

SOLUTIONS

Vol. 42, No. 1 / Winter 2011

> **TRUCE IN THE DELTA**

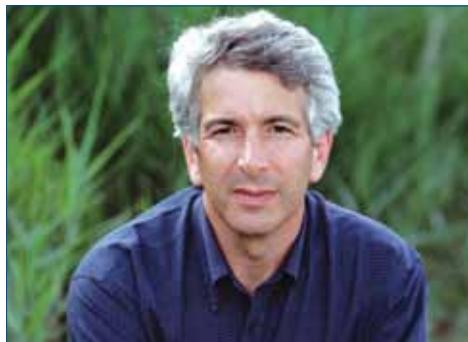
In California, water makes deserts bloom and cities grow. Can it now save the environment?

PAGE 6

PLANET EARTH 1, POLLUTERS 0: CALIFORNIA DEFEATS PROP. 23! PAGE 3

WHERE WE STAND

By EDF President Fred Krupp



In California, the voters endorse climate action.

AN ANNIVERSARY WORTH CELEBRATING

When Californians went to the polls in November, they upheld the nation's strongest global warming law and, in doing so, delivered a rebuke to Washington, where the Senate has conspicuously failed to pass national limits on carbon.

There have been times when America could look to its national leaders, acting in bipartisan fashion, to create strong environmental protections. Take the Clean Air Act and EPA, both of which mark 40th anniversaries this year.

I thought about the Clean Air Act a lot this summer, while vacationing near Mt. Mansfield, in Vermont. I hiked there as a boy, an experience that helped awaken my passion for protecting the environment. Returning so many years later, I was struck by one unmistakable fact: I could see farther than before. The air is much cleaner today.

Science confirms this. In rural Vermont, fine sulfur particles are the primary cause of haze. Sulfur pollution there is down 50% since 1990. Visibility has improved dramatically.

That's just one of the things for which we can thank the Clean Air Act. By removing tens of millions of tons of pollution from the air, this legislation has also prevented more than 160,000 premature deaths.

Back then, the Act's opponents predicted it would bring economic doomsday. But the law is one of the best investments Americans have ever made. For every \$1 spent complying with it, we have gained \$30 in health care savings and increased productivity.

Still, we have a long way to go: Half of Americans continue to breathe unhealthy air, and global warming pollution is on the rise. (See *interview, page 4.*)

Is EPA up to today's challenges? Under the current administration, the agency is tightening air pollution regulations, a change long overdue. But our opponents are at it again. The Business Roundtable, an association of corporate CEOs, is trying to delay EPA's greenhouse gas regulations, saying Congress should pass a climate law instead. But when Congress considered a climate bill, the Business Roundtable opposed it. I find its position disingenuous.

As opponents intensify their legislative and legal challenges to EPA, we will stand with the agency and defend its right to protect the health of all Americans.

We also will celebrate the Clean Air Act—a law that proved economic growth and environmental protection can go together. Having voted to let their new climate law take effect, Californians are about to demonstrate this again.

A handwritten signature in black ink that reads "Fred Krupp". The signature is fluid and cursive, with a long horizontal line extending from the end of the name.



Environmental Defense Fund's mission is to preserve the natural systems on which all life depends. Guided by science, we design and transform markets to bring lasting solutions to the most serious environmental problems.

Our work is made possible by the support of our members.



ON THE COVER:

In the West, water has been fought over for a century, and invariably the environment has lost

out. There's got to be a better way.

Solutions editor Peter Klebnikov takes readers to the heart of California's water supply system for a look at the Sacramento-San Joaquin Bay Delta, where reform is now underway. Can new ways of apportioning water head off the water wars in the 21st century?

Cover photo courtesy UC Davis.

SOLUTIONS

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CALIFORNIA'S STRONG CLIMATE LAW GETS THE GREEN LIGHT



Peter Bennett/Greenstock

“This is a monumental victory for energy independence and national security. EDF played a key role with its partners in making it possible.”

—George Shultz
Former Secretary of State,
Co-chairman, “No on 23” coalition

In a significant victory, California voters last month soundly defeated Proposition 23, the industry-backed ballot initiative that would have blocked the Golden State’s Global Warming Solutions Act (AB32). It marked the first time a global warming law was put before voters.

By a stunning 61% to 39%, Californians endorsed a clean energy future and preserved the momentum for global warming action. “With the world’s eighth largest economy, California can influence not just national climate policy, but global policy as well,” said Steve Cochran, EDF’s vice president for climate.

This was a battle EDF and its allies waged to win. We had cosponsored and helped pass AB32, California’s landmark 2006 law that requires a reduction in the state’s greenhouse gas emissions to 1990 levels by 2020. The law incorporates market mechanisms that EDF has long championed, including a cap-and-trade program, as well as incentives for cleaner cars and renewable energy.

To defend the law, we helped build a powerful coalition of nonprofit groups, businesses ranging from PG&E to Nike, and political leaders of both parties. Former U.S. Secretary of State George Shultz chaired the “No on 23” coalition with Tom Steyer, an investor.

Misleadingly labeled the “California Jobs Initiative,” Prop. 23 was funded mostly by Valero and Tesoro, Texas-based oil companies that operate huge, polluting refineries in California. EDF and allies exposed the ruse, revealing that 97% of Prop. 23’s contributions came from oil companies.

The companies ran a scare campaign, warning voters that AB32 would drive up energy prices and cost jobs. To counter these false claims, our sister organization, the Environmental Defense Action Fund, ran TV and radio advertising. (Contributions to the Action Fund are not tax-deductible, so it can spend on lobbying activities.) “This was essential to spread the truth to voters,” said Wade Crowfoot, EDF’s West Coast political director.

We told the *real* jobs story. California has 500,000 jobs in the clean-tech sector, which is growing up to ten times faster than the rest of the state’s economy.

People power helped tip the balance. In the closing days of the campaign, 3,200 volunteers went door-to-door to urge voters to reject Prop. 23. “We out-hustled our opponents and out-organized

them,” Crowfoot said.

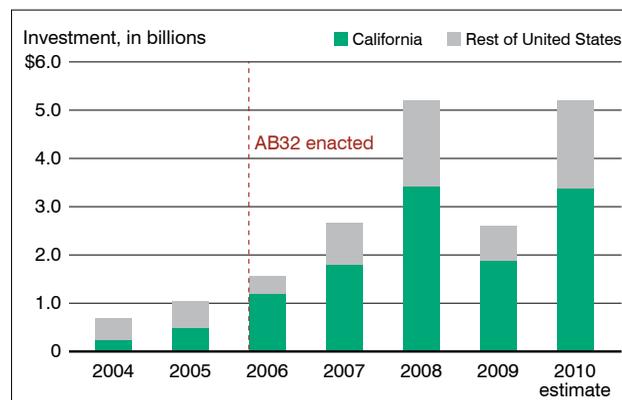
The victory over Prop. 23 has renewed the momentum for regional global warming action and will spur further innovation and investment in green technology.

Challenges remain. In Congress, there are moves to revoke EPA’s authority to cut pollution under the Clean Air Act. EDF will vigorously defend the agency’s ability to protect our environment.

The lesson of Prop. 23 is not only that clean energy is essential for our environmental and economic future, but that, with informed voters, it is also a political winner.

Washington politicians, take note.

FOLLOW THE MONEY



Since AB32 was enacted, clean tech has received more venture capital in California than in the other 49 states combined.

Source: Cleantech Group



Manuel Balce Ceneta/AP Photo

LISA JACKSON

Can she deliver on global warming?

Throughout its 40-year history, the Environmental Protection Agency has often been caught between its mandate to protect the environment and the demands of industry. In an interview with *Solutions*, EPA Administrator Lisa Jackson talks about the agency's greatest challenges.

Solutions: The Clean Air Act celebrates its 40th anniversary this year. What are its biggest benefits?

Lisa Jackson: First and foremost, it prevents thousands of premature deaths each year. The Act has reduced asthma attacks, heart disease and other illnesses, saving trillions of dollars in health costs.

Solutions: How can we educate Americans, especially younger Americans, about the value of the Clean Air Act?

LJ: I think the fact that most of today's young people haven't experienced the levels of pollution that plagued us in the past has actually made them better advocates for environmental protection.

Young people today have lived with certain standards of clean air and clean water, and they are willing to take action when those standards are threatened.

This movement is fueled by the energy and passions of young people, and I see plenty of evidence that today's generation is at least as involved as the generation that held the first Earth Day and helped form the EPA. Anyone watching the work on climate change or following the public response to the Deepwater BP oil spill knows that young people are not sitting on the sidelines. And that's a very good thing.

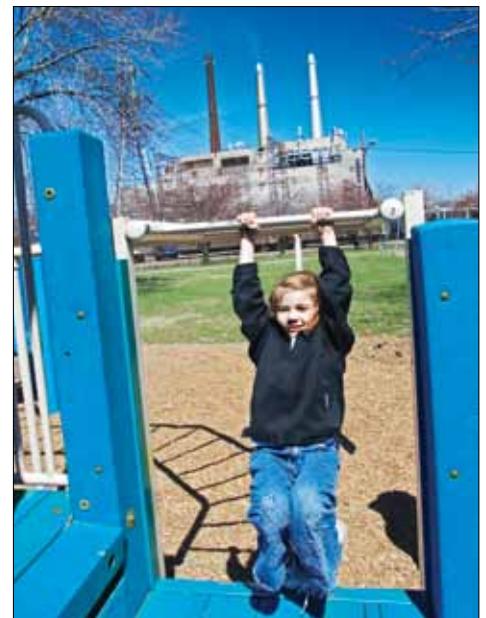
Solutions: You recently said in a speech, "We have to continue to make room for new and different kinds of environmentalists." How?

LJ: It's often poor, urban and minority communities that live in the shadow of polluters. It is vitally important to communicate that environmental degradation affects their health and their economy and is not a distant issue. For too long, these communities have seen environmentalism as something that takes a backseat to creating jobs, building better schools and fighting crime. But the fact is that the environment is tied to all of these issues, and it's imperative that environmental groups make the concerns of these communities part of the conversation.

We have issued guidance to every program office on how to incorporate environmental justice into EPA's decision making. But we also need environmental leaders to show that the environmental struggles of these communities are our shared struggles, and that they are on the agenda.

Solutions: What would you like to be your major accomplishments at EPA?

LJ: There are many, but I think the most important for our future is to see significant progress in our fight against climate change. This is a critical juncture, and the endangerment finding, the clean cars rule and the first emissions cuts from major greenhouse gas sources are the



Jim West

Under Jackson, EPA has raised the bar on clean air.

“Today’s generation is at least as involved as the generation that held the first Earth Day.”

—Lisa Jackson, EPA Administrator

beginning of an effort that needs to gain momentum in the next two years.

Solutions: How can we communicate the science of global warming to Americans who may be skeptical?

LJ: We have to send a clear message that EPA’s work is based solely on the best available science. We can do this by being transparent and having our scientific conclusions confirmed by independent sources. I think it’s also important to make clear that each of the steps we’re taking to fight climate change has other benefits, like cleaning the air we breathe, making our communities healthier, or advancing clean energy

investments that will reduce our dependence on foreign oil.

Solutions: How do you see the future of the environmental movement?

LJ: Forty years ago, 20 million Americans who were concerned about pollution harming the planet, the nation and their families called for change. It was one of the largest grassroots movements in our history, and out of it the EPA was formed. I hope tomorrow’s environmental movement will be built on the same grassroots spirit that created it. Everyone should be involved—young and old, of all backgrounds and races and from all parts of the country.



Will & Demi Melnyre/Corbis

The Clean Air Act has drastically cut acid rain, which had been ravaging high-altitude forests.

PRODDED BY A NEWLY ASSERTIVE EPA, STATES ACT ON POLLUTION

With EPA set to deliver a slate of tough new air and water rules, some states are cleaning house in advance. In September, Wyoming enacted the nation’s strictest rule on hydraulic fracturing for natural gas (*see related story, page 10*). And in Colorado, Governor Bill Ritter, Jr. recently signed the bipartisan Clean Air-Clean Jobs Act. EDF and allies worked hard to pass the measure, which calls for Xcel Energy to make big pollution cuts from its coal-fired power plants.

Under the plan, Xcel, the state’s dominant utility, agreed to retire or convert to natural gas all of its coal-fired units in the Denver area. This would dramatically reduce the emissions that contribute to Denver’s “Brown Cloud,” summertime smog, toxic mercury and greenhouse gas pollution. Xcel says the changes will cut nitrogen oxide emissions at its plants by 89% by 2022. Sulfur dioxide emissions will be cut by 84% and mercury will be cut by 85%, compared to 2008 levels.

The agreement will also save ratepayers the higher costs associated with retrofitting obsolete coal plants. The Colorado Public Utility Commission is now reviewing the plan and will rule on it before the end of the year.

The coal industry vigorously opposed the Clean Air-Clean

Jobs Act, but EDF and allies assembled a broad coalition in favor of cleaner air. “Colorado’s Clean Air-Clean Jobs law shows that Republicans and Democrats, businesses and environmentalists can work together to achieve healthier air and build a clean energy economy,” said Vickie Patton, EDF’s general counsel, who helped make the law a reality.



Robertstock.com

A new Colorado law will help clear the air over the mile-high city.

CALMING THE WATER WARS

Using precious water more sensibly can help a beloved California delta recover



By Peter Klebnikov

Everyone agrees. The West must radically change the way it uses water. A series of unlikely alliances offers hope for a more rational future.

It's 8:00 am and engineers at a giant water pumping station in Tracy, California, are taking orders from the state's largest water users on how much water they need that day. Six 25,000-horsepower pumping units, each six stories high, kick in, drawing water from the Sierra Nevada to the east and the Cascades in the north and sending it south through a 700-mile-long maze of canals to cities and farms across the state.

This ritual, repeated daily, keeps the world's eighth-largest economy humming. But what happens when the orders from water users outpace the supply? For an answer, look at what's happening to the West Coast's largest estuary, the Sacramento-San Joaquin River Delta.

Decades of excessive pumping have brought the Delta to the verge of ecological collapse.

This enormous, marshy floodplain, where the Sacramento and San Joaquin Rivers join to flow into San Francisco Bay,

is one of nature's miracles, a key stopover for migratory waterfowl on the Pacific Flyway and a passageway for two-thirds of California's salmon.

Today, more than half the Delta's water is diverted, mostly to irrigate crops. What's left is far too little to sustain a healthy ecosystem for the 750 species that inhabit the Delta.

Why water is wasted

"The problem with water in California is not that it is too scarce but that it's often allocated to lower value uses," says EDF regional director Laura Harnish. "Efficient use of water supplies is not encouraged. That's why some farmers continue to irrigate low-profit crops in desert environments, even as the state's population grows."

If California is to retain a reliable supply of freshwater from the Delta in the future, this 1,300-square-mile ecosystem needs to be restored.

66% of people in California get some or all of their drinking water from the Delta.

The past two years have brought hope for a transformation. A massive state-federal effort is underway to overhaul California's ailing water system and change the way the Delta is managed for decades to come. EDF is at the center of this effort, seeking to calm the water wars in the Golden State, as we are doing in Texas, the Colorado River basin and elsewhere in the West.

California's opportunity came in late 2009 with landmark bipartisan state legislation requiring a 20% reduction in water consumption by 2020. EDF played a key role in drafting the laws, which *The New York Times* called "the most comprehensive water package to emerge from the state since the 1960s."

For the first time, the laws made water supply and ecosystem restoration coequal goals. They established a new policy of reducing the state's reliance on the Delta for water supply and set a host of requirements for ecological restoration.

But that reform package was just the beginning, creating a framework within which California's competing water interests must now struggle toward consensus.

The stakes are high. Demand for water is growing. Endangered fish need water

from the Delta, as do drought-stricken farmers and the rest of the state's rising population. And there's no time to lose: Global warming is reducing the snowmelt from the Sierra that supplies much of the state's freshwater.

"We need to find consensus to solve this problem if California is to thrive," says David Festa, EDF's vice president for Ecosystems.

Salmon, the litmus test

A few miles from the Tracy pumping plant, along arrow-straight roads and parched wheat fields, a round-the-clock operation is underway to save salmon, delta smelt (nearing extinction) and other endangered fish unable to spawn because of low water levels and habitat degradation. The fish are captured, placed in tanker trucks and shuttled to the other side of the pumps. "Our mission is simply to keep the fish alive," says Brent Bridges, a federal Bureau of Reclamation biologist at the facility.

As recently as 1986, more than 750,000 Chinook salmon swam to sea past Tracy. Last year, fewer than 5,000 made the trip. The declines have led to a closure of the salmon fishery for two of the past three years, costing the state's economy \$250 million annually



Jeff T. Green/Getty Images

An upstream battle for Chinook salmon.

and devastating coastal communities.

Larry Collins recalls fishing for salmon out of San Francisco when his was one of 5,000 boats on the water. Today, only 293 salmon boats are left. "That's 4,500 families no longer working," he says bitterly. "It's a disaster. There's no other word for it. It makes you question your worth."

Like many people, Collins blames the overpumping of the Delta. "They sucked all the water out of the Delta and we watched the salmon and other wildlife disappear," he says.

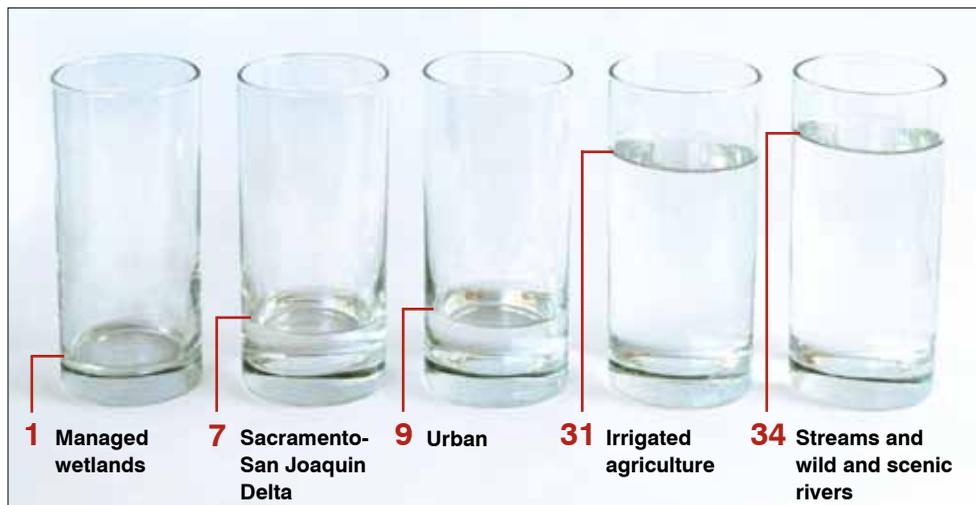
In April, 500 fishermen teamed up with EDF and government officials at a "Salmon Summit" in San Francisco, where we demanded increased flows to save wild California salmon runs and fishing jobs. "EDF helps us stand up for our interests," says Collins. "We couldn't go up against agribusiness and big-city developers alone."

California's salmon are the canary in the coal mine. "If they're not doing well, it could mean that their food source, zooplankton and phytoplankton, are not doing well, and that affects the entire food chain," explains EDF senior water analyst Ann Hayden. "Reducing the pumping of water from the Delta is absolutely critical, but we also need to rebuild marshes and other natural areas along the rivers to serve as habitat for wildlife and protect cities and farms from flooding."

Some 95% of the Delta's tidal marsh habitat is gone, while agricultural and industrial pollution have compromised what's left.

If emotions run high over the loss of salmon, they run equally high on the parched farms of the Central Valley, where more than 250,000

WHERE THE WATER GOES



Sources: California Department of Water Resources, Bureau of Reclamation

California's water distribution in millions of acre-feet, 2005 (1 acre-foot = 325,851 gallons)

acres of farmland were taken out of production during the recent drought and unemployment now tops 27%. Farmers and laborers also need water to survive—and each side sees the other as the enemy.

In California, as in much of the West, water is still being managed by the courts, through lawsuits among users. Cities, farmers and conservationists have been fighting for so long that their confrontations have become as ritualized as Japanese Kabuki theater.

This summer, an opportunity for

change arrived. Following passage of the 2009 water laws, the California Water Resources Control Board was tasked with recommending how much more water is required to restore the Delta. The Board had long avoided the issue of increasing flow levels and once again came under pressure from well-connected water users to shortchange the environment.

EDF was well positioned to defend the Delta. Decades of leadership by Tom Graff, the late founder of our California office, had won EDF the respect of

opponents. At drought-stricken farms in the Central Valley, in meetings with Governor Schwarzenegger and legislative leaders and in negotiating sessions with water users, EDF made sure the environment had a seat at the table.

Our biologists testified at public hearings on what was needed to restore the Delta's habitat and wildlife. "We kept the lawyers away and allowed science to prevail," says Cynthia Koehler, our California water legislative director. EDF's prescription was to free up water for the environment

FIVE WAYS TO SAVE A DELTA



In much of the West, the era of using water wastefully is over. For California, the challenge is to provide for a growing population while guaranteeing enough water for the state's diverse ecosystems to thrive. In five distinct ways, EDF is helping California find reliable solutions to its water woes.



Steve Ogile/Getty Images

RESTORE HABITAT The Delta remains a key stopping point on the Pacific Flyway even though 95% of its habitat is gone. EDF is working with the federal Bureau of Land Management to restore native marshes.



Kim Steele/Getty Images

STOP UNSUSTAINABLE WATER DIVERSIONS Currently, 50% of Delta water is diverted. EDF helped win greater flows to revive the Delta ecosystem. Now we need to ensure these gains are made permanent.



Monalyn Gracia/Corbis

CONSERVE WATER IN CITIES As cities grow, we've partnered with urban water districts to improve water conservation and recycling.



Bob Rowan/Corbis

CREATE WATER MARKETS We're helping farmers to develop water markets that can help pay for efficient irrigation such as drip methods, saving significant quantities of water.



Cynthia Wood

PROTECT SALMON AND JOBS EDF supports guaranteed flows on rivers to save populations of salmon and other fish.

REWRITING THE WEST'S WATER EQUATION

“Western water laws were created in the 1800s and their fundamentals haven’t changed since,” says David Festa, EDF’s vice president for Ecosystems. “Imagine if we still used energy the way we did centuries ago. We’d be burning wood for heat and whale oil to light our streets and homes. Our air would be filthy and our streets poorly lit.”

Festa leads a team of scientists, lawyers and policy analysts in EDF’s effort to bring Western water management into the 21st century. Our strategy is to reduce demands on rivers through market innovation and efficiency.



Tim Connor

Finding consensus: EDF’s David Festa

“There are so many ways you can do this,” says Festa, who earned a reputation as a reformer in the U.S. Commerce Department, where he directed policy and strategic planning during the Clinton administration. “One idea we’re looking at is integrating wetlands into crop rotation and allowing them to regain their natural function as carbon sinks.” But even the best ideas, he cautions, will lead nowhere “unless we break through old thinking and build consensus with all users.”



without harming California’s economy.

Still, a sensible water future will not be possible without the consent of powerful users, and that’s why EDF has been reaching out to two big water users, the Metropolitan Water District and Westlands Water District. The two districts partnered with us on the 2009 water legislation and we’re now working together on the

thorny details of implementation.

“In protecting California’s freshwater resources, I have found EDF to be constructive, creative and highly professional problem solvers,” says Jeff Kightlinger, general manager of the Metropolitan Water District, which serves Southern California.

The next step is to incorporate the protections we’ve won into the Bay Delta Conservation Plan, a massive document that will guide how water is distributed for years to come and how the recovery of species will proceed. A draft of the plan is to be released before the end of the year.

EDF is on the steering committee for the plan, and we will ensure that the gains we won in Sacramento are not whittled away by special interests. We’ll also monitor controversial ideas such as a proposed multibillion-dollar peripheral canal that would send water around the Delta rather than through it.

New allies have emerged: A fresh generation of Western water managers now seeks to supply water without harming rivers. Says Harnish: “The alliances we’ve built over time will allow us to continue standing up for endangered species and habitat.”

No doubt, the disputes and the lawsuits will continue, but now the environment has strong legal standing.

Other Western states engaged in their own water wars are keeping a close watch.

▶ VIDEO: A prescription for solving the water crisis at edf.org/westernwater

Agriculture accounts for 80% of water use in the West.

through conservation and water marketing.

In August, our strategy paid off. The Water Resources Control Board issued a set of recommendations that reflected what science has long shown: diverting 50% of the freshwater flow out of the Delta is unsustainable. The Board recommended changes that would put more water back into the ecosystem and address toxic chemicals and invasive species—all vital steps to ensure the recovery of wildlife and habitat.

“The Board’s determinations send a strong signal and serve as a foundation to protect the long-term health of the Delta and reverse the decline of its wildlife,” says Koehler. EDF believes more than 100,000 acres of estuary can be restored

RESTORATION GOALS

EDF helped advance a strong agenda for bringing the Delta back to life.

- **20% reduction** in water use by 2020
- **65,000 acres** of tidal marshes and floodplain habitat to be restored
- **Up to 20,000 acres** of streamside buffers to be rebuilt
- **Stronger oversight** by management agencies
- **Increased controls** on toxic pollution from agriculture and industry

CAN WE TAP SHALE GAS SAFELY?

Complete freedom from fossil fuels is decades away. So what should power our society as we make the transition to cleaner energy?

Many think the best interim choice is natural gas, which produces only about half as much carbon dioxide as coal and about one-third less than oil. By some estimates, there's enough natural gas trapped in deep shale deposits in the United States to power the country for 100 years.

Until recently, drilling companies were unable to tap deep shale cost-effectively, but an improved technique called hydraulic fracturing ("fracking") has changed the picture. Fracking injects up to five million gallons of water, sand and chemicals per well under high pressure to blast open cracks and release natural gas. Much of the chemically laden fluid returns to the surface as "flow back" and must be disposed of safely.

The question is: Will widespread fracking lead to serious environmental damage? EDF is working with state governments and a number of drilling companies to develop rigorous safety



Brownie Harris/Corbis

EDF and others are working to ensure that natural gas prospecting does not harm New York City's upstate water supplies.

criteria. According to our deputy director for energy Mark Brownstein, these companies understand the entire industry will be held accountable for accidents, no matter who is actually responsible. "Right now, the natural gas industry is failing to win the public trust," Brownstein says.

A number of determined opposition groups have sprung up, concerned about threats to air, water and landscapes. They have been spurred on by a recent documentary, *Gasland*, which shows evidence of health problems and drinking water contamination near shale gas wells. In the film, one homeowner holds a lighter by his faucet, and the running water bursts into flame.

Gasland cites a joint investigation of gas wells in Denton County, TX, that EDF conducted with Southern Methodist University. Concerned that regulatory agencies were inadequately monitoring air quality, we analyzed the state's data and found that air pollutants including benzene, a known carcinogen, were being emitted from

the wells. In fact, the amount of pollution equaled that of all the cars and trucks in the nearby Dallas-Fort Worth metropolitan area. As a result of our investigation, the state began monitoring the wells more closely.

This is not just a Texas problem. The Marcellus Shale, which lies beneath New York, Ohio, Pennsylvania and West Virginia, is the largest gas reserve in the country. New York City residents are gravely concerned about threats to the city's watershed, and the state Senate has passed a drilling moratorium now being considered by the Assembly.

Federal lawmakers, meanwhile, have proposed full disclosure of fracking chemicals, and some states already are beginning to require such disclosure. EPA is reviewing 2005 rules that exempted fracking from the Safe Drinking Water Act.

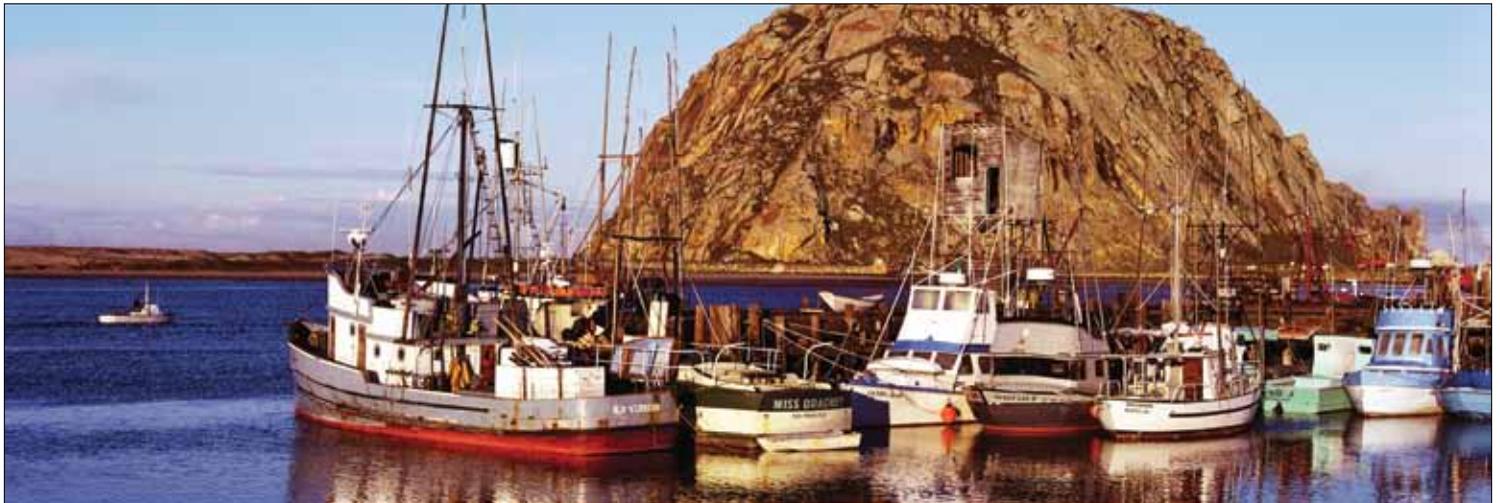
EDF is working to strengthen regulations and enforcement. We support full transparency on all chemicals used in well drilling and we're working with the drilling industry to reduce their use. We are also examining ways to reuse "flow back" in future wells.

"Natural gas is critical to reducing greenhouse gases," says Scott Anderson, an energy specialist who leads EDF's natural gas effort, "but only if it's produced in a manner that's good for the environment and public health."



Hans Pennink/Reuters

Fears of new drilling techniques have stirred up fierce opposition.



CATCH SHARES GIVE HOPE TO WEST COAST FISHERIES

In the 1940s, Monterey, CA, “the sardine capital of the world,” processed more than four million pounds of sardines a day. Today, the canneries made famous by John Steinbeck’s *Cannery Row* have been replaced by art galleries and T-shirt shops.

All along the West Coast, the once-thriving fishing industry faces hard times. But change is coming in the shape of catch shares, an innovative fishery management program. Starting on Jan. 1, 2011, it will take effect for the West Coast’s largest fishery—the 90 bottom-dwelling species collectively known as groundfish—culminating seven years of work by EDF.

“This gives me hope,” says fourth-generation fisherman John Pennisi, 47, looking out over the Monterey harbor. “What we were doing wasn’t good for the resource and it wasn’t good for us.”

Pennisi has reason for hope. In 2006, EDF helped design a similar program in the Gulf of Mexico for the commercial red snapper fishery. The result? From 2006 to 2009, the estimated biomass of red snapper grew roughly 60%, even as the season expanded from 52 to 365 days a year and catch limits rose almost 40%.

Contrast that to the West Coast, where catches of rockfish plunged 70% over the last two decades. In 2000, the federal government declared the fishery a disaster. “It got to a point,” says Pennisi, “where guys didn’t have money to paint their boats.”

Old-style management, using tactics like ever-shorter fishing seasons, failed to end overfishing and led to a perilous “race for fish.” The work was always dangerous—Pennisi lost a brother and an uncle to the sea—but became even more so, as boats competed to catch as many fish as possible in the time available.

An end to the race for fish

EDF offered a different approach. Under catch shares, each trawler is assigned a percentage of a scientifically determined total allowable annual catch. Captains, no longer racing the clock, can fish when it’s safe and when market prices are higher. They can be more selective, avoiding unwanted species that are typically discarded.

The California plan also mandates observers on every boat. “For the first time, fishermen will be held truly accountable for the number of fish they catch,” says Johanna Thomas, our Pacific Coast Oceans director. “As a fishery recovers,” she adds, “each catch share becomes more valuable, giving fishermen a long-term stake in the health of the system.”

To provide fishermen with the dollars they need to switch to low-impact gear, EDF launched a revolving loan program called the California Fisheries Fund. The Fund also is building markets for higher quality, sustainable seafood.

The momentum for catch shares is rising. New England implemented a program this year, and the National Oceanic and Atmospheric Administration is now urging every U.S. fishery to consider adopting catch shares.

“EDF won my trust and cooperation,” says Geoff Bettencourt, a fisherman from Half Moon Bay, CA. “They understand that sustainability is not just about conserving fish. It’s also about families who have been fishing for generations.”



Early days: John Pennisi, left, first captained a boat at age 16 and now works with EDF on sustainable fishing.

GREEN LIVING



Jayne Thornton/Getty Images

300 miles with its gas engine running. (As in the Chevy Volt, the gas engine is a generator and the electric motor drives the wheels.)

Biodiesel and ethanol cars Biodiesel cars run on cleaner-burning fuel made by blending vegetable oil into standard diesel. With relatively minor modifications, some diesel cars can run on pure vegetable oil—even the recycled grease from fast-food fryers. E85 ethanol, made mostly from corn, can be used in millions of “flex fuel” vehicles already on the road.

A few caveats: If you carry a lot of people or tow a boat, there may not be a sensible alternative car for you (although a new company called Amp is converting Chevrolet Equinoxes to battery operation). Also, alternative cars are being introduced cautiously, in limited quantities, mostly in large urban areas, so you just might need some of that early-adopter self-reliance (and zeal). But if you're ready, now's the time!

By Jim Motavalli

Electric cars have been revolving on auto show stands for years. But no one really expected to sell them. That's changing now. This year and next, almost every major car company is rolling out at least one road-ready alternative, including battery-powered cars, plug-in hybrids and “range-extender” vehicles. Also available are cars fueled by biodiesel and ethanol.

To get you ready for a new kind of new car, here's a short primer on what to expect.

Plug-in hybrids Most hybrid cars, like the Toyota Prius, use a lithium-ion battery pack in combination with a gasoline engine, but never plug in. A plug-in hybrid adds a larger battery pack and a power cord for recharging, to provide 20 to 50 miles of all-electric range before the gas kicks in.

Range-extender electric vehicles (EVs) The Chevrolet Volt is a form of plug-in hybrid that uses its gas engine mostly as a generator, though it does drive the wheels occasionally at speeds above 30 mph. Instead, the engine generates electricity to take the car an additional 300 miles per tank beyond its initial 40-mile all-electric

range. The announced price is \$41,000, less up to \$7,500 in a federal tax credit, or \$350 per month on a three-year lease.

Battery EVs Typical battery EVs, including the Nissan Leaf, the Coda sedan, the Wheego Whip Life and the electric drive Smart car, will offer approximately a 100-mile range before requiring a four- to eight-hour recharge from a 220-volt charger (or a longer recharge from a standard AC outlet). The cars will cost around \$30,000 (the Coda is \$44,900), but the \$7,500 federal tax credit eases the pain somewhat, and some states, including CA, GA, OR and TN, offer additional credits of up to \$5,000. A further tax credit of up to \$2,000 is available to install a home charger.

High performance electrics Two automakers, Tesla and Fisker, are fielding battery cars that can chirp their tires and keep up with the most macho V8s on the road. Tesla has sold 1,300 of its \$109,000 Lotus-based Roadsters and, at year's end, Fisker is rolling out the \$87,900 (before rebates) plug-in hybrid Karma, which has 50 miles of battery-only travel and a total of

WHEELS ON THE GROUND

Online electric car talk:

- AutoBlog Green at autoblog.com
- Edmunds' Green Car Advisor at blogs.edmunds.com/greencaradvisor

Federal and state incentives:

- For hybrid cars, see go.ucsusa.org/hybridcenter/incentives.cfm
- For electric cars, see thecarelectric.com/content/electric-car-benefits-by-state.php

Manufacturers' websites:

- teslamotors.com
- fiskerautomotive.com
- codaaautomotive.com
- chevrolet.com/volt
- nissanusa.com/leaf-electric-car

Jim Motavalli writes regularly about automobiles for The New York Times, National Public Radio's “Car Talk,” the websites of CBS and AOL and thedailygreen.com. Opinions are the author's and not those of Environmental Defense Fund.

A STICKER OF APPROVAL FOR CLEANER CARS

New labels will show vehicles' global warming pollution

Starting in 2012, new-car buyers will get a lot more information from the stickers on vehicle windows in showrooms across America. The federal government has proposed two options for new fuel economy stickers for cars and light trucks. Both show whether a car is a guzzler or a sipper and how it stacks up as a greenhouse gas polluter.

"For the first time, national car stickers will show consumers how much a car's emissions contribute to global warming," says EDF transportation director Kathryn Phillips. Passenger vehicles account for about 40% of U.S. oil consumption and 20% of U.S. greenhouse gas emissions.

EDF has fought for tougher vehicle standards since the 1970s. In 2002, we worked closely with the California legislature to pass the state's Clean Cars Law, the nation's first to limit global warming pollution from vehicles. Thirteen other states adopted California's limits. But it wasn't until last year that President Obama granted these 14 states the waiver they needed to implement the law. The president also announced new national fuel efficiency standards for autos, reaching 35.5 miles per gallon, a 40% improvement, by 2016.

The current stickers on passenger vehicles show only the estimated miles per gallon for highway and city driving. The new labels will allow consumers to more easily compare the environmental impacts of vehicles.

Both proposed new stickers show estimated annual gas costs (or, for electric cars, the cost of electricity). But only the so-called "Label 1" rates vehicles with a single letter grade, from A+ to D, for fuel economy and global warming pollution. The graded



New proposed fuel efficiency stickers give each car a grade.

version also tells how much a consumer can save in fuel costs over five years compared with the average vehicle.

Automakers have criticized the letter grade, claiming that it represents excessive government intrusion in the marketplace and will create negative associations between some car models and failing grades.

"That's simply not true," says Phillips. "Providing product information in a format that everyone can understand without a math degree is a public service."

THIS MAJESTIC LEGACY CAN BE YOURS

From the wonders of the oceans to the splendor of our landscapes, so much of what we treasure today was preserved through the foresight and passion of previous generations.

You, too, can ensure the future of the Earth's treasures by leaving a legacy through your will or other estate plan to Environmental Defense Fund.

A bequest is a powerful way to make certain your values endure.

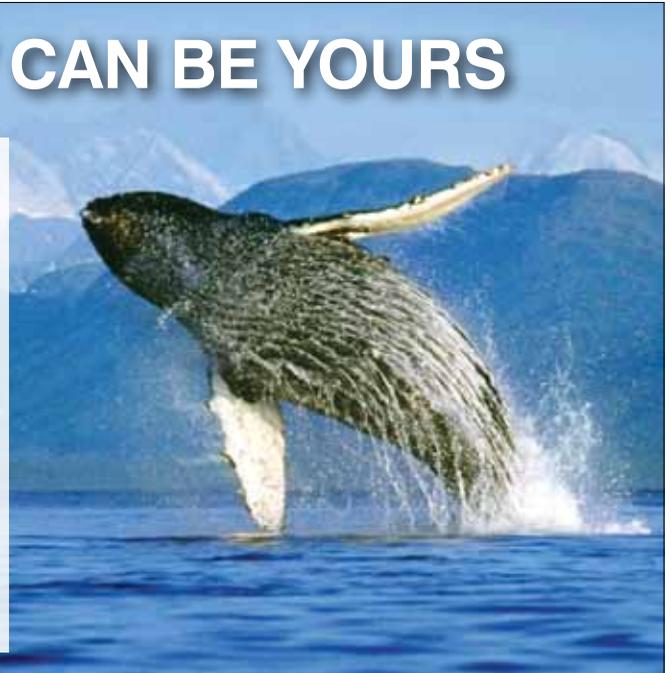
Contact us to discuss your environmental legacy.

Toll-free: 1-877-OSPREYS (1-877-677-7397)

Email: ospreys@edf.org

Web: edf.org/plannedgiving

For sample language for your will please go to edf.org/bequestlanguage



The kids are alright

A summer job used to mean scooping ice cream at the local Dairy Queen. Not anymore—at least not for the 51 talented business students in EDF's Climate Corps. During their summer break, the MBA students were trained at EDF's energy efficiency boot camp and then embedded with 47 of America's biggest companies. There, they recommended investments that will bring \$350 million in energy savings.

Some highlights from our Class of 2010:

- At AT&T, Duke University student and former Peace Corps volunteer Jen Snook found energy use could be reduced up to 80% by installing occupancy sensors that turn off lights in vacant equipment rooms.
- Penn State student Ryan Mallett recommended that Verizon's data centers install special fan technology and shut down excess cooling equipment without sacrificing reliability or comfort. Annual savings from this and other airflow changes: \$475,000.



Jason Robinette

Jen Snook, energy sleuth.

- Julia Li, from the University of Washington, spent her summer at a Pringles potato chip plant in Tennessee. She found that parent company Procter & Gamble could realize big energy savings by installing a high reflectivity coating on the roof and by retrofitting factory lighting.

> VIDEO: Meet some of the Climate Corps fellows at edf.org/climatecorps2010

Remembering John Wilson

John H.T. Wilson, who died of cancer in August at age 76, served on EDF's board for 20 years and as its chairman from 1997 to 2002. With his natural warmth and good humor, John was gifted at building consensus. As chairman, he oversaw a doubling of EDF's capacity and strengthened our efforts to protect climate, oceans and biodiversity. He also implemented our first strategic plan.

Whether rafting down the Colorado River or presiding over a board meeting, John was a passionate environmentalist who gave selflessly

to protect our natural world. EDF president Fred Krupp says, "With wisdom and insight, John helped build Environmental Defense Fund into what it is today."



John Wilson: a calm, wise voice

A voice for African-American fishermen in the Southeast

The Gullah/Geechee people are descendants of enslaved West Africans. For more than 300 years, they have fished in the Lowcountry and Sea Islands along America's southeastern coast.

To this day, the Gullah/Geechee

have retained their Creole language and rich cultural traditions, but development and dwindling fish stocks have made it increasingly hard for them to maintain their way of life.

Concern over the survival of this distinct

culture led Nicole Smith, one of EDF's Tom Graff Diversity Fellows, to reach out to Queen Quet, also known as Marquette L. Goodwine, Chieftess of the Gullah/Geechee Nation. Together, they sponsored four listening sessions to better understand the challenges facing African-American fishermen.

"We know our culture can only be sustained if the estuaries and marshes where we fish are healthy—and if we have access to the water," says the queen. She worked with Representative James Clyburn (D-SC) to create the Gullah/Geechee Cultural Heritage Corridor in 2006. This National Heritage Area, which runs from Jacksonville, NC, to Jacksonville, FL, is intended to help preserve the Nation's traditional way of life.

The packed listening sessions, held in North and South Carolina, Georgia and Florida, resulted in the formation of the Gullah/Geechee Fishing Association, which will promote the rights of fishermen of color in the Southeast. "Gullah/Geechee fishermen are very happy to give their side of the story," says Queen Quet. "Nicole and EDF allowed our voices to be heard."

> FULL STORY at edf.org/queenquet



"Fishing is the heart of the Gullah/Geechee people," says Queen Quet (right), seen here with EDF's Nicole Smith.

Protecting the Chesapeake Bay

In Maryland, it's been said, there's really only one environmental issue: the Bay.



Aaron Huey/ings

Coastal delicacy: EDF works to save Maryland's traditional crab fishery.

The Bay, of course, is the Chesapeake Bay, the country's largest estuary and a natural wonder. Over the centuries, the Bay has given the people of the region a bountiful harvest: blue crabs, oysters, striped bass and more. The Bay is also a major staging area for millions of migrating ducks and geese along the Atlantic Flyway.

But in recent decades, the Bay has fallen on hard times. The once abundant oyster population has crashed. The iconic blue crab fishery, which supports hundreds of commercial "watermen," is also threatened. The culprits are farm chemical runoff, overdevelopment and air pollution

from the Baltimore/Washington region.

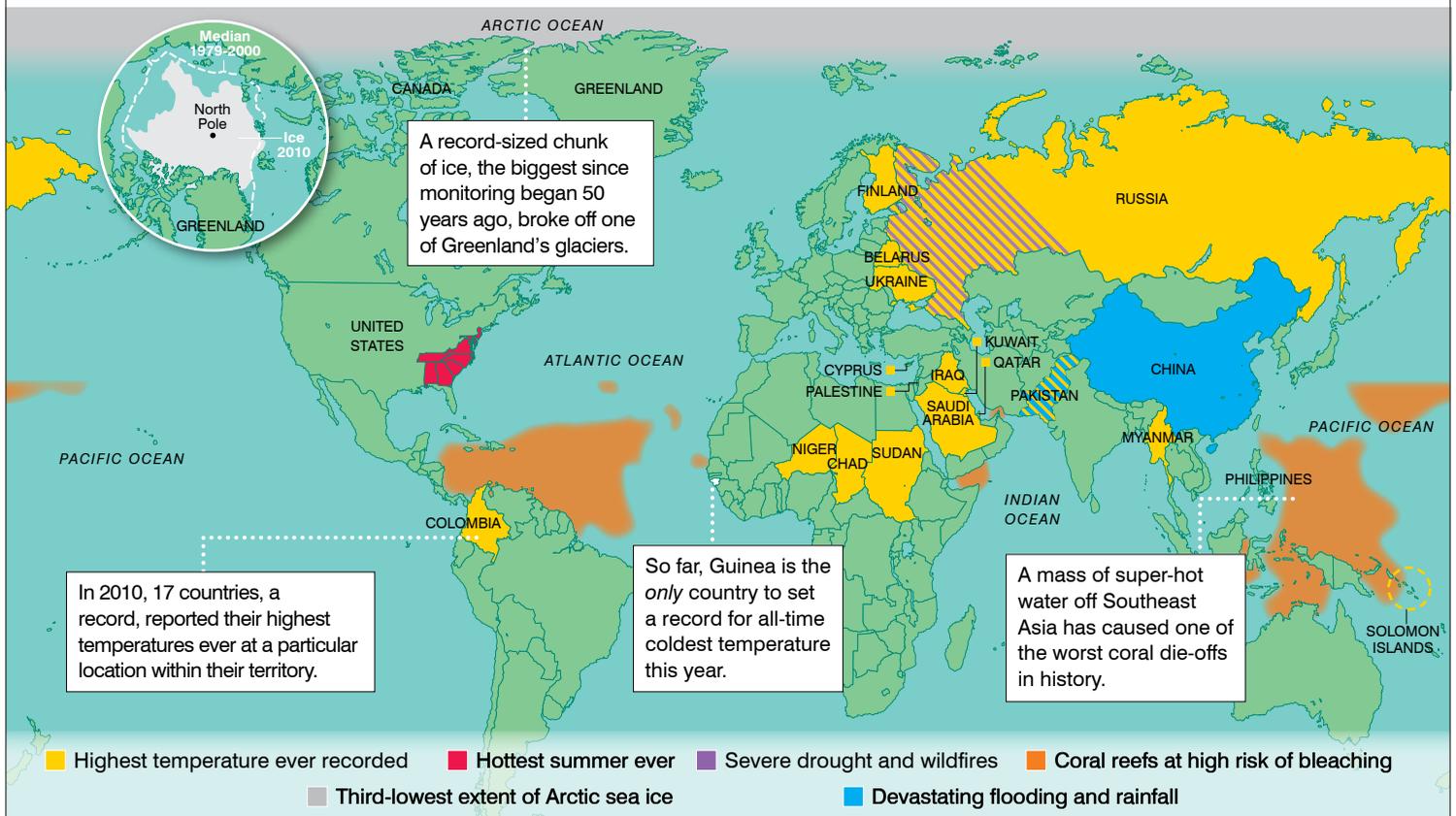
EDF is expanding its work on the Chesapeake Bay, where two staffers will focus initially on blue crabs. Their goal: working with watermen and the state of Maryland to design a catch share program by 2013. Longer term, they will study other imperiled Bay fisheries for transition to catch shares, including striped bass, yellow perch and oysters. According to Matt Mullin, who is directing our effort, "In Maryland, a popular tourist slogan says, 'Maryland is for crabs.' EDF is for even more: crabs, the watermen and productive Bay fisheries for years to come."

SIGNS OF A WARMING PLANET IN 2010

This year's extreme weather produced disturbing scenes around the globe: Muscovites wearing masks to protect against eye-burning smog from wildfires; millions of Pakistanis, with salvaged belongings strapped to their backs, fleeing epic floods; and thousands of stranded walrus packed together on Alaska's shoreline because

the sea ice where they're normally found has melted.

Is this the new normal of a warming planet? The record heat and rainfall are probably not random events: 2010 is on track to be the hottest year since record keeping began. What's needed is decisive action to cap global warming pollution.



Map by Carol Zuber-Wallison



TEXAS RANCHERS WELCOME BIRDS TO THE HILL COUNTRY

Just west of Austin, the Texas Hill Country rises from the flat coastal plain. When storms from the Gulf of Mexico roll against its limestone and granite elevations, plentiful rain falls on thick, scrubby woodlands and meadows famous for springtime flowers.



The Hill Country is a refuge for unique wildlife, including two endangered native birds—the golden-cheeked warbler and black-capped vireo. To restore and save the birds' nesting habitat, EDF is working with 60 landowners on 139,000 acres. Our efforts have led the U.S. government to consider down-listing the vireo from “endangered” to “threatened” status.



Tim Connor

First task: Landowner Bethany Clark helps EDF's Beryl Armstrong (center) and David Wolfe (left) conduct a bird survey.



Tim Connor

Overgrazing by livestock has degraded the mix of oak-juniper woodlands and grasslands that make up Hill Country habitat.



A place of creeks and bubbling springs, the Hill Country lies over the Edwards Aquifer and is the source of five pristine Texas rivers. Our work helps preserve these treasures from development.



Greg Lasley

Golden-cheeked warblers nest only in mature oak-juniper forests. We are working with landowners to restore this imperiled habitat.