out of backyard feeders, and usurp nest holes. Like the starling, it will also damage orchard and grain crops.

Perhaps the most ubiquitous introduced bird is the pigeon (*Columba livia*), which probably originally inhabited coastal cliffs and rocky areas in the British Isles, the Mediterranean, and North Africa, east to India, according to Long. In 1621, or thereabouts, some pigeons imported to the United States escaped from a cage. The bird is now a nuisance mainly in cities. It fouls buildings with its droppings, accelerating their deterioration. It also is believed to play some part in the transmission of encephalitis as well as histoplasmosis. But some people would argue that pigeons are a useful part of city life because they eat up food dropped on streets. Besides, there are those who enjoy feeding pigeons—often to others' dismay.

### **Bird Be Gone**

Sparrows, starlings, and pigeons are here to stay. To control damage they inflict on crops, and the mess they commit in cities, many techniques have been tried, including noise, barriers, bullets, and poison.

"I've been in this business 30 years, and every situation is different—you have to take it on a case-by-case basis," says Jerry Clark, senior agricultural biologist of the State Department of Food and Agriculture and author of the *Vertebrate Pest Control Handbook*.

A grower who finds he needs to get rid of starlings may apply to the local fire department for a permit to discharge agricultural fireworks. Propane gas cannons or "bird bombs" fired from a six-mm pistol are most commonly used in vineyards to scare the birds away. But if residential areas are

nearby, people are likely to complain. So some growers take the more costly course of putting nets over crop plants. Permits may be obtained to shoot or poison the birds.

Avitrol, a restricted pesticide, is registered in California for poisoning starlings, sparrows, or pigeons, and Starlicide is used for starlings and pigeons. An estimated 9 million starlings were killed with Starlicide in some Solano County cattle feed lots during a three-year campaign begun in 1964. Still, an estimated 5,000 survived.

"The downside of using a pesticide is that desirable birds could also eat the poisoned bait," said wildlife biologist Littrell. Strychnine was removed from the list of registered pesticides in 1988 because a federal court ruled that it presented a potential hazard to endangered species. California's Department of Pesticide Regulation allows the use of the patented Rid-A-Bird perch, made from a perforated tube containing fenthion. The poison is placed inside the tube and comes up onto the birds' feet when they roost, killing them in five to 15 hours. Officials at the Sacramento airport tried to use the perch to get rid of starlings but stopped when they realized that owls, hawks, and other raptors were eating the poisoned birds and dying.

In urban areas, nonlethal control methods tend to be employed, such as trapping or the placement of netting on building ledges and alcoves. No method is a cure-all.

Occasionally, the Department of Food and Agriculture wages an eradication campaign against an alien bird. After a decade-long effort, it may have succeeded in eliminating the nectar-feeding Oriental white eye, which escaped from the San Diego Zoo via a walk-through enclosure. Fearing that it would spread from the San Diego suburbs to the vineyards in the San Joaquin Valley, the department hired hunters who killed over 400 of the birds—which are no bigger than a fifty cent piece and have a white ring around the pupil—using pellet rifles with telescopic sights. Not a single white eye has been sighted in the last three years, Clark said, and the department declared it eradicated this year. The hunt was conducted with the full cooperation of the community and the local police. The hunters wore uni-

forms so people could identify them. "I was always kind of sweating it . . . worried that there would be an accident or something, but everything went well," Clark said.

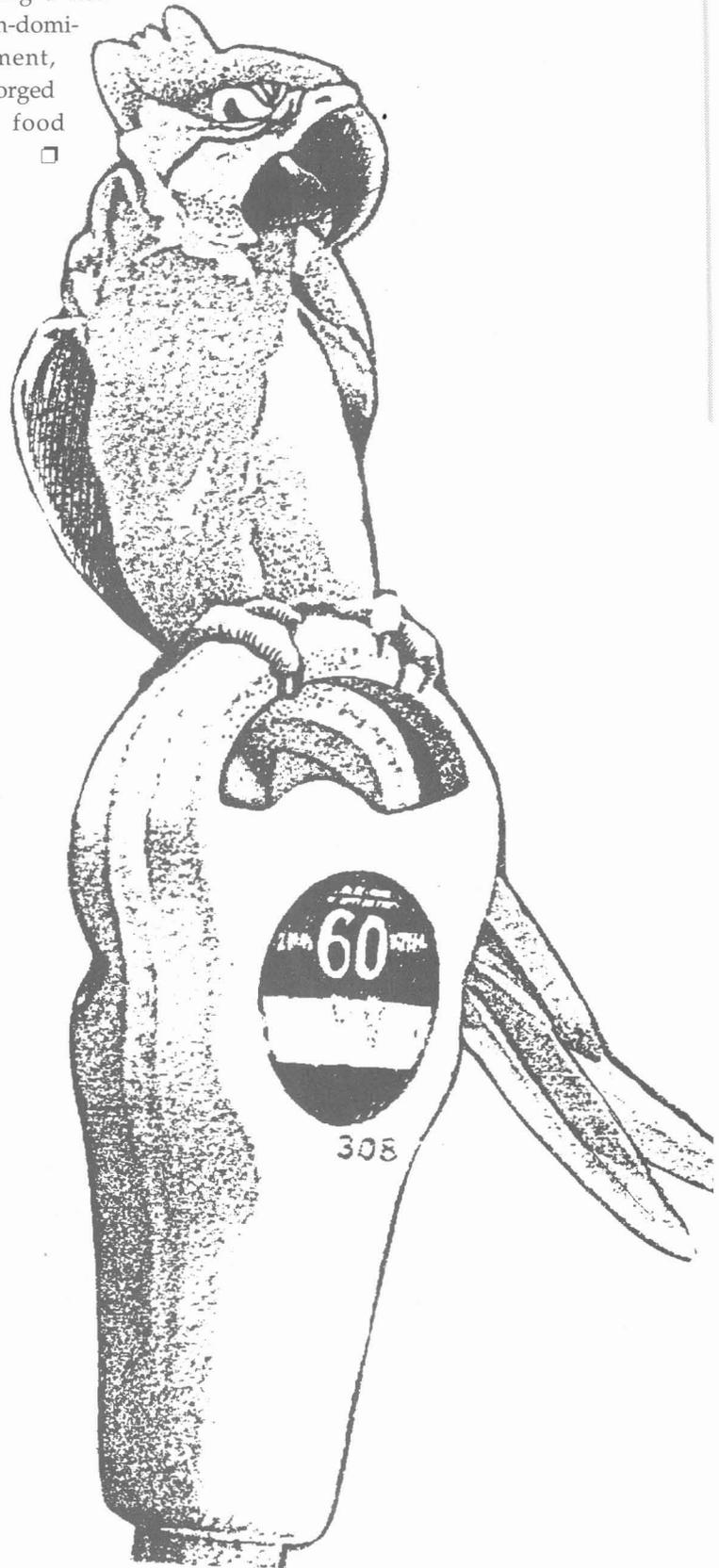
Food and Agriculture is often asked to take action against various birds, including the wild parrots that feed on backyard fruit trees in southern California, Clark said. But it only responds when a bird is perceived as a large-scale threat to agriculture. It is not planning any moves against parrots.

While transplanted birds may be inconvenient to humans, to the endangered Least Bell's vireo, their control is a matter of life or death. For about the last ten years, the U.S. Fish and Wildlife Service and the California Department of Fish and Game have trapped and destroyed the brown-headed cowbird in southern California, where it has caused a decline in the population of the Least Bell's vireo. The cowbird is native to the Midwest and thrives in prairies and grassy areas, such as lawns. It will lay an egg in the nest of the vireo, in some cases eating a vireo egg to make room for its own. Once the cowbird chick hatches, it eats the vireo eggs in the nest. But the cowbird is only partly to blame; it would never have thrived here if humans hadn't already destroyed most of the vireo's habitat.

When is a bird a pest or a dangerous invader? The answer is seldom apparent. Take pigeons. Some people call them "flying rats," while others feed them.

With time, a new balance may develop, including naturalized birds. In the case of the pigeon, the Peregrine falcon has come in as predator. This endangered native raptor is staging a recovery, in part by settling in cities where it roosts on bridges and high-rise ledges. It feeds on pigeons. Bryan Latta, wildlife biologist at the Predatory Bird Research Group of the University of California, Santa Cruz, said that at this time, city pigeons may, surprisingly, be healthier fare for the falcons than seabirds. "Residual traces of DDT, PCBs, industrial solvents are showing up in eggs of the falcons that nest in coastal cliffs. They eat shorebirds and seabirds, which pick it up from sediments and ocean fishes." Their eggs consequently have thinner shells and break more easily than

those of city falcons. Thus, the interesting possibility arises that a naturalized "pest" becomes a means for helping a native bird to survive by finding a new niche in a human-dominated environment, and a new link is forged in a damaged food chain. □

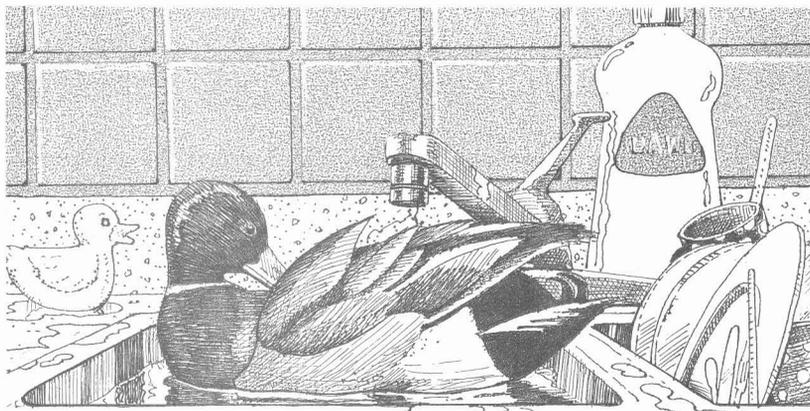


**Don't  
Feed  
the  
Duck,  
Duck,  
Goose**

# duck

**P**et ducks given to a child for Easter often wind up in a local pond or lake, where they may interbreed with wild ducks, compete for food with wild waterfowl, and spread disease. "It ought to be against the law to release pet ducks into the wild," said Todd Culver, education specialist at the Cornell Laboratory of Ornithology, an international center for the study, appreciation, and conservation of birds in Ithaca, N.Y.

The offspring of a domestic duck and a wild duck is less fit to survive in the wild but thrives in parks and reservoirs that wild ducks also use. It becomes the "mooch duck" that will join a picnic or steal kids' sand-



wiches and ice cream cones, said Culver, and will also come up to people more readily than a wild duck to be fed.

Interbreeding may also lead to a mutant strain that may damage the genetic purity of a wild duck population. In addition, when

feral ducks overcrowd a pond or lake, they may contribute to the spread of botulism, which will kill other waterbirds. "People don't understand that by releasing and feeding ducks in a park they are often contributing to declines in the population of wild ducks," said Culver.

Efforts to get rid of feral, hybrid, and mutant ducks, however, have sometimes encountered fierce opposition, as happened in two of the State Coastal Conservancy's coastal enhancement projects. At the Andree Clark Bird Refuge in Santa Barbara County, a growing population of liberated pet ducks had taken over the nesting sites of other waterfowl. The combined effects of the drought and the increased amount of bird excreta caused the water to eutryfy. Something had to be done. A proposal to move out the ducks was opposed by a group of citizens organized as Friends of Andree Clark. So an enclosure was erected in hopes that the feral and hybrid ducks could be contained. That did not work. Only after three years of discussion was a solution found when a rancher in San Diego County volunteered to place the ducks on his irrigation ponds and the offer was accepted.

At Soquel Creek Lagoon in Capitola, feral ducks and geese were fouling the water and interfering with habitat restoration. The city arranged for two roundups, in 1990 and 1991. Fisheries biologist Don Alley, with the help of volunteers and border collies, captured the feral and hybrid birds and placed them all in adoptive homes. Two days after the second roundup, however, someone released another pet duck in the lagoon.

The city has adopted ordinances prohibiting the feeding of birds in the area, the sale of pet ducks and geese, and their release. Signs have been posted, and police will cite violators. The city of Capitola and the Coastal Conservancy also published the *Soquel Creek Streamside Care Guide*, for the creek's neighbors. This 32-page booklet describes the natural values of the creek and lagoon and offers ideas on attracting wildlife.

Capitola's program offers hope that eventually people will come to value the remnants of their natural heritage enough to participate in its protection and restoration. □

**Pet,  
Pest  
or  
Vampire?**

# ferret

**C**alifornia law prohibits possession of European ferrets on the grounds that they pose a hazard to humans, especially infants, as well as to nesting birds, domestic poultry, and rabbits. Ferret fans, however, argue that these threats are exaggerated, and that the ferret, also known as the European polecat, makes a great "pocket pet," particularly for apartment dwellers. It takes little space and care, is easily housebroken, intelligent, and playful. It doesn't need to be walked, as dogs do. California is one of only four states to exclude ferrets, and their advocates are out to change the law.

As with the red fox, the issue of the ferret pits advocates of one alien species against public officials, resource managers, and citizens groups trying to protect California's ecosystems.

Female European ferrets have been prohibited since 1932, and since 1986, even neutered male ferrets have been outlawed, except that people who had neutered ferrets at that time were permitted to keep them. But the law has not prevented people from trying to smuggle this nonnative relative of the skunk and weasel into the state.

During 1988-89, 150 ferrets were taken from their owners at state borders by the pest exclusion division of the State Department of Food and Agriculture. "They're one of the easiest animals to detect because they smell so bad—all you have to do is stick your nose into the car window," says Fish and Game's Rich Barbour. The musky odor appeals to many people, however: The California Domestic Ferret Association estimates that 250,000 to 500,000 ferrets are kept as pets by 100,000 Californians. Nationwide, ferret advocates estimate that 3.7 million people keep close to 6 million ferrets.

Public health officials view the growing popularity of ferrets with alarm, especially because of the threat they pose to human infants. They have been known to attack sleeping infants and children, as rats do, biting them repeatedly around the nose, ears, and neck. They apparently perceive

human infants as prey, and have been reported to drink the blood and eat the flesh. A pet ferret killed an 11-week-old girl in Hillsboro, Oregon, in 1990, while the parents slept nearby, reports Peter Weisser, information officer for the California Department of Fish and Game, in the March/April 1991 issue of *Outdoor California*. A study conducted in 1989 by the State Department of Health Services reported 452 cases of ferret bites in ten years in California (100 attacks), Arizona, and Oregon, of which 64 were unprovoked attacks on infants and young children and 388 were attacks on older children and adults. Ferret supporters suggest that ferret owners cage their pets at night when infants are present.

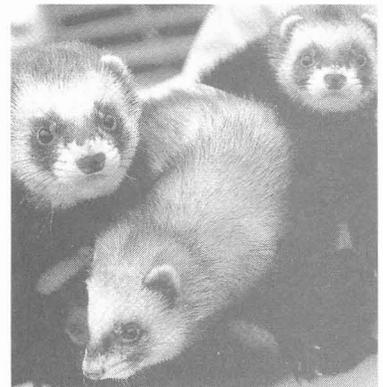
Like pet ducks, cats, and rabbits, some pet ferrets wind up in public parks. "It's incredible," says Joe Didonato, wildlife specialist at the East Bay Regional Parks District. "People aren't even supposed to have these in the state and then they go and let them out in the park. Fortunately, the last ferrets [we found] were so tame they walked right up to us." So far as is known, there are no ferrets loose in California now. Should any become successfully feral, they would place additional stress on the already endangered populations of the California clapper rail and other native species.

For information, write *Outdoor California*, P.O. Box 15087, Sacramento, CA 95851. □

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**Exclusion policies have a chance when the public cooperates. But there are those who defy the law, ignoring wildlife managers' warnings and pleas.**

▶



DAVE DICK, OUTDOOR CALIFORNIA

**It's 10 PM.**  
**Do**  
**You**  
**Know**  
**Where**  
**Your**  
**cat**

**Is?**

Cats have become more popular than dogs, and that's bad news for birds. Domestic or feral, cats are hunters and, having long been bred as pets, are not part of any natural food chain. They roam uncontrolled through parks, wildlife preserves, and backyards, eating songbirds, raiding ground-nesting birds' nests, catching small native rodents.

According to ornithologist Rich Stallcup at the Point Reyes Bird Observatory, the "out-of-control population [of cats] is vastly larger than all native predators put together." Nobody knows the size of that population. "Estimates are almost always made up of whole cloth," said Ken White, deputy director of the Department of Animal Care and Control in San Francisco. But there is widespread agreement that more cats are around, and that they are devastating some native bird populations. "In parks, foothills, and agricultural areas, feral cats hunting are a common sight," Stallcup wrote in the observatory's newsletter. "Along the California coast, it is common to see ten to 15 during a day's outing (and these are nocturnal animals). Certainly there are many millions, countrywide. What do they eat? Wildlife! Nothing but wildlife."

"White-crowned sparrows used to be thick in San Francisco's Golden Gate Park," said Luis Baptista, chairman and curator of ornithology and mammalogy for the California Academy of Sciences. "Now there are

only about 60 pair left. We think cats are a major factor."

In the Tijuana River National Estuarine Research Reserve, "there is nowhere you can go that's not under water that you can't find cat tracks," said Ronnie Ryno, who was assistant refuge manager there until recently. "One cat with access to nesting colonies can key in on the birds and routinely return, wiping out a colony."

The low nests of meadowlarks and of the endangered Belding's savannah sparrow in the upper marsh are easy prey, as are Light-footed clapper rail nests in the low marshes. Along Seacoast Drive in Imperial Beach, "high tides put them next to the apartment buildings," said Ryno. "The cats tend to act on opportunity."

The reserve's northern end is enclosed on three sides by urban streets lined with single-family homes and apartments, from which cat access to the sanctuary is unhindered.

**What Can Be Done?**

In San Francisco, more than half the 16,217 animals received last year by the Department of Animal Care and Control were cats. Of the total 8,604 cats taken in, 1,354 were captured in humane traps in parks and backyards. Those not claimed by owners or adopted were kept until the animal shelter filled up (about six to seven weeks), then put to death.

Cats are prolific breeders, however, and many efforts to control their population have been slowed or stopped by budget cutbacks combined with political pressures. "You can't do anything about cats. You'll have 10,000 cat people at your back, scratching," commented Raymond Dassman, professor emeritus of environmental studies at the University of California, Santa Cruz.

In the Tijuana Reserve, neighbors were notified by letter that cats would be trapped and those with identification collars would be returned to their owners once only. The animal shelter's phone number was given. Reserve staff caught some ten cats in live traps in 1990—known offenders like the mother cat seen leaving the reserve with a clapper rail in her mouth. All went to the

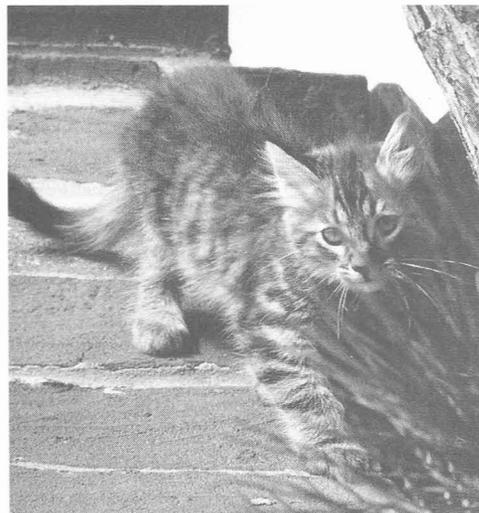
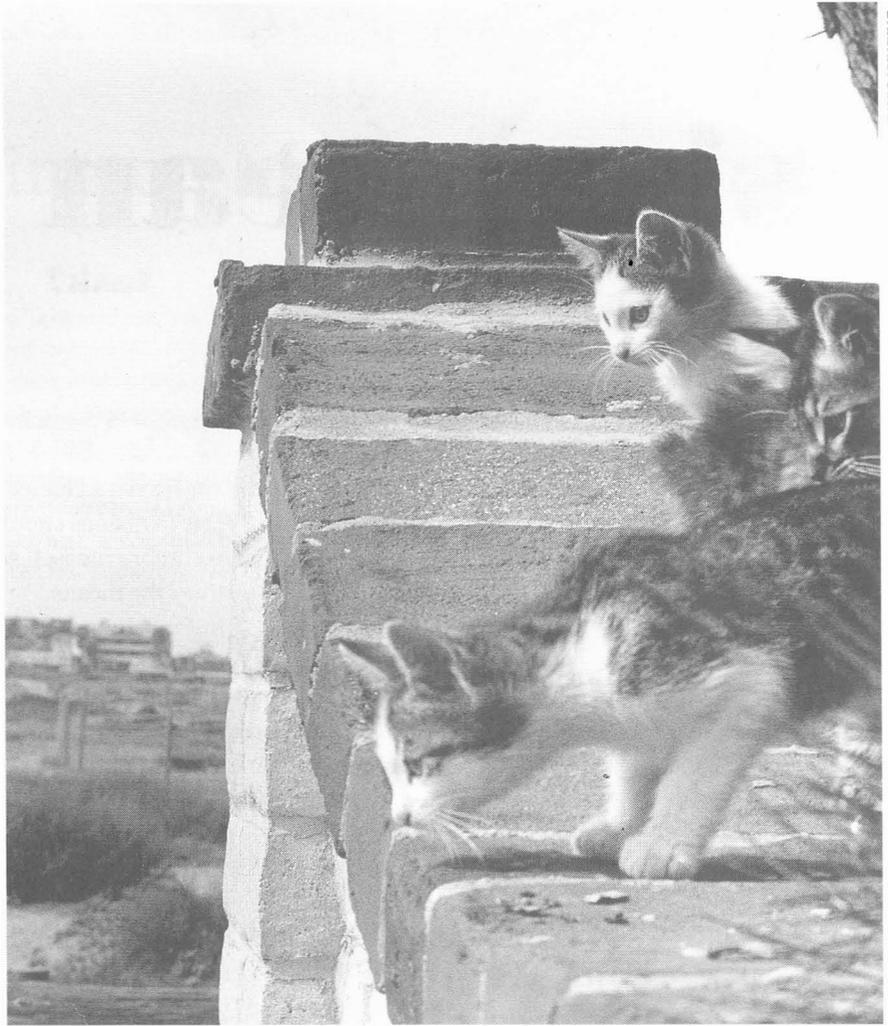
◀  
**Not all pesky invaders are  
wild aliens. A plague of  
feral and wandering  
domestic cats is  
devastating wildlife in  
many places. But  
that's an extremely  
scratchy subject.**  
▶

animal shelter. In 1991 only half that many were trapped due to lack of staff, and none were claimed. Five kittens were taken by a local veterinarian, who found homes for them. "Almost every cat we trap is without a collar," said reserve manager Paul Jorgensen. "I don't think they belong to anyone. An apartment house manager told me they get left by renters."

Except for trapping, few remedies against feral cats are available. To fence nesting areas is considered too expensive, not to mention the difficulty of getting the birds to nest inside. It would be legal to shoot cats stalking and killing wildlife in the reserve, but it might not be too wise within Imperial Beach city limits. The reserve will continue to rely on live trapping and trying to educate the community. Though it is the cats that stalk the birds, it's people who feed strays and let their pets out at night.

Many cat owners simply don't care about the birds and small wildlife as much as they do about their pets' satisfaction. Many others never realize that their cozy animal could be doing serious harm. But everyone who realizes that the situation is truly alarming can play a part in lessening this man-made threat to birds. Stallcup urges citizens to "implore agency officials like park rangers, game wardens, and wildlife agents to permanently remove (not relocate) feral cats from parks and other public lands. If they claim not to have the funds for the job, volunteer yourself," he suggests. Spaying and neutering help to keep down the population, and bells attached to a cat's collar, if loud enough, will warn birds of the predator's approach. Though the cat may be closer to many people's hearts, as a pet, "birds should have first priority," argues Baptista. "They were here before us." Aside from that, are we willing to do without songbirds?

—Barbara Selke



BARBARA SELKE

# a sisyphean

task?

In wildlife management as in medicine, human beings find themselves, more and more often, unable to avoid playing God—making conscious decisions that determine what kind of life shall have a chance to survive. While all will agree that some species are so disruptive their invasions should be excluded or contained if possible (brown

## High Country Battle of the Species

snake, zebra mussel) soon one has to consider whether a desired end justifies the means.

## Raccoon bites arm of theater patron

In Frenchman Reservoir the Northern pike was exterminated because the possibility of its escape into the Sacramento River endangered salmon, steelhead, and striped bass. That decision raises relatively little controversy. But when do efforts to preserve a certain trout from hybridization in mountain streams cease to make sense? At what point do we question the desirability of repeatedly poisoning all other trout in several streams? If restoration work continues to be undermined by reintroductions or reinvasions of other trout species, when do the valiant biologists climbing to Sierra stream headwaters with rotenone loads on their backs begin to look like Sisyphus, doomed to forever haul a boulder uphill, only to have it tumble down again?

## Rats Stopped At the Border

Rene Debos and other ecologists have pointed out that ecosystems are never completely in balance, they are always changing. What's at stake is the nature and pace of that change, over which we have some control, being now its principal agents. Will we have a world that includes the California clapper rail, or must we yield it to the introduced red fox? What we do now will affect whether our future generations will know only pigeons, sparrows, starlings, or a rich diversity of songbirds, marsh birds, and seabirds as well. An argument for song-

## Texas Man Was Stung by 'Killer' Bees

birds has been made in economic terms: one small songbird catches about 675 insects a day, consuming 100,000 a year, thereby avoiding the need for insecticides. But as Rachel Carson knew when she chose *Silent Spring* as the title of her work of warning, no justification for the existence of songbirds is needed. The very thought of a world without them fills us with dread.

## An Unendearing Deer Explosion

As non-native species, the goats don't belong — so they must move or die

The economic arguments, however, serve to point out that seeking to slow down "the enormous convulsion in the world's flora and fauna" now underway can only be successful if human well-being is thereby enhanced rather than diminished. In agriculture as well as in wildlife management, it is becoming clear that there is far more security and stability in a landscape that has a rich variety of species than in a monoculture. The Napa County Resource Conservation District recently noted that "the realization has come that if one only leaves grapevines to eat, only things that eat grapevines will survive." The district has joined with viculturists and the Coastal Conservancy in a project that will restore greater species diversity in the landscape. With invasive species as in other areas of natural resource management, it makes good conservative sense to sustain the self-regulating processes of nature. □

'It's been like "Jaws" around here.'

In Florida, Gators and Humans Vie for Same Turf

# You're Standing on My Environment!

by **Pat Flanagan**

It has been many years since nature study was taught in the classroom. Now kids learn about "the environment" instead. They are exhorted to save it: Recycle! Conserve! Buy an acre of rain forest! Look at *50 Simple Things Kids Can Do to Save the Earth!* Kids are concerned.

They want to help, to feel they have some control over their lives. But ask them: "Where is the environment?" Ah, it is a lot of places, but only for the rare child is it underfoot, on the hillsides, the beaches, the vacant lot next door.

Generations of students (grown up to become parents and teachers) know more about the plains of Africa than the natural places of home.

At the same time that "environmental awareness" is high, knowledge of what the environment is has dropped to an all-time low. Where does that put those of us who work in endangered habitats, who must educate the public and enlighten students—whose job it is to give life to the concept of the environment? We are only going to do this with dirt under our feet. So we do all we can to get kids out to the shorelines, the marshes, the riversides. And herein lies the problem. Busloads of school kids (60 students or 120 feet per bus)—excited, eager and uninformed—can destroy habitat.

Tidepools have been destroyed by students and teachers picking up, turning over, inspecting everything. Blissful ignorance leaves vulnerable animals open to predators, exposed to scorching

sunlight and searing winds. How many starfish have died drowning in air, nailed to their display board coffins?

Trails that meander across the landscape are placed to lead around sensitive areas. But trails are ignored when a butterfly wafts by, a rabbit is seen, crabs reach and wave, mud beckons.

At the Tijuana River National Estuarine Research Reserve, trails have been carefully placed so that birds feel safe, plants are not trampled, the siphons of mud-dwelling organisms are not squashed and clogged with mud. But such care will only yield results if the public cooperates, and that includes teachers and stu-

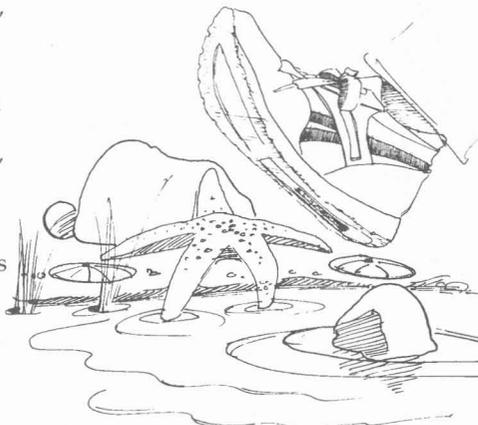
dents. To balance the need to educate students and the need to protect habitat, we have developed a program that seeks to ensure that both teachers and students are trained before their trip and arrive at the reserve with respect for the sanctuary they are to enter and essential information on how to avoid damaging what they came to see.

The teachers—rather than rangers, curators, or reserve staff—lead the field trips. Before coming, all teachers must attend a day-long training in which they

are introduced to the curriculum materials—which include carefully planned noninvasive field work for their students—and spend two hours in the field. They can return for three more hours of field training before their classroom trip.

There are two reasons for this required teacher training. First, the reserve does not have enough staff or volunteers who might act as guides. But more importantly, the very fact that the teacher has taken the trouble to be trained, is learning with the students in the classroom, and is involved in the field investigation tells the student that the activity is important. Teachers who are not trained and let someone else lead the trip, just trailing along during the site visit, give the message that the reserve is not very important. Without careful preparation and involvement by the teacher we feel that the students would be better served to travel to an area that is not so sensitive. Students deserve, by word and example, a knowledge and respect for the environment they live in. Many nature centers have come to these same conclusions and are developing teacher training programs. Teachers need to go back to school, but our experience shows that they are as excited as the students about the opportunity to know their home.

*Pat Flanagan is education coordinator for the Tijuana River National Estuarine Research Reserve in San Diego County.*



KEN DOWNING

## Tijuana Estuary Reserve Program

*In our educational MARSH program, we use materials developed by Fullerton College, with the help of State License Plate Funds, for use in the Upper Newport Bay Ecological Reserve. The Fullerton College program is active, and is intended for grades four through six. It includes an ecological curriculum for looking at the whole salt marsh system, with the help of posters, video programs, and flash cards. The Tijuana River National Estuarine Research Reserve has continued to develop elements of this program, with three additional License Plate Fund grants and support from the California Department of Parks and Recreation and the National Oceanic and Atmospheric Administration.*

# How the Headland was

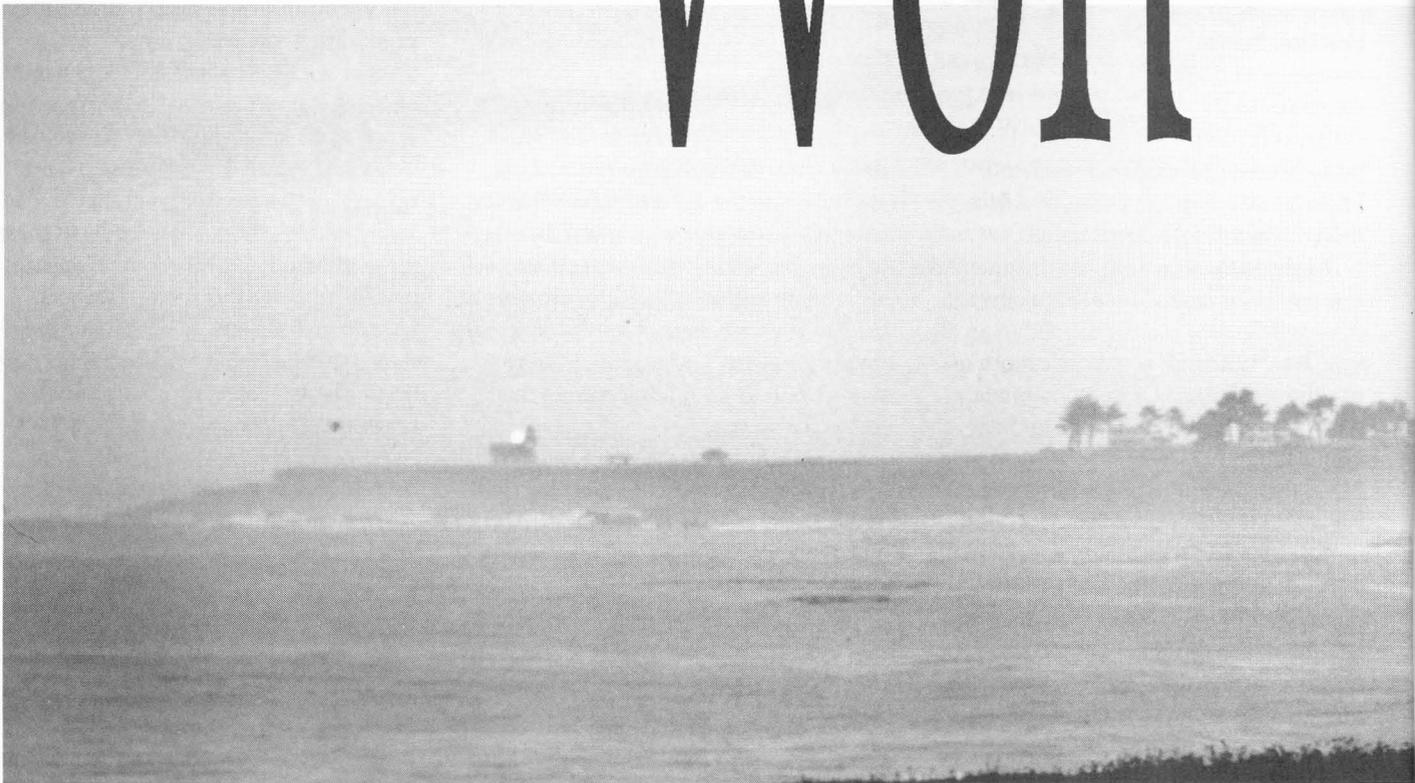


JULIA MELVER

# Won



BRANT WARD



RON KUKULKA

**T**wo miles north of the town of Mendocino lies a small peninsula with sea caves on either side, a rocky shore below, and on it a lighthouse gleaming white against the seascape. Just inland, past two small outbuildings, three red and white Victorian houses stand surrounded by white picket fences. The original water tower is gone, but most of the cypress windbreak still stands, the trees bent and shaped by ocean winds. Lighthouse keepers and their families lived here from 1908 until the late 1960s, when the light was automated, and a Loran (Long Range Aid to Navigation) monitor was installed. Now the Point Cabrillo Light Station is under the jurisdiction of the U.S. Coast Guard and the former lighthouse keeper's quarters provide housing for some of the crew members of the 77-foot cutter *Point Ledge*, stationed at nearby Noyo Harbor in Fort Bragg.

For both people and wildlife, this wide-open headland is a tranquil haven. Bound by Point Cabrillo Drive to the east and subdivisions to the north and south, its 300 acres of wind-swept savannah slope gently down toward the rocks at the ocean's edge. Fragrant grasses wave and murmur, brushed by the sea breeze. Black shouldered kites and

**Long-term coastal**

**investment strategy**

**pays off at**

**Mendocino's historic**

**Point Cabrillo**

**by Julia McIver**

# Keys to the Solution

The Coastal Conservancy's powers, unique among state agencies, enabled it to step in as an effective problem solver. These powers enabled the agency to both craft a widely supported solution to a significant local coastal program implementation issue, and undertake a complex, phased acquisition involving a variety of techniques, through these crucial actions:

- Providing funding and technical assistance to Mendocino County for the Specific Plan and environmental impact report, enabling those involved to assess what was at stake at Point Cabrillo
- Structuring a long-term purchase agreement, backed with strong and successful staff efforts to find sources of funding
- Initiating and providing an immediate and long-term framework for public participation
- Filling the funding gap with a commitment of Conservancy funds to accomplish a critical opportunity purchase.

Northern harriers hunt small prey along verdant streams and wetlands, and the long ears of coast mule deer, sticking up above the grass, signal their resting places. This is a sanctuary for the senses; here you can walk and breathe deeply, watch the sunlight sparkle off the water or see the fog billow in, enveloping the lighthouse, houses, and cypress trees.

This magnificent headland, including its historic light station, has now been protected for the enjoyment and education of future generations. In 1991, the California State Coastal Conservancy completed the purchase of the private lands around the light station at Point Cabrillo from four private owners. By means of an innovative property exchange with the Coast Guard, the Conservancy secured the light station as the centerpiece of what will, eventually, be a new park. That same exchange also helped to secure the Coast Guard's continued presence in the community by providing expanded permanent housing for some of the cutter's crew, thereby reducing taxpayer costs.

The Conservancy worked with four private landowners, the U.S. Coast Guard, the local government, the California Coastal Commission, the legislature, and the State Department of Parks and Recreation in devising a solution that was of mutual interest to all involved. Support for the Point Cabrillo project came from many additional sources—local citizens, environmental groups, Senator Barry Keene and Assemblyman Dan Hauser, and local political leaders who otherwise seldom agree. Supervisor Norman de Vall said, "Future generations will be immensely pleased." Former Supervisor John Cimolino remarked that as a park, "it's a natural, with the lighthouse as its core."

In helping Mendocino County comply with the California Coastal Act, the Conservancy was called upon to resolve thorny land use conflicts. Fourteen years of effort

were required—with the last seven spent in active but patient negotiation and innovative planning—along with the investment of nearly \$7.5 million in Conservancy funds.

Point Cabrillo is one of the Coastal Conservancy's major long-term projects. As in most such projects, the shape of the solution was not visible in the beginning. It evolved over time.

## Long Road

Before the passage of the California Coastal Initiative in 1972, the Point Cabrillo headland was virtually certain to be subdivided for residential development; to the north and south subdivisions are in half-acre and one-acre parcels. When, as a result of increased awareness of the value of coastal resources, the Coastal Act was passed in 1976 and Mendocino County began to implement the Act locally, the private property at Point Cabrillo was caught up in a tangled land use controversy.

The Coastal Act required each county and city within the coastal zone to devise a Local Coastal Program (LCP), which, after approval by the Coastal Commission, would provide the blueprint for locally controlled land use. Hearings were held beginning in late 1977 in Mendocino County as part of this process, and the Point Cabrillo headland was immediately identified as a sensitive area. Local citizens argued for the headland's preservation, as it has high scenic, historic, and natural resource values. The county and the Coastal

Commission were at odds over the type, extent, and location of potential land uses. The property's owners wanted to be able to sell it for residential development. But until the permitted use of the property under the new coastal regulation was settled, the land's market value could not be accurately measured, thus the owners were held in limbo.

Seeing a battle brewing between private



BRANT WARD

property rights and the desires of the local community and the regulatory agencies for preservation of the area, in 1978 the Coastal Commission asked the Coastal Conservancy, then a new and unknown agency, to help find a solution. The county and Commission wanted to provide for both orderly development and resource protection. The Conservancy agreed to try to help—never dreaming it would become involved for more than a decade.

Coastal regulation was not popular in Mendocino County. The landowners were very suspicious of government intervention, and viewed the Conservancy as a wolf in sheep's clothing, one more part of the state's "oppressive" regulatory scheme. They were also exhausted by years of public meetings, which began in Mendocino County shortly after passage of the Coastal Initiative in 1972 and had yet to generate a definitive answer. They wanted the planning to end so that they could get an accurate market valuation on their property and sell it for development.

Through the late 1970s and early 1980s, Mendocino County worked on its LCP but did not complete the certification process. The county and the Coastal Commission did agree that the issues regarding Point Cabrillo should be resolved through a Specific Plan for the undeveloped land around the light station. They were in accord that this plan should include a maximum amount of permanent open space, that any permitted development should be clustered on the eastern portions of the site, and that the light station structures should be preserved for their historic and scenic value.

In 1985, the Conservancy agreed to provide funding and technical assistance to the county to prepare a Specific Plan and its associated environmental impact report (EIR) for the headland. The landowners agreed, seeing in this effort the best hope of resolving the regulatory conflict.

The visual character of the site and the public viewshed issue were key factors in

early recommendations that any development should be kept back from the shore and confined to the eastern portion of the property. The western part of the headland is easily visible not only from neighboring residential areas but also from Mendocino Headlands State Park to the south.



The headland's sensitive natural resources include several streams with associated wetlands, habitat for migratory and hunting birds, and potential habitat for the endangered Lotis blue butterfly. Archaeologists have catalogued 17 Native American

sites on the property. A historically significant shipwreck lies just offshore. The Point Cabrillo Marine Reserve, maintained by the California Department of Fish and Game, borders the headland, offering important opportunities for study of commercially important sea urchin and abalone, as well as other intertidal species.

Along the property's partially wooded eastern boundary are remnants of Pine Grove, which sprouted in the 1850s as the lumber industry moved to this section of the coast to cut its ancient redwoods. In the 1870s, Pine Grove had a race track, a brewery, a large hotel, and several farmsteads.

The final EIR showed a number of impacts that would arise from development on the headland, including impacts to the site's visual character, its wetlands, the endangered species habitat, the historical resources. Recreational opportunities would also be lost. The resulting Specific Plan allowed 55 single family housing units within the central and eastern portions of the property.

In 1987, the Mendocino County Board of Supervisors altered the plan and allowed houses in the western portion of the headland as well, adopting a "Statement of Overriding Considerations" in order to certify the EIR and approve the altered plan. In a somewhat contradictory move, however, the supervisors also adopted a unanimous resolution requesting the Conservancy's assistance in protecting the headland through

## The Purchase Agreement

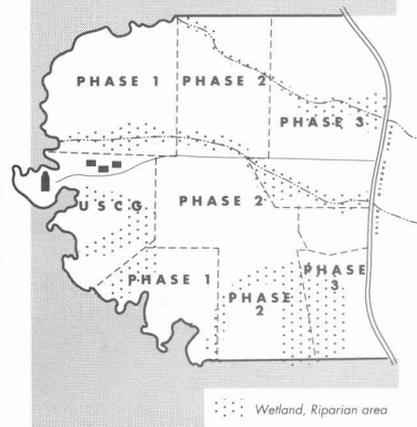
The property at **Point Cabrillo**, except the light station, was acquired by the Conservancy in phases:

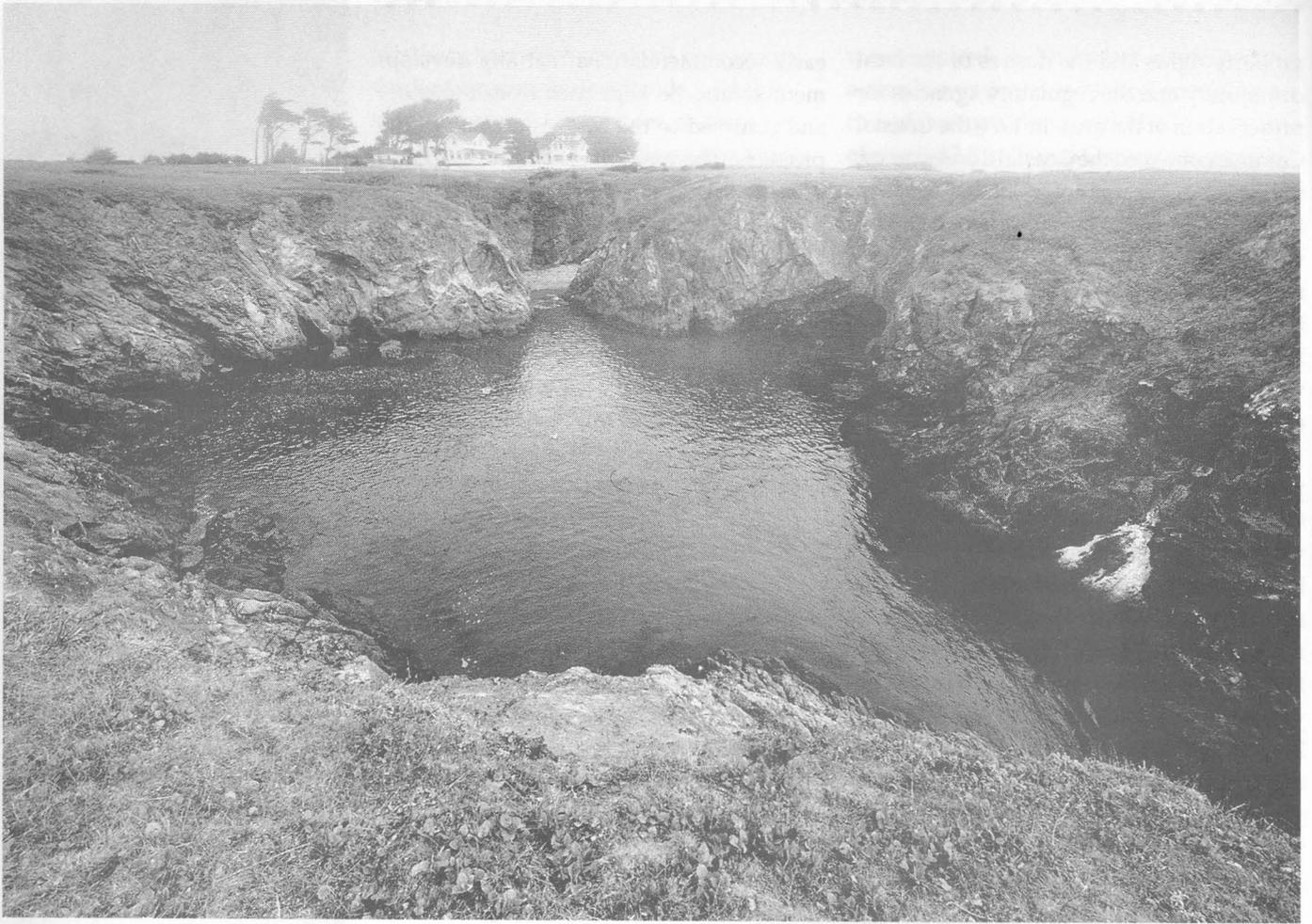
**Phase 1** Acquired March 1989

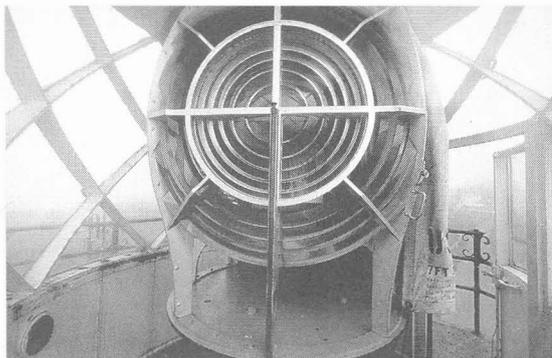
**Phase 2** Acquired January 1990

**Phase 3** Acquired January 1991

**USCG Light Station** Acquired 1992







**This is a sanctuary for**

**the senses; here you**

**can walk and breathe**

**deeply, watch the**

**sunlight sparkle off the**

**water or see the fog**

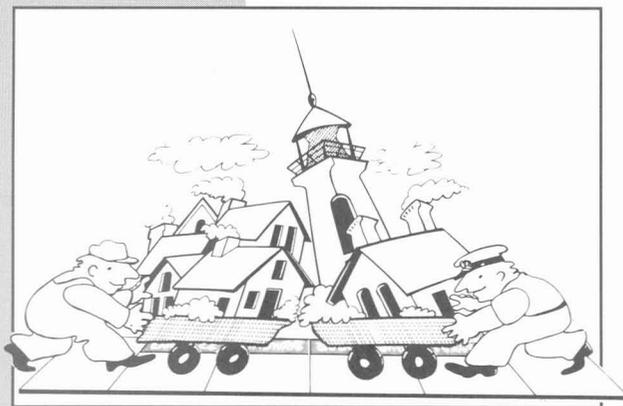
**billow in, enveloping**

**the lighthouse, houses,**

**and cypress trees.**

**Photos by Brant Ward**

# The Coast Guard Land Swap



Members of the Coast Guard are looking forward to moving into seven new houses in Fort Bragg this summer, while the Coastal Conservancy has secured the light station as the centerpiece for a new coastal park.

state acquisition. Conservancy program manager Steve Horn, who has guided this project since 1984, described it this way, "The EIR and planning processes were critical: no solution could be reached until the real costs and benefits—political, environmental, and economic—of potential development were made clear to everyone involved." Responding to the public's growing interest in state acquisition to preserve the headland, the landowners indicated interest in selling their property to the state,

and, ten years after first exploring possibilities for a solution to the conflict, the Conservancy began to negotiate a

purchase agreement.

## Where To Get The Money?

Despite the widespread momentum toward preservation, a major obstacle loomed: no single state agency had the necessary funds to buy it. The fair market value of the 273 acres, without the light station, was established at almost \$6 million. Therefore, the Conservancy negotiated an agreement that allowed the purchase to be phased over as long a period as possible, to allow the agency to put together a complete funding package. The agreement also recognized that landowners could not be expected to reserve portions of their property for two years without compensation.

The resulting acquisition plan was structured in three phases, with each phase pertaining to roughly a third of the headland (see map, page 17). It provided for outright purchase of the westernmost third of the properties (Phase I), with options to purchase the second and third (Phases II and III), for one year from the date of the first purchase. If purchase of Phase II was accom-

plished, the Phase III options would be extended for another year (for a total of two years). If Phase III was purchased during the second year's option period, its price would be augmented by five percent, to account for the interim rise in the value of the property.

In September 1988, the acquisition plan was brought to the Conservancy's board meeting in the Fort Bragg City Hall. The room was packed beyond legal capacity with supporters—local citizens, the landowners, environmental groups, county supervisors, and legislators. The Point Cabrillo project brought together parties in Mendocino County who were conciliatory on nothing else. The Conservancy unanimously approved the purchase of Phase I and the options on Phases II and III, for a total of \$2,152,500. Because its total size was well beyond that of the usual Conservancy project and beyond the agency's budget capabilities, the board admonished the project's supporters not to expect full acquisition by the Conservancy alone. The board also directed staff to devise a plan for public use of the property.

The Conservancy is unique as a state agency in its combination of powers and flexibility; it was therefore able to acquire "what will become a magnificent new state park on the Mendocino coastline," as Senator Barry Keene put it in a letter supporting the project. To complete the full acquisition, the Conservancy would not only require funding from other sources, it would have to be assured that the extensive funds it invested in this purchase would be returned, for application to future projects.

The obvious agency for long-term ownership and management of Point Cabrillo was the Department of Parks and Recreation. The Parks Department indicated its desire to assume stewardship, and its intention to reimburse the Coastal Conservancy for the acquisition.

## Lighting Up History

In keeping with its directive that it devise a plan for public use of Point Cabrillo, Conservancy staff gathered information about the headland and sought the views of the



# Porthole to the Past

**O**n July 26, 1850, a clipper ship loaded with goods from China and Bombay and bound for San Francisco broke up on the rocks just north of Point Cabrillo and sank. This, in itself, might have been of slight historical importance, for shipwrecks were fairly common in California's early days. But news of this particular wreck brought a lumberman up from Bodega. He came looking for salvage but, instead, found a truly great treasure: the giant redwoods of the North Coast. Thus the wreck of the *Frolic* led to the coming of settlers and lumber mills, with disastrous consequences for the indigenous people of what is now Mendocino County.

Practically all that is known about the *Frolic* was discovered by Thomas N. Layton, professor of anthropology at San Jose State University. In 1984, while excavating at a site of a Mitom Pomo Indian community 15 miles inland from the town of Fort Bragg, he was surprised to discover Chinese pottery shards. He traced them to the coast, where local divers showed him matching pieces they had recovered from a ship sunk offshore. "I found exact matches—we're talking about the same kind of ginger jar with the same design elements," Layton said.

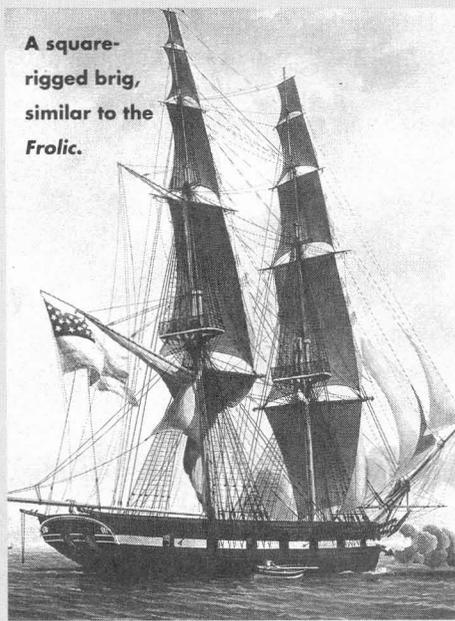
The Pomos used the blue-on-white shards to make beads and the bottle glass to make arrow heads. Layton has been using the fragments they left behind at their dwelling sites to reconstruct Pomo settlement patterns. "It is similar to injecting a radioactive tracer into the bloodstream," he explains. "The china illuminates where the Native Americans were living." Trying to track the shards to their source, Layton followed a tip from an amateur historian to the *Daily Alta California*, San Francisco's newspaper of record at the time. It had reported the wreck, with cargo valued at \$150,000.

Layton was able to trace the *Frolic*'s route back to Hong Kong, and to Bombay, its port of embarkation. He learned that the brig had been built in Baltimore in 1844 for the Augustine Heard Co. and had been used for five years to run opium from Bombay to Canton. The *Frolic*'s crew was Chinese, Malaymen, and Lashkars (from India), according to Layton. "The first Chinese to land on the Mendocino

coast were almost certainly members of the crew of the *Frolic*," he says. On its last, ill-fated voyage it was carrying silks, ceramics, tea, lacquered ware, and other goods to sell in Gold Rush San Francisco.

It was probably the *Alta California* story that prompted Henry "Honest Harry" Meiggs to dispatch upcoast the manager of his Bodega lumber mill, Jerome B. Ford. When Ford arrived in what is now Mendocino, he found Pomo women wearing silk shawls and realized that all of the portable property had already been removed from the wreck. But he told his boss about the huge redwoods in the area, and Meiggs jumped at the opportunity. He had

A square-rigged brig, similar to the *Frolic*.



an entire lumber mill shipped from the East Coast, around South America, to the foot of the headland on which Mendocino now sits, about six miles south from the place

now known as Point Cabrillo. He christened the town Meiggsville. It was later renamed Big River, and is now Mendocino.

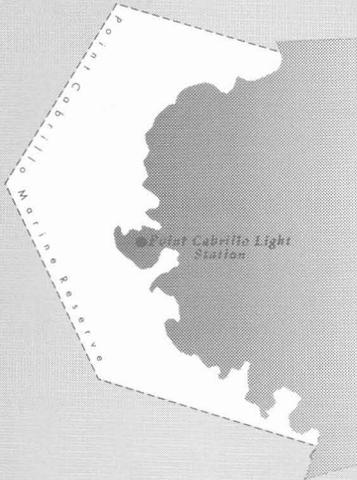
For the Pomos and other indigenous people around Meiggsville, these developments spelled disaster. Their coastal hunting and gathering places were taken over by alien settlers. In 1855, as their inland home grounds were claimed by newcomers, Layton notes, the Mendocino Indian Reservation was established. About 3,000 Indians were rounded up on the coast and in the inland valleys and confined to the reservation, where they were put to work growing vegetables and grains. "In short order the Pomo lost the coast and forest to loggers, their home territory to farmers, and their independence to the Army and the reservation," according to Layton.

The Asian pioneers fared little better than the Pomos. By the mid-1850s there was a clear pattern of persecution of Chinese in California, and about 30 years later, a white mob torched Ukiah's Chinatown.

Thomas Layton and the *Frolic* Shipwreck Project he heads at San Jose State University continue to unwrap Mendocino's past. Layton's *Western Pomo Prehistory* (1990), was published by the Institute of Archeology at the University of California, Los Angeles. He is close to finishing the manuscript of a second book, entitled *Drug Runner: The Story of New England Merchants and the Frolic—A Baltimore Built Opium Clipper in India, China, and Gold Rush California*, and he is at work on a third volume, which will analyze the *Frolic*'s Chinese cargo.

With the help of a grant from the State Department of Parks and Recreation, Layton now plans to map the sea floor where what remains of the *Frolic* is resting, and to collect any ceramic shards still there. Rough seas have delayed this project. Together with other historical and educational institutions in Mendocino County, he is seeking funds to establish permanent and traveling exhibits of the artifacts salvaged from the *Frolic* by divers in the last 30 years. These are now in Layton's possession. Layton has established a repository for *Frolic* artifacts at the Mendocino County Museum in Willits. Eventually, some of these pieces of history may also be on display at the museum planned for the Point Cabrillo Light Station—the part of *terra firma* closest to where the *Frolic* went down. —RMcG

# Point Cabrillo Marine Reserve



The Point Cabrillo Marine Reserve, managed by the State Department of Fish and Game, was extended last May from 1,000 feet on either side of the lighthouse to 2,500 feet to the north of the lighthouse and 1,600 feet south. No form of marine life may be taken from here within 1,000 feet of the high tide mark. Since it was established in 1975, the reserve has been used to study nearshore invertebrates, such as abalone and sea urchins, which are important commercial fisheries on the North Coast. During the last three years, it has been used for urchin tagging studies, comparing sea urchins in areas subject to fishing with those in unexploited areas.

community on how Point Cabrillo should be used for public benefit.

History comes to life on the Point Cabrillo headland. Light keepers have recorded 30-foot waves pounding the rocky shore and climbing up to break over the lighthouse. The powerful beam from the Fresnel lens—not currently used but still in place—was visible 14 miles out to sea, to prevent further shipwrecks such as that of the *Frolic*, which ran aground on a reef off Point Cabrillo in 1850, with a cargo of silks, ceramics, jewelry, and 6,000 bottles of Edinburgh ale (see sidebar). The headland's 17 catalogued archaeological sites bear witness to the summer presence of Pomo Indians and suggest that a village may have existed here. Near Point Cabrillo Drive is the site of an early Euro-American settlement, Pine Grove, including a farmhouse that could be restored.

The Conservancy organized a weekend tour of the headland, during which more than 100 participants followed a "tour book" that led to specific locations within the site. At each, the tour book posed questions about what the participants saw and felt. The responses, combined with comments made at a subsequent series of public meetings held in Fort Bragg, helped the Conservancy and the community to focus on goals and ideas. These were eventually embodied in the Point Cabrillo Public Use Guidelines.

The guidelines were adopted by the Conservancy in February 1990. They address public access issues, environmental and historic education, protection and enjoyment of the natural resources, recreational improvements, and the control of environmental impacts from public use. Clear direction for the development of public access is provided—for example, the guidelines recommend that vehicle use be minimized, that public education on natural resources and history be provided, that the visual integrity of the headland be maintained, and that any recreational improvements be kept in the

eastern portion of the property. They also recommend that a nonprofit organization be created to assure that the community will remain involved in the design and operation of the park to be created at Point Cabrillo.

While working to shape the public use plan for the headland, the Conservancy continued to work on the two remaining critical aspects of the Point Cabrillo project: securing funds for Phases II and III, and seeking an agreement with the Coast Guard regarding acquisition of the light station.

The options on Phase II were to expire in April 1990. As sufficient funds were not available from either the Conservancy or the State Parks Department, the Conservancy sought help from the legislature. In the last days of the 1989-90 session, the legislature appropriated \$2 million from Proposition 99 (the "Tobacco Tax") funds for Phase II. Augmenting these funds with \$205,000 of its own, the Conservancy authorized purchase of Phase II in February 1990, and the renewal of the Phase III options, so that the search for the remaining funds could continue for another year.



## Coast Guard Puzzle

Aside from having to find funds to complete the headland's purchase, the Conservancy had a difficult problem to solve with the Coast Guard. If the 35-acre Point Cabrillo Light Station were to be the centerpiece of a new park, the Coast Guard would have to agree to its acquisition by the state. The Coast Guard's presence is highly valued in the community. Its installation in Noyo Harbor is an important asset to the commercial fishing industry of the North Coast, for it provides sea rescues and enforces marine regulations. The three houses at Point Cabrillo provide essential housing for senior members of the 19-person crew of the *Point Ledge*.

To help keep the Coast Guard in the

community while also securing the light station for the park, Conservancy staff devised an unusual, administratively complex exchange transaction. The Conservancy would purchase housing, or buy land and build housing, of a value equivalent to that of the light station and exchange it for the light station. (The Coast Guard would continue to maintain the light station's aids to navigation, which are largely automated and require only occasional maintenance.) After months of routing the idea through its chain of command, and with the help of then-Congressman Doug Bosco and Commandant John W. Kime of the Coast Guard, the Coast Guard approved the concept in 1990. The light station was then appraised, and a fair market value of \$1,375,000 established.

In September 1990, the light station exchange proposal and the proposed purchase of Phase III were presented to the Conservancy board. Through Proposition 117, approved by the voters of California in June 1990, the Conservancy had received a new revenue source that provided funds annually to the agency for acquisition of wildlife habitat areas. Given the bleak outlook for further funding from sources outside the agency, staff proposed that to complete the acquisitions, the Conservancy fund the property exchange with the Coast Guard, and using \$1,607,000 from Proposition 117, purchase Phase III.

The purchase of Phase III was completed in early 1991. An exchange contract has been signed with the Coast Guard, and the fair market value of the light station at the ocean's edge is paying for seven houses, now under construction in Fort Bragg. The light station exchange will take place when they are completed, later this year.

"This is a good thing for the Coast Guard," said Master Chief George LaForge. "This will meet 75 to 80 percent of our married housing needs for Fort Bragg." In the very tight Fort Bragg housing market, providing these houses may be key to ensuring the long-term presence of the Noyo Harbor Station, which is so important to the local maritime industry.

### **The Future?**

Because the state's expenditures for parks and recreation have been severely reduced and may be cut even more in the coming year, the Parks Department has been compelled to delay or cancel many of its projects, including its plan to open Point Cabrillo to the public. This presents a new problem for the Coastal Conservancy: its policy requires that access to its projects be provided "immediately" whenever possible. The Conservancy must therefore, once again, use its creativity. It may create an organization or request help from a local agency to protect the resources of this beautiful headland and allow citizens to begin enjoying its historical and natural assets. The light station could be opened for limited public use, such as whale-watching weekends or natural history seminars. Work on access to the small beach on the north cove has already begun, and barrier-free access along the entire shoreline could be created.

The Fresnel lens has not been in use since an automated electric strobe was installed at the lighthouse. It could be restored to use, however, with minimal work on the rotational motor. The Public Use Guidelines suggest that the lighthouse could become a maritime and local historical museum. Photographs and artifacts from the *Frolic*, Pine Grove, and the light station exist in the Mendocino County museum in Ukiah, the Kelley House in Mendocino, and with the Coast Guard, and more will undoubtedly be found once a search is begun.

The possibilities for Point Cabrillo are limited only by the imagination of its current owners, the citizens of this state. □

*Julia McIver is the Coastal Conservancy's project manager for Point Cabrillo.*

## **The Next Challenge**

Keeping Point Cabrillo a special place as it is opened to more people will be the next challenge for the Conservancy—providing for public enjoyment of the headland without degrading its resources by designing an access and management plan that is financially feasible, politically acceptable, and capable of preserving the unique characteristics that compelled its preservation.

The Conservancy will begin by building on the goals and policies embodied in the Public Use Guidelines adopted for Point Cabrillo in 1990. It will continue to work intensively with the community.

The preservation effort has been marked both by fractious differences in "visions" for the site and by remarkable bridging between groups of wildly divergent political outlook. Now that the community has achieved its first goal of preserving the site, this next challenge may prove even more difficult. The hope is that the magic of Point Cabrillo will continue to inspire all concerned and keep this project slightly above the tumult of Mendocino politics.

# From Other Shores

## JAPAN

### Scientists Answer Call of the Wild Goose

Masayuki Kurechi was a university student when he first saw a flock of wild geese rise one early morning from Lake Izunuma, the last big wintering ground in Japan for geese that arrive annually

from Arctic Siberia. That sight so moved him, it shaped the direction of his life. He took a job teaching mathematics in a secondary school in Miyaki, near the lake, and began to study the geese and to work in their behalf through the Japanese Association for Wild Goose Protection.

"Now, every morning and every evening, many

geese fly over my house," he said, in the voice of a man who has achieved the good life, during a visit to the San Francisco Bay Area to attend the Seventh North American Arctic Goose Conference, held in Vallejo, January 7-12. He worries, however, that this may not last: a massive development is proposed near the lake that could destroy it as a living system.

The geese wintering on Lake Izunuma, as well as in China, and in North and South Korea, are white-fronted and bean geese that nest on the Russian mainland. In the past, they were joined by Aleutian Canada geese that bred on the Kurile and Commander Islands, but few if any are seen in Japan now. A separate population of Aleutian Canada geese still breeds in the Aleutian Islands and flies south to California. The once-abundant populations of these long-distance

travelers have been decimated by excessive hunting, destruction of habitat, and also, in the case of the Aleutian Canada goose, the introduction of Arctic foxes to its breeding grounds for fur farming.

Overall, wild goose populations in Asia fell by 90 percent in the past ten years, Kurechi said. Despite their international protected status, in China they are killed with buckshot in large numbers, he said, and sold in village markets. In Japan they have been protected since 1921 by national law, but their habitat is mostly gone. Some 20,000—up to 80 percent of the geese believed to winter in Japan—come to Lake Izunuma because they have few places left to go. Now, however, ASCII, a personal computer software firm, plans an industrial/commercial/research/residential complex that would bring 50,000 people and an airport into the lake's watershed.

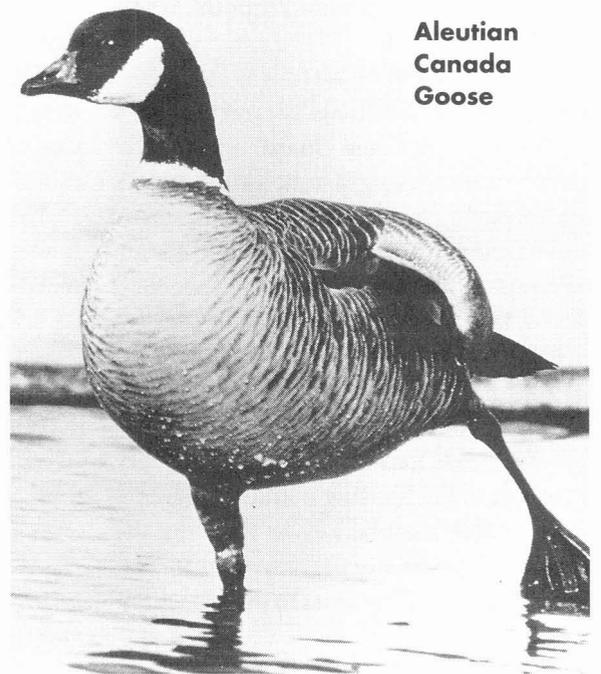
Lake Izunuma is a "wetland of international importance, especially as waterfowl habitat" under the Ramsar Convention, adopted in Ramsar, Iran, in 1971. It is one of only two such wetlands in Japan and is protected by Japanese law, along with the smaller, adjacent Lake Uchinuma. Even though both lakes are shallow and their entire shorelines have been altered, they are important to some 200 bird species, especially migrating geese. Protection has not, however, saved Lake Izunuma from pollution

by agricultural waste and sewage, from sedimentation, and massive algae blooms. The impacts of such a huge development nearby, even if mitigated, could be disastrous.

This possibility was very much on the mind of Kurechi and his colleague, Michio Suzuki, as they came to the conference, seeking to forge stronger alliances with colleagues on goose research and recovery projects, and to pick up some ideas about citizen efforts to protect wetlands and wildlife through public education. Such efforts are just beginning to fledge in Japan.

In one successful move, the Association for Wild Goose protection has enlisted citizens as "foster parents" to geese to aid in a Japanese-Russian project to track the flyways of bean geese. About 2,000 people, many of them children, have become foster parents to a goose by buying a plastic collar that is sent to Nicolai Gerasimov in Kamchatka, who bands a goose with it. When this goose is sighted in Japan, the "foster parents" are

**International cooperation is growing in efforts to protect and manage migrating species that cross national boundaries.**



**Aleutian  
Canada  
Goose**

notified by postcard. The program's aim is to increase the number of sightings as well as public awareness of the geese.

Historically, the sight of wild geese in flight, and their cry, have been treasured in Japan. Many people come to watch them take off in early morning from Lake Izunuma, even in bitter cold wind. But information essential to these birds' survival is not easily come by. A visitor center has been erected, but it lacks displays or information for the public, featuring only one large globe and windows onto the lake, said Kurechi. There is no interpretive staff. At the San Francisco Bay National Wildlife Refuge visitor center, he and Suzuki noted exhibits and programs under way, in hopes of stimulating something similar back home.

With human help, some species of geese have been recovering in the United States. The Aleutian Canada goose, listed as endangered in 1967, when only 300 were thought to exist, was reclassified as threatened in 1991, after 7,000 were counted in California. Plans call for its delisting when the number rises to 7,500, and two more nesting islands support 50 nesting pairs each. Near Lake Earl in Del Norte County, 6,000 geese at a time sometimes descend on irrigated and fertilized pastures, to plump up on grasses for their long flight north.

Also recovering is the Black brant, a close relative of the Aleutian Canada goose, which flies 3,000 miles from the Alaska peninsula to Baja California in two and a half days, doing 50 miles per hour, losing perhaps one-third of its body weight during the journey, according to wildlife biologist Paul F. Springer, of the U.S. Fish and Wildlife Service's Aleutian Canada Goose Recovery Team. The native harvest of the Black brant has been reduced, the spring sports hunting season shortened, and a smaller bag limit established in the western states and Baja California.



Michio Suzuki  
and  
Masayuki  
Kurechi

Some of the larger subspecies of Canada goose have established themselves in parks and "the large lawns around corporate offices in many metropolitan areas," as far as the Midwest and the East Coast, said Springer. Some have been introduced into areas that are not their native habitat, while others have stopped migrating and now are viewed as pests, fouling ponds and lawns, "stopping traffic as they parade their young across highways."

International cooperation is growing in efforts to protect and manage migrating species that cross national boundaries. More participants from abroad than ever before attended this year's Arctic Goose Conference, thanks in part to new travel opportunities that have opened with the end of the Cold War, said co-organizer John Takekawa of the U.S. Fish and Wildlife Service. Breeding pairs of Aleutian Canada geese, raised in captivity, were donated by the Fish and Wildlife Service to Japan in 1983 to help reintroduce them there. They have been bred at the zoo in Sendai, and several young birds have been released annually at wintering grounds and staging sites of the white-fronted geese, with uncertain results. Now a more promising method can be tried, in cooperation with Russian biologists. When there is a sufficient hand-raised population in Japan, unfledged goslings will be sent to Kamchatka, to be released among molting bean geese in hopes they will join them in their flight to Japanese wintering grounds. The Japanese Wild Goose Protection Association worries whether a healthy Lake Izunuma will exist for these geese once they arrive. □

R.G.

## HAWAII

# Trans-Pacific Golf Links

by Morita Gen

With the invitation of Hawaiian citizens' groups, I recently attended a conference on the golf course construction problem on Oahu and heard what the investment of Japanese corporate capital in resort development is causing in these islands, as well as first-hand accounts of what it means to people living there.

Representatives of some 20 different opposition groups gathered from the various islands for the meeting November 9. It was said to be the first such meeting of grass roots groups in Hawaiian history. Nearly 50 golf course developments are being planned on Oahu alone, and as a Japanese person I was shocked and ashamed to learn that most of them are projects of Japanese corporations. This is really a big social problem in Hawaii.

I arrived on the day before the conference and was asked to be on a TV discussion panel being broadcast live by a local station. I nearly panicked as I was asked such questions as: "The mayor of Honolulu has stated that the Japanese corporation has promised to pay \$100 million in compensation for environment damage—what do you think of that?"

Like Okinawa, Hawaii is in the subtropical zone, and like Japan it is a chain of mountainous islands, so the environmental destruction caused is very similar. At the meeting, representatives of each group presented particular issues concerning them. I felt as though I was at a meeting in Japan as I listened to farmers talk about being forced off their lands, native Hawaiian fishermen—who even now continue to practice traditional



**Mount Olomana (and Kawainui Marsh below it) is threatened by development of two 18-hole golf courses on its slopes.**

methods—express fears about coastal marine pollution, and local citizens talk about worries that water resources will dry up and about chemical pollution.

The image of “Hawaii’s beautiful waters” is beginning to change. All Hawaii’s drinking water is taken from underground springs, but water shortages and water pollution have become serious problems. Oysters taken from coastal waters off Hawaii, in Kaneohe Bay [where Gilligan’s Island was filmed], were found to contain the highest concentration of toxic chemicals ever recorded in the whole United States, according to a study done by Cindy Hunter of the University of Hawaii and Tom Crosby of the University of California, Davis. Meanwhile, soil erosion from golf course construction threatens to destroy wetlands and coral reefs. Citizens who feel threatened by these developments have taken a stand, and movements opposing golf course projects have spread throughout the islands.

I explained the system of golf course membership speculation in Japan, and that it was the main reason for extension abroad of the golf course development rush, but people in Hawaii found it difficult to understand why a golf membership costing tens of thousands of dollars but with no actual substance would be the object of financial speculation. [In Japan, it is legal to sell memberships in a golf course before it is built. A developer

can earn a profit of between \$100 million and \$200 million this way.]

A native Hawaiian woman wearing traditional dress declared: “The most important thing is to protect Hawaiian culture, and to strive for Hawaiian self-sufficiency. We should not be slaves to tourism. Resort development by Japanese corporations and so on is an outrage.” She received a great round of applause. From the native Hawaiians’ point of view, their land was stolen by the white man and made the exclusive possession

business community have agreed that the future trend for Hawaii is to give up on unprofitable sugar cane and fruit agriculture, as well as fishing, and direct all attention to tourism. So they welcome Japanese golfers with open arms, in direct opposition to citizens who are apprehensive about environmental destruction and want to protect the way of life they have enjoyed up to now. This is exactly the same situation as can be seen with the typical resort development in a depopulated area of Japan.

During my stay in Hawaii I was also asked to testify at hearings before the Honolulu City Council, which was considering a Japanese corporation’s request for a golf course development permit. I talked about the effects of resort development on Okinawa, because of the many similarities to Hawaii: climate, the presence of U.S. military bases, the economic structure of agriculture, fishing, tourism.

Okinawa’s return to Japanese jurisdiction, in 1972, signaled a stampede of

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**I feel it is not an exaggeration to say that the greatest pollution export coming out of Japan at present is golf course development.**

of the tourism industry; now they are again being forced to move off their land because Japanese development corporations are attempting to corner the land market.

The cost of living in Honolulu rose faster than that of all other U.S. cities through first-half 1991, according to the Department of Commerce’s Bureau of Labor Statistics, and many of the indigenous people live in poverty. Recently, because of skyrocketing land prices due to demand for resort development, some people in the lower income brackets have been leaving the lands of their ancestors to migrate to the mainland United States or Polynesia. The state government and

mainland resort development companies eager to exploit cheap labor and land prices. They reshaped agricultural land, razed mountains, land-filled the ocean to build hotels, golf courses, marinas, and resort condominiums. As a result, the easily eroded subtropical soil polluted the sea and in no time caused the death of virtually all coral reefs on the island. Most of the new leisure facilities were owned by large corporations based on the mainland, and the economic benefits derived from them did not find their way into the local economy. Even now, Okinawa is one of the poorest prefectures in Japan, and, as is the case with other depopulating areas, its population

## Green Fees?

is getting older as young people leave.

Honolulu's city council expressed great interest in the example of Okinawa, and I was invited back the next day to speak about it in greater detail. Immediately following this, the city council voted nine to zero to refuse permission for the development. Apparently, the majority had been in favor, so this vote was taken as a big surprise by the local newspapers.

The nature of Japanese development corporations is also a big problem in Hawaii. People in the opposition movement seem to believe that most of them are *yakuza* (gangster) companies. Citizens groups in Hawaii have filed a complaint with the U.S. Federal Election Commission against the mayor of Honolulu, Frank Fasi, and Hawaii Governor John Waihee for accepting campaign contributions from Japanese-owned companies, including the Royal Hawaiian Country Club. When I got back to Japan, I was astounded at the effrontery of the company, which was already advertising the sale of golf memberships in this club.

Golf course development is causing this kind of social, economic, and cultural destruction in tourist areas all around the world. Because of land price increases and the strengthening of opposition movements and regulatory systems in Japan, development companies are turning to opportunities overseas. I feel it is not an exaggeration to say that the greatest pollution export coming out of Japan at present is golf course development. Particularly in Southeast Asian countries, laws to regulate tourism development are nonexistent, and land prices are so low compared with those in Japan that land is virtually free. Southeast Asian governments are actually providing incentives for tourism development, resulting in a concentrated golf course development rush. No provision is made for people who have lost land and liveli-

hood. The destruction and pollution of the natural environment is extremely serious.

Our group, the Japan National Network Against Resort and Golf Course Development, is a network of grass roots citizens groups opposed to resort development around Japan. When we reflected on the fact that our movement's success results in the export of developers to other countries, we decided to also oppose golf course developments in other countries. To that end, we are planning to establish contacts and cooperate with similar citizens groups abroad.

In May 1992, the Network's Seventh National Conference will be held in Shizuoka Prefecture, and a delegation of Hawaiian groups plans to attend. We also plan to hold an international symposium on the golf course problem in Tokyo next fall. We are pressuring the Japanese government to put together a bill for presentation to the Diet to regulate the golf membership deposit system.

In the last analysis, however, what really supports the golf course boom is Japan's golfing population, said to number 15 million. As long as Japanese people fail to recognize that it is their own responsibility to do something about the fact that their sport is destroying the environment and making a shambles of the lives of simply living people around the globe, golf pollution will not disappear.

In a world beset by serious, global-scale environmental problems, there is no room for environmental destruction caused for the sake of a mere game. □

*Morita Gen is a member of the Japan National Network Against Resort and Golf Course Development. An earlier version of this article was published in the November/December 1991 issue of Japan Environment Monitor, whom we thank for permission to reprint it.*

Japanese citizens and corporations contributed money to the election campaigns of Governor John Waihee and Honolulu Mayor Frank Fasi, according to complaints filed with the Federal Election Commission on behalf of the Maunawihli Community Association. The association consists of residents living near the two 18-hole golf courses now being constructed on Oahu by the Japanese-owned Royal Hawaiian Country Club Inc.

The association filed complaints alleging that campaign contributions from foreign nationals, mostly Japanese, were accepted by both the mayor (about 70 separate contributions) and the governor (about 20) in the November 1988 election, according to its attorney, Tony Locricchio. The commission is investigating these complaints. The complaints allege that Mayor Fasi accepted \$22,000 from companies and individuals associated with the Royal Hawaiian Country Club. A spokesman for Mayor Fasi said the mayor has since returned the contributions.

# Book Reviews

## The Living Ocean

**The Living Ocean: Understanding and Protecting Marine Biodiversity**, by Boyce Thorne-Miller and John Catena. Island Press, Washington, D.C.: 1991. \$10.95, 180 pp

Such spectacular organisms as elephants, condors, whales, dolphins, and sea turtles have no trouble finding defenders, but few people speak up for tunicates, bryozoans, or salps. *The Living Ocean*, while not specifically a paean to polychaetes, provides a coherent package for understanding the importance of biodiversity and acts as a guide to strategies for protecting marine habitats for all their denizens.

This compact, easily read volume is written, as the authors say, for use by "environmentalists and environmental policy makers concerned with the survival of life on earth." The book succeeds in addressing this wide audience; it serves as a good introduction to the synthesis between ecological principles and their application to marine ecosystem conservation.

The work is divided into two main sections. The first discusses biological diversity. It defines diversity and advocates the current consensus that diversity is desirable as a stabilizing force in ecosystems and provides various practical benefits (known and projected) to humans. Throughout, the authors weave in a brief overview of ecological principles as they apply to marine systems.

In the two subsequent chapters, the authors divide the ocean into coastal and oceanic realms and contrast the two nicely. Such a division emphasizes that the seas are not huge homogeneous entities. The chapters underscore a manage-

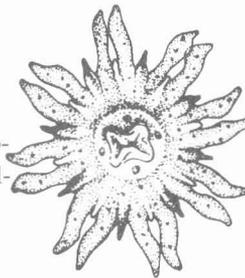


ment viewpoint—coastal waters are those under governmental jurisdiction and are in immediate contact with the land and the humans on the land; ocean systems are covered by no particular jurisdiction but are subject to international laws and conventions. These major divisions are in turn split into subheadings based on the benthic/pelagic dichotomy, which is the more common contrast for discussing marine ecology.

Following this reasonably inclusive discussion of diversity, the threats to it, and the various types of marine habitats, the book makes a formal shift to management of marine diversity through governmental and citizen activities. It specifically discusses broad strategies for conserving diversity (integrated management, protected areas, economic incentives, etc.) and asks whether marine biodiversity is being protected.

There follows a chapter on the history and scope of current laws and programs in the United States and a similar one on international agreements and programs. Rather than being dry fusillades of acronyms and recitations of the primary aims of the laws and programs, these chapters are quite readable. As much as possible, the authors connect the impetus behind the laws with the ecological themes discussed in the earlier chapters.

The final chapter addresses the practical question of what the future holds for conserving marine biodiversity. Thorne-Miller and Catena develop a vision of how and where further efforts can go. They explain needed changes in attitudes of international policy bodies; they criticize such notions as "sustainable development" and promote assigning a value



(but not necessarily a commercial one) to biodiversity. They then discuss how to implement policies and do not shy away from noting both the costs and difficulties of the process.

A profile of the authors states that they are both staff scientists for the Oceanic Society. Not surprisingly, the penultimate part of this final chapter praises the activities of nongovernment organizations, emphasizing their influence and importance as advocacy and oversight groups. The book closes with a too-brief discussion of the question "Can we commit ourselves to practicing biodiversity?" This is an important issue and demands more than the few words given here. After all, the commitment must be there before anything can be done.

While I have not quibbled with the main body of the book, I must point out weaknesses in the glossary: Under "algae," the authors list blue-green algae as plants when they actually are members of Monera, a separate kingdom from Plantae (a point noted later under the entry for Protista). They give the chromosome number for humans as 48, not 46! They define "fauna" but not "flora." They define "zooplankton" as including only invertebrates when fish larvae can be important components of plankton.

Overall, the book is well written, informative, provocative in places, well conceived, and packed with information without being overwhelming. It is a useful tool for managers and policy makers as well as interested citizens. The book could also be used in an undergraduate course on environmental management. Tunicates and their buddies have their defenders.

*Reviewed by William Rogers, professor of biology at Winthrop College, Rock Hill, South Carolina.*

## All Aboard

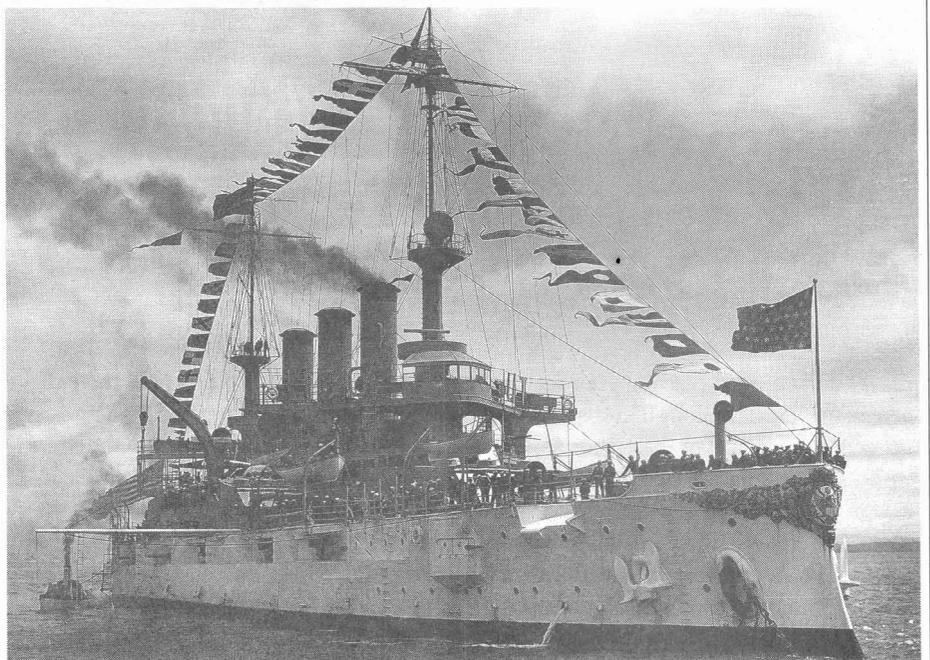
**A Pacific Legacy: A Century of Maritime Photography 1850-1950** by Wayne Bonnett. Chronicle Books, San Francisco: 1991. \$35.00, 160 pp

Seldom has a book sparked my curiosity as much as this one. It's one thing to read about a century of ship building and maritime activity, and quite another to see it in detail in a selection of outstanding photographs. This is a book I want to search through with a magnifying glass. Going beyond the written word, one can see long-forgotten ship building techniques, the way people dressed, the horse-drawn dockside traffic, stacks of barrels (the containers of the past), the elegance of the captain's quarters. One sees the terror as restless waves wash the deck and chain plates of a four-masted bark.

Most remarkable is the revelation that the sharp, detailed photography going as far back as the 1850s was as good in many illustrations as the large negative pictures we see in today's photography. In most every illustration the focus was in sharp detail from foreground to as far as the eye can see, giving us valuable information about waterfront activity as well as showing us how items from lumber to machinery were transported along the whole Pacific Coast.

Of particular interest to me were photographs of coastal vessels, one of which carried my great-grandfather to the Alaska Gold Rush. Family records reveal that he was the oldest man on his ship, but the youngest in spirit. He didn't get rich, but instead lost his life in a whirlpool on the Yukon River while in a row boat.

Pictures of those German windjammers had me wondering if the master of one of them was a Captain Koch. One of his relatives told us that the good captain

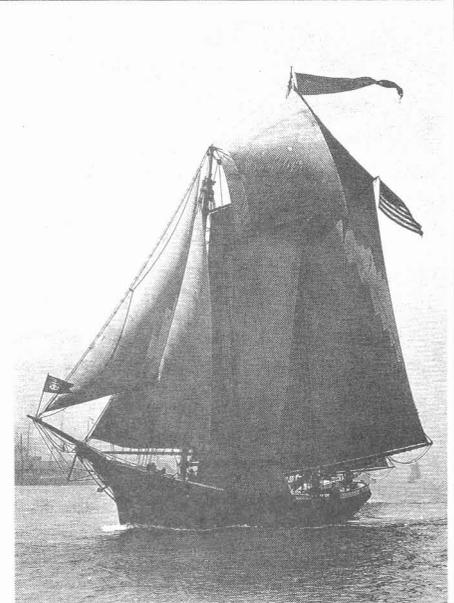


came through the Golden Gate under full sail after a lengthy voyage, only to be interned with his crew. Without benefit of radio, he hadn't learned that we were at war with Germany. They spent the rest of World War I in an Angel Island internment camp.

Further on in the book are examples of the gigantic war effort to mass produce and launch Liberty ships up and down the Pacific Coast. Here again I found a familiar subject. During World War II, my mother drove every day from Oakland to the Kaiser Shipyards in Richmond, where she worked in the mold loft laying out forms for the various contours of each ship. She was the oldest worker in the yard.

Editor Wayne Bonnett's search through thousands of maritime photographs gives us a look at the best his selective eye could find. His detailed research for the captions and text make *A Pacific Legacy* a most informative book of West Coast maritime history.

*Reviewed by Peter Stackpole, one of Life magazine's first photographers, hired in 1936 after the publication of his stunning photographs of the building of the Golden Gate Bridge. His work has appeared in Vanity Fair, Fortune, the Saturday Evening Post, and many other publications. He is a native of San Francisco and lived in Oakland for many years, until his home burned in last October's*



**Top: Battleship USS Connecticut, flagship of the American fleet that anchored in San Francisco Bay, May 6, 1908. Bottom: Schooner Lizzie Merrill, c. 1885.**

*fire storm. Fortunately, two major collections of his work were at the Oakland Museum at the time. He is currently working on a book about Hollywood.*

*Editor's Note: The 132 photographs in A Pacific Legacy were chosen from among thousands in the archives of the San Francisco Maritime National Historical Park. Each underwent a special laser-scanning process, which elicited images with luminous detail.*

# Letters

## State Funds Were Key

Editor:

While I enjoyed reading your feature article on Elkhorn Slough in the Fall 1991 issue, your account of the events leading up to the designation of the slough as a National Estuarine Sanctuary was incomplete. While I was the Assistant Secretary for Resources in the Brown Administration, I drafted a letter to the Coastal Commission, committing state matching money for the required land acquisition at Elkhorn Slough. Without this state match, the designation would never have happened.

In the question and answer section with Mark Silberstein, *Coast & Ocean* asked if NOAA could have chosen another estuary. It was an understatement to say that Tomales Bay was a hot contender. I was a member of the Technical Advisory Panel that considered Tomales Bay (including the Esteros Americano and de San Antonio), Tijuana River Estuary, Petaluma River Marsh, and Los Peñasquitos, in addition to Elkhorn Slough. There was strong lobbying pressure for all of these sites.

Under Section 312 of the federal Coastal Zone Management Act (1972), California was eligible for federal grants of up to 50 percent of the cost of acquisition, development, and operation of an estuarine sanctuary. In 1978, there was no state money available for any of the proposed sites except Elkhorn Slough. That fact was an important part of your story.

James W. Rote

*James Rote is principal consultant to the State Assembly Office of Research.*



## Indigestion

Editor:

Your "Trail Mix" article in the Fall 1991 issue is a very professional and commendable effort at even-handed treatment of a vexing issue, complicated by politicization from the extremist "hot dogger" biker leadership. In Marin this is demonstrated, among other ways, by the Bicycle Trails Council of Marin's sponsorship of a "Civil Disobedience" meeting and seeming encouragement of such action in its newsletter; grossly unfair attacks on staffs and commissioners of open space agencies; opposition to the 15-mile speed limit on double-track trails and to adequate fines to discourage speeding; a recent Golden Gate National Recreation Area citation and fining of a BTCM board member for biking in a "nonbicycle area," with a second citation pending trial for stapling grossly unfair and inflammatory unsigned handbills on trail signposts. These actions (and others) contradict the sentence on page 41 of your article: "Bike clubs have agreed to strict enforcement of speed limits and other trail behavior rules."

A huge gap exists between the PR and performance of BTCM. It does not speak for (and we welcome) that huge majority of law-abiding bikers, who appreciate the generosity of Marin's land managers in granting them access to about two-thirds of trail mileage (double track). They obey speed limits and do not agitate for or invade the single-track trails to endanger the safety and destroy the contemplative enjoyment of hikers, birders, botanists, picnickers, or erode the trails.

The "trail mix" would be digestible if the hot dog bikers respected the rules.

Martin Friedman

*Martin Friedman is a member of the Tamalpais Conservation Club.*

## Polite Pedalers

Editor:

Congratulations on your well written and balanced article about mountain bicycles in our parks and recreational lands. Over the past few years the cycling community has made great efforts to educate its own about responsible riding habits and has strived to preserve and maintain our great system of recreational lands. Cyclists have clearly emerged as responsible and respected members of the family of trial users.

The initial fears that bikes present unacceptable risks of injury or damage to the environment have proved unfounded. We were disappointed at the negative remarks from some Marin County noncyclists, and urge that those feelings are not widespread. For example, in the East Bay, relations between cyclists, land managers, and other users are very good. Our bike patrol logged over 4,000 hours last year and was quite effective in easing conflicts.

While there still are a few inconsiderate cyclists (as well as other users), their numbers have decreased substantially. We have had extensive experience in trail maintenance, both with our own projects and with those involving other users. Our joint activities have contributed to a feeling of mutual respect and a sense of community.

It is in the best interests of all to be united in preserving our open spaces. John Muir said that our parks belong to those who use them. Let's all keep this in mind and act as responsible and attentive stewards of our treasured resources.

Michael Kelley

*Michael Kelley is president of the Bicycle Trails Council of the East Bay and vice president of the International Mountain Bicycling Association.*

## **Mystery Photo**

Where in the Golden State can you see these nonnatives in the wild? Provide us with a correct answer and win a free subscription to your favorite magazine, *Coast & Ocean*.



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