

# SOLUTIONS

Vol. 44, No. 3 / Summer 2013



## NET GAIN

Can 45 million fishermen  
help save the oceans?

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

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



**ON THE COVER:**

The collapse of global fisheries is due to more than industrial fishing. For the oceans to continue feeding

the planet, the world's small-scale fisheries need to move beyond subsistence to sustainability.

EDF senior writer Rod Griffin reports on a new solution that engages local communities—and holds promise in an array of cultures, from Belize to Bali. *See page 6.*

Cover photo: Carlos Aguilera

**SOLUTIONS**

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**TALK BACK**

**Local heroes: EDF members are helping wildlife, block by block, acre by acre**

At EDF we spend a lot of time working on big-picture policy issues to protect the environment. But what people do at home and in their communities is important, too. Many of you have written us to share how you're helping wildlife in your own neighborhoods. Your stewardship of nature is vital. Some excerpts from your stories are below.

**Protecting what's left in the Delta**

"I live in Lower Plaquemines Parish, surrounded by wetlands and next to the Mississippi River. Nutria, raccoons, opossums, otter, rabbit, an occasional coyote, white-tailed deer, owls, hawks, waterfowl, alligators, turtles and snakes inhabit my region. I made my living trapping, hunting, fishing and working in the oil and gas industry. Now, I want to protect what is left and help restore what has been destroyed for future generations to enjoy. I want to thank you for making it possible for me to sign petitions on issues that are important to me."

—**Marc McGuire, Venice, LA**

**A suburban haven for songbirds and butterflies**

"We have lived in our house since 1997 and have become distressed about over-development of the area. We have decided to pull out all the non-native plants in our front and back yards and replace them with native, drought-tolerant plants that attract butterflies and birds."

—**Patricia Stewart, The Woodlands, TX**

**A seaside sanctuary for creatures big and small**

"My husband and I live on 12 densely wooded acres on the Pacific coast of the Olympic Peninsula. We're fortunate to watch

wild critters meander freely on our property. I'm enjoying the seasonal frog 'songs' and the occasional squawk of a blue heron. A freshwater creek separates us from the beach and is a haven for ducks and otters. Eagles and hawks scout the dunes and seashore. We feel fortunate to provide this mini wildlife sanctuary for any wild friends who stop by—including bears!"

—**Janette Hursh, Copalis Beach, WA**



Getty Images/Paul E. Tessier

**EDF helped save the brown pelican by winning a DDT ban. We thank supporters like Marc McGuire (see above) for helping.**

**EDF wants to hear from you.** Email us at [editor@edf.org](mailto:editor@edf.org) or visit us online at [edf.org](http://edf.org) or at [facebook.com/EnvDefenseFund](https://www.facebook.com/EnvDefenseFund). Letters are edited for clarity and length.

## THE MORAL PROJECT OF OUR TIME

By EDF President Fred Krupp

Sometimes you sit down with someone and just know he's going to make a difference in the world. That's how I felt during my recent conversations with Dr. Jim Yong Kim, the president of the World Bank.

As a co-founder of Partners in Health and director of the World Health Organization's HIV/AIDS effort, Kim was unflinching in his commitment to tackle the AIDS epidemic. He accomplished what many said was impossible—to bring treatment to the developing world. Since 2000, more than eight million Africans with AIDS have been treated.

Now Kim is bringing the same vigor to the World Bank in addressing climate change. The Bank will need it. As Kim says, "Climate change is a much larger problem than HIV."

When I sat down with Kim recently to talk about climate, he asked a simple question: "What's the plan?" To him, the plan has to be equal to the scale of the challenge. I couldn't agree more.

Kim is convinced that environmental collapse is the biggest obstacle to the Bank's central mission: ending poverty. It is true that the Bank has a history of projects that have caused environmental harm. But this may be changing.

The conviction that drives Kim on climate is also the force behind his other big campaign: to bring the oceans back to health. With fish stocks collapsing around the world, the Bank has made a bold commitment to get 50% of the world's fisheries on a sustainable path within the next ten years. I'm proud to say EDF is playing a key role in this "50-in-10" initiative.

Almost three billion people rely on fish as an important source of protein, and the effort to restore ocean fisheries will be most effective if it responds to, and empowers, local communities.

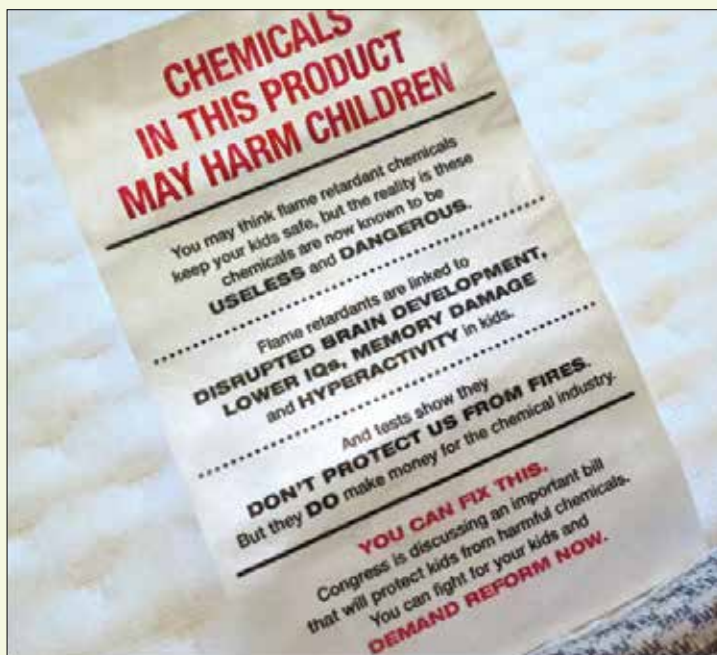
That's why, to help achieve the Bank's "50-in-10" goal, EDF and our partners have launched a global campaign, called Fish Forever, to engage some of the world's poorest coastal communities in sustainably managing their fisheries (see story, p. 6). A recent study in the journal *Science* found that rights-based management can help fisheries rebound.

In the end, Kim's drive to tackle the dual threats of fisheries collapse and climate change will require more than sound programs. It will require, he says, making protection of the planet "the moral project of our time." At EDF, we look forward to working with Kim as he convenes global leaders to achieve this visionary goal.



T. Charles Erickson

## Protect your kids: Support toxic chemicals reform



Environmental Defense Fund

You won't find this imaginary label on any mattress you buy, but the information is real. Harmful flame retardants are still widely used in consumer products. Why? Because our nation's dangerously weak law governing chemicals fails to ensure that they are safe before they find their way into our homes.

A newly introduced reform bill, the **Chemical Safety Improvement Act**, could change that (see page 15). We need your help to get Congress to strengthen and pass this bill.

As member Laurie Peterson wrote to us, "People must inform the manufacturing industries that we don't want harmful chemicals in our products. We won't buy them!"

➤ **Urge your senators to protect kids from harmful chemicals, at [edf.org/protectkids](http://edf.org/protectkids), and share this image with friends.**

## For members only—myEDF



In response to suggestions from members like you, EDF is launching a new personalized online portal, myEDF—available exclusively to EDF supporters. Inside myEDF you can find answers to your questions,

manage your accounts, make donations and take action.

**It's easy to get started! Go to [edf.org/myedf](http://edf.org/myedf) and log on.**

# CLIMATE AND DROUGHT

## A conversation with EDF's chief scientist



Getty Images/Tyler Gray

In 2012, the worst drought in more than 50 years gripped nearly two-thirds of the lower 48 states. Rivers dried up, wheat crops were decimated, and ranchers sold off cattle. This year, drought conditions are expected to persist through the summer and possibly beyond. EDF chief scientist Steven Hamburg explains why droughts have become increasingly common.

**Solutions:** Are you surprised by how quickly scientists' predictions about extreme weather are becoming reality?

The extreme weather we've seen is totally consistent with what we predicted decades ago. But the fact that during my career I'm witnessing the impacts on the places I know well is pretty darned shocking. I'm seeing red oak moving into northern hardwood forests, for example. Winters are getting shorter, and that affects where species can live.

**Solutions:** How widespread are the impacts of drought?

There is simply less water available. There is less precipitation and less snowpack in the Rockies and the Sierra Nevada. That snow recharges the aquifers and groundwater and fills rivers. Less snow means less recharge. In California, the snowpack is

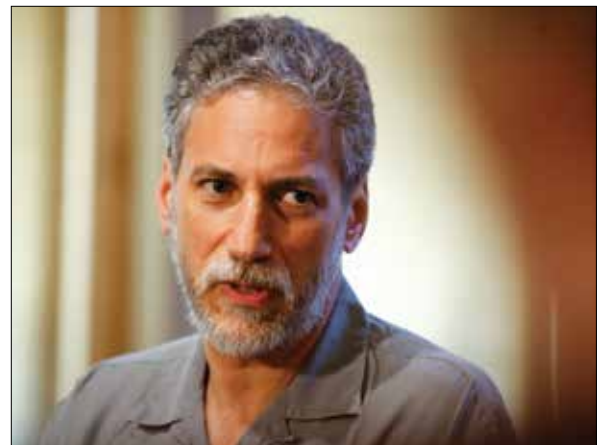
critically important to agriculture and to Los Angeles and San Francisco.

Already, the impact of drought on agriculture is tremendous. Less than 10% of the nation's cropland is irrigated. If it doesn't rain, crops like corn and wheat are hit hard because they have shallow roots that cannot tap groundwater. Many farmers and ranchers have limited ability to adapt. Shipping and commerce also suffer. The Mississippi River literally went from reducing barge traffic in January because water levels were too low, to reducing barge traffic in April because of flooding from torrential rains.

**Solutions:** The government predicts that the Southwest may be locked in a permanent drought by 2050. How will people get water?

We'll have to go farther and work harder, and it's not only about diverting water from place A to place B. Look what happened to the Salton Sea in California. It has largely disappeared because so much water was diverted. We will be pushed to produce more water through desalinization, or by processing wastewater. But we need to be careful to not trade one problem for another. We have to learn to use water much more efficiently without creating greenhouse gases. One solution is solar-based desalinization. It produces freshwater without burning fossil fuels.

**Solutions:** Have the scientific and advocacy communities done a good job educating the public about drought and climate change?



John Rae

EDF chief scientist Steve Hamburg

I don't think so. Most people are shocked when I tell them that it rains the same amount each year in eastern Kansas and Seattle—one they picture as hot and dry in the summer and the other as wet all the time. Many people don't understand what limits the availability of water where they live. It's a function of many factors: climate, the amount of rainfall, how much water evaporates, and to what degree groundwater is recharged by snow melting in distant mountains.

**Solutions:** Nearly all climate researchers agree that humans cause climate change—in fact, a May study found that 97% of the nearly 4,000 climate-research papers

**“We need to stop fighting nature.”**

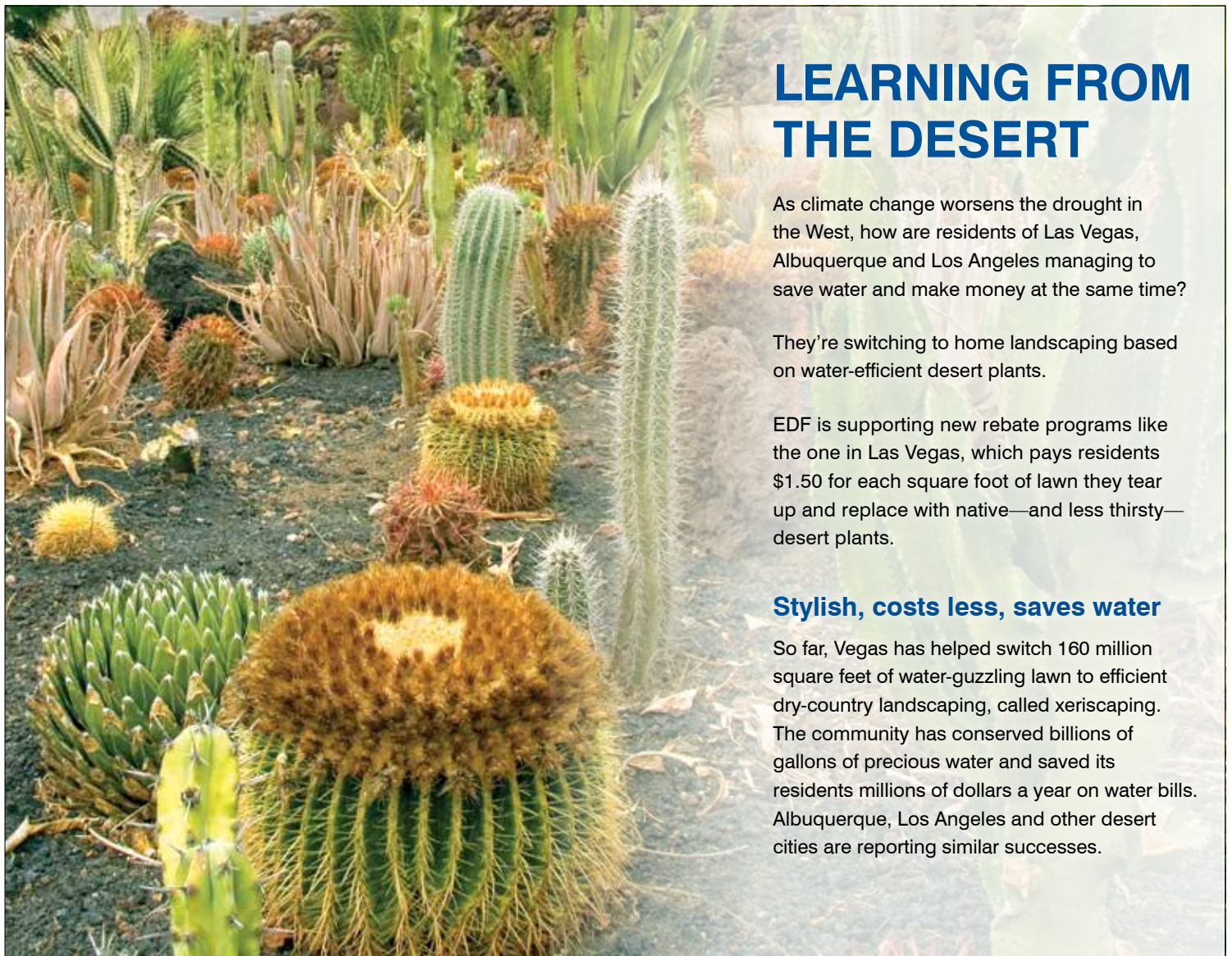
published since 1991 affirm the human causes. So why does 43% of the public still mistakenly believe that scientists disagree on the cause of rising temperatures?

Scientists invest their time in unresolved questions, not in the body of knowledge that is settled science. Regrettably many people aren't aware that arguing about unresolved issues in no way implies that the very same scientists aren't in full agreement on most, if not all, of the underlying science. They can completely agree that climate change is being caused by emissions of greenhouse gases, while disagreeing on some aspect of the role that water vapor plays in determining shifts in the climate.

**Solutions:** What would you tell a young person about water shortages in his or her future?

We're inherently fighting nature by putting more people where its carrying capacity is limited. But we shouldn't say, 'Don't have any kids,' or 'Don't live here.' We've got to find new ways of living that use far less water and energy. We need to limit irrigation and deploy landscaping that is adapted to the climate, so that you're not trying to put English lawns in Texas. All of us need to develop geographically appropriate values.

[▶ Watch a video of Dr. Hamburg talking about the effects of global warming at \[edf.org/meetsteve\]\(https://www.edf.org/meetsteve\).](https://www.edf.org/meetsteve)



## LEARNING FROM THE DESERT

As climate change worsens the drought in the West, how are residents of Las Vegas, Albuquerque and Los Angeles managing to save water and make money at the same time?

They're switching to home landscaping based on water-efficient desert plants.

EDF is supporting new rebate programs like the one in Las Vegas, which pays residents \$1.50 for each square foot of lawn they tear up and replace with native—and less thirsty—desert plants.

### Stylish, costs less, saves water

So far, Vegas has helped switch 160 million square feet of water-guzzling lawn to efficient dry-country landscaping, called xeriscaping. The community has conserved billions of gallons of precious water and saved its residents millions of dollars a year on water bills. Albuquerque, Los Angeles and other desert cities are reporting similar successes.

# FISH FOREVER

Can small-scale fishermen help save the oceans?



By Rod Griffin

Nearly half the world's wild seafood is caught in small artisanal fisheries. How can 45 million coastal fishermen in the tropics feed local populations while allowing coral reefs, seagrass beds and mangroves to flourish? EDF is tackling this challenge by helping some of the world's poorest coastal communities manage their fisheries sustainably.

**M**artin Reyes feels blessed. For nearly half a century, the descendant of shipwrecked slaves from West Africa has made a living fishing off Punta Gorda in southern Belize. The Mesoamerican Reef—the largest barrier reef in the Western hemisphere—is literally out his back door. Its sapphire-blue waters, sandy keys and coral atolls support 500 species of fish.

Reyes is a member of the Garifuna community, whose forbears arrived on the island of St. Vincent in 1635 and blended with the native Carib Indians. As a young man, he would paddle his wooden dugout canoe in the shallows to harvest spiny lobster and queen conch by the hundreds. Today, he is often forced to motor a dozen miles or more offshore, just to haul in enough fish to feed his family. With fuel costing \$6 a gallon, it's an expensive trip.

## “The success of EDF’s fisheries work in the U.S. and Belize convinced me that a collaborative approach could help revive small-scale fisheries worldwide.”

—Brett Jenks, president and chief executive officer, Rare

“I used to get 200 lobsters in a day, but now fishermen think 20 are good,” Reyes says. Fish catches in Belize have declined about 30% over the last 25 years.

The United Nations declared the Mesoamerican Reef a World Heritage Site in 1996. But overfishing, coastal development and agricultural runoff have landed the reef on the U.N.’s danger list. Fishermen like Reyes are essential to restoring this biological treasure.

In 2009, we teamed up with the Wildlife Conservation Society and the Toledo Institute for Development (TIDE), a Belizean conservation group, to enlist fishermen, policy makers and managers of marine reserves to help preserve the reef. Dozens of meetings and workshops held over several years allowed Belizeans to voice their concerns and aspirations with respect to fisheries and their coral reef.

As a result, the government authorized two pilot catch share programs in the Port Honduras and Glover’s Reef reserves, laying the groundwork for fisheries reform nationwide.

### Strengthened protected areas

Along Belize’s sun-drenched coast, swaying coconut palms provide shade but little respite from economic hardship. Many residents live a subsistence lifestyle and are dependent on the sea for their survival.

Under our program, local fishermen have exclusive rights to fish in a designated area—and benefit from the buildup of fish inside a no-take zone adjacent to their fishing grounds—in exchange for monitoring illegal fishing, which is a huge problem.

Since the Belizean government has little money for enforcement, “we need fishermen—they are our eyes and ears,” says Celia Mahung, executive director of TIDE. Reyes is one of nine custodians of the Port Honduras Marine Reserve, which contains dense mangrove islands that are important fish nurseries. When he sees a poacher, he alerts rangers by cell phone.

## 64% of the world’s fisheries are currently overfished

As chairman of the Punta Gorda Fishermen Association, Reyes also conducts community outreach, educating other fishermen and making presentations at local schools to introduce the concept of sustainability to the younger generation.

Community engagement is the key to why this approach works. The combination of catch shares and no-take zones benefits both fishermen and marine ecosystems, by enabling fish to flourish



A market in Belize. Community engagement is key to our strategy.



In Belize, Martin Reyes mentors young fishermen.

and spill over into the managed access area. “This secure privilege has given fishermen an incentive to become better stewards,” says Larry Epstein, EDF project manager for Mesoamerica.

Allowing commercial reef fish such as snapper and grouper to rebuild also reduces the fishing pressure on other species such as parrotfish and angelfish, known as the “sanitation engineers” of the reef. They are critical because they eat algae and keep the corals healthy. “The entire system benefits,” Epstein says.

So does the United States. Fish and lobster larvae float through the Yucatan Channel and eventually go all the way up to the Florida Keys and beyond, helping replenish U.S. fisheries.

After two years, 70% of fishermen in our pilot program say they are catching more fish, and 80% report that illegal fishing is down. Some fishermen are even demanding larger no-take zones—a testament to the power of developing solutions from the ground up.

Thanks to our efforts, science-based catch limits are now being devised. And the Belizean government has publicly committed to enact catch shares in its entire marine reserve network, which comprises nearly 40% of nearshore waters.

### A new model for conservation

The idea of training and empowering fishermen to oversee the resource was not a given. Some thought it would fail. But with many global fisheries on the brink of collapse, it was clear change was needed, especially given that an estimated 2.9 billion people rely on fish as an

important source of protein.

Fortunately, we had a successful model for rights-based management in the United States, where EDF helped

## 45 million people make their living in small-scale fisheries

develop catch share programs for Pacific groundfish and Gulf of Mexico reef fish. Today, nearly two-thirds of fish landed in U.S. federal waters are under catch share management, up from 10% when we started catch shares work in 1996. Revenues are increasing and more than 100 species are on the path to recovery.

That success led EDF to launch a

global campaign, called Fish Forever, in partnership with the University of California at Santa Barbara (UCSB) and Rare, a global leader in community-led conservation. Rare has a proven record using techniques such as radio ads, murals and social media to inspire pride in natural resources and change human behavior. These programs, called Pride campaigns, have roots in the successful effort to save the St. Lucia parrot from extinction by getting it declared the national bird.

Our partnership aims to do something never previously attempted: to scale up community-led systems and rights-based management to spur fisheries reform throughout the developing world. Combined with EDF's technical expertise in fisheries management and catch shares

design and UCSB's knowledge of economic assessment techniques, the partnership provides a formula to take rights-based management programs global.

As UCSB's Dr. Steven Gaines puts it, "Fish Forever is a unique conservation opportunity where you can manage for local economies while at the same time enhance food security and biodiversity."

### Scaling up: People power

To succeed, our initiative has to include Southeast Asia, one of the world's most heavily fished regions. So we're working with small fishing villages in Indonesia and the Philippines, two leading fishing nations.

Rare has worked on nearshore fisheries there for three years and is already showing impressive results.

# TURNING THE TIDE

Coupled with marine reserves, catch shares can halt, and even reverse, the global trend toward collapse of fisheries. In the developing tropics—whether in Central America, Africa or Southeast Asia—six components are critical for fisheries recovery.

## SIX ELEMENTS FOR SUCCESS

- 1 **COMMUNITY SUPPORT**  
for sustainable fishing
- 2 **EXCLUSIVE ACCESS**  
to fishing grounds for local fishermen
- 3 **NO-TAKE ZONES**  
where fish populations—and other marine species—can rebuild
- 4 **LOCAL ENFORCEMENT**  
to reduce illegal fishing
- 5 **SCIENTIFIC MONITORING**  
to evaluate fish recovery
- 6 **STRONG POLICY**  
that extends benefits nationally



Photo: AP Photo/Aaron Favila





AP Photo/Pat Wellenbach

**Rainbow parrotfish (foreground): A sanitation engineer of the reef**

One example is on the Philippine island of Hambongan, where families rely on fishing for food and income.

Years of overfishing have resulted in smaller fish and smaller catches, leading many local fishermen, like Jesus Sucajel, to resort to dangerous illegal techniques such as dynamite fishing. After seeing the negative impact of his actions, however, Sucajel decided to change his ways and help conserve marine resources. He tried to convince his brother to follow his lead, but failed; his brother was later killed in a dynamite-fishing accident.

## 2.9 billion people rely on fish as a source of protein

The tragedy has strengthened Sucajel's commitment to conservation; he is now working with Fish Forever to help enforce fishing regulations, and recently received an award for his efforts. "It was the first time in his life he received an award," says Renante Cempron, a Rare conservation fellow.

"We are convinced that the best way to solve the overfishing crisis in low-governance settings is to engage local fishermen through a system of fishing rights, responsibilities and rewards," says Scott Edwards, who is overseeing EDF's work on the partnership. "They become the agents of change." We're now

## ZEN AND THE ART OF MARINE CONSERVATION

**S**peak softly and carry a big toolkit. Over the last 25 years, Dr. Rod Fujita—director of research and development for EDF's Oceans program—has applied that approach to marine conservation, in the process establishing an international reputation as an innovator.

"What sets Rod apart is his unique ability to calm a room," says Scott Edwards, who directs special projects for Oceans. "At a community meeting in Mexico, I saw him defuse a heated argument between irate fishermen and government officials." In Zen-like fashion, Fujita persuades stakeholders to step back, think rationally and find solutions.

Fujita, who started his career at the Marine Biological Laboratory in Woods Hole, MA, joined EDF in 1988 and received a Pew Fellowship in 2000. That led to a highly praised book, *Heal the Ocean: Solutions for Saving Our Seas*. These days, he spends his time putting those solutions to work in places like Cuba and Papua New Guinea.

Off the California coast, Fujita was the first to assemble the science showing that protected areas boost fish populations dramatically, which has resulted in an extensive network of protected areas. "We didn't invent anything new," Fujita explains humbly. "We merely took information out of the scientific realm—and put it to use."

In Belize, the situation was more complicated. There were virtually no



**Dr. Rod Fujita: Using science to save the seas**

fisheries data and little money for research. Fujita came up with the idea of using the rich data collected by scuba divers and scientists who do research in warm coral reef waters. It sounds obvious, but it had never been done before.

Fujita, an avid diver himself, knows how obsessive the scuba community can be. "We were able to document the distribution of many species, correlate that with habitats, and create a model that predicts abundance across the entire reef," he says. The data will be used to set catch limits and help Belizean policy makers identify where to expand no-take zones.

Fujita now wants to mine data from divers in other coral reef nations where inadequate stock assessments are a barrier to saving reefs.

And he's not stopping there. He and his team are creating low-cost software to help local scientists in developing countries assess fish abundance.

It's just one more tool in Fujita's toolkit.



Tony Rath Photography

considering expanding the program to countries such as Brazil and Mozambique.

### A worldwide goal: “50-in-10”

The need—and the opportunity—is huge. Working with the World Bank, we helped launch a bold initiative to get 50% of the world’s fish and key fisheries into sustainable management within ten years. This “50-in-10” vision embraces not only

the 45 million artisanal fishermen, but industrialized fisheries as well.

In a major breakthrough in May, the European Union announced it was overhauling its fisheries policy—and, at our urging, authorized member states to establish catch shares.

“We believe that when we get to the Bank’s ‘halfway’ mark,” says Edwards, “it will represent a tipping point that will

bring about a recovery of global fisheries within our lifetimes.”

Everything hinges on the engagement of fishermen. Back in Belize, Martin Reyes is hopeful. “We are the children of survivors,” he says proudly, referring to his Garifuna heritage. “In our tradition, the sea is owned by everyone. On the reef, you take what you need, not more. You leave the smaller fish for the future.”

## IMPROVED LINKS BETWEEN CUBA AND THE U.S. PROMISE HEALTHIER CORAL REEFS

Cuba boasts some of most spectacular marine ecosystems in the Caribbean, but in recent years overfishing and coastal development have taken their toll on once-pristine coral reefs, mangrove swamps and healthy fish populations.

After years of working on the island, Dan Whittle, director of EDF’s Cuba program, grew concerned about the long-term sustainability of Cuba’s oases of biodiversity. With the country now opening the door to private enterprise, thousands of artisanal fishermen are on the water, and pressure on vulnerable fish stocks has never been greater.

EDF decided the best way to end overfishing and protect reefs was to invest in local communities. First, we needed a clearer picture of what was actually happening on, and under, the water.

Following a series of exchanges between U.S. and Cuban fishermen and scientists, in April we published an in-depth overview of the status of Cuban fish stocks and management practices.

For more than a decade, EDF has worked with Cuban fishermen, policy makers and scientists to implement an island-wide network of marine protected areas. We’re now working with the Cuban government to integrate improved fisheries management with stronger protected areas.

A focus is the reefs along the country’s southern coast, including the legendary



Chicurel Arnaud/Hemis/Corbis

Coral reefs, imperiled almost everywhere, support whole ecosystems of marine life.

Gardens of the Queen, which teems with giant fish uncommon elsewhere in the Caribbean. At four ports, we’re working with fishermen to monitor shark landings. Many shark species are threatened in the Caribbean, yet little is known about shark populations in Cuba.

EDF is providing technical advice on how to manage such data-poor stocks. We’ve also been recruited by Cuban partners to provide training on community-based fishery cooperatives that achieve our economic and conservation goals.

“When fishing communities are invested in the resource, they have an incentive to rebuild fish populations and

protect coral reefs and other habitats,” says Whittle. “They also collect data, which leads to better management.”

In California this spring, EDF brought together Cuban and American conservationists, commercial fishermen and marine scientists for a week-long workshop to explore new approaches such as catch shares in which fishing communities receive a portion of the total fish quota.

After seeing how reforms EDF helped enact in California help both fishermen and fish populations, one Cuba fishery manager was hopeful: “Now I am reassured that the problems we’ve encountered in Cuba can be solved,” she said.

# RAISING THE BAR

EDF helps launch a race for energy innovation



Todd Arhini

A few years ago, a group called the Climate and Energy Project set out to find ways to motivate people in Kansas to reduce their energy use. They launched a competition in six small towns. A Lutheran church upgraded to geothermal heating. Boy Scouts went door-to-door installing weatherization kits. The Christmas tree in one town twinkled with energy-efficient LED lights.

The plan worked. Energy use declined by as much as 5%—and energy efficiency competitions spread to other towns.

Across America, there is a growing interest in energy efficiency. Even in conservative communities skeptical about global warming, lowering electricity bills and weaning the nation off foreign oil taps into bedrock values of thrift, patriotism and a sense of stewardship toward the natural world.

Late last summer, EDF started analyzing the lessons learned in Kansas and other locales, looking for new ways to promote energy savings nationwide.

“We set ourselves up as an idea factory and began collecting bold and cutting-edge plans,” says Elgie Holstein, EDF senior director of Strategic Planning.

Our plans began to gel after Sue Mandel, an EDF trustee who co-chairs our domestic climate committee, came to us with the idea of adapting the

successful “Race to the Top” program for innovation in education as a model to achieve energy savings. The education initiative engages states in a competition for federal grants that fund trailblazing reforms—reforms that serve as models for the rest of the nation.

“Only a handful of states win the competition, but the progressive ideas and policies they develop can have a cascading effect on neighboring states,” says Holstein.

EDF wanted to spark the same kind of competitive ferment in the arena of energy

savings, and we began a campaign to make that happen. Over the fall and early winter, EDF met with White House officials and shared our expanding menu of “Race to the Top” ideas—from constructing fueling stations where electric vehicles could exchange batteries to rewarding customers who refrain from using electricity during peak use hours.

The result? When President Obama unveiled his 2014 budget in April, it contained \$200 million for a “Race to the Top” energy initiative—part of the administration’s strategy to halve energy wasted by business over the next 20 years.

“Few pieces of business are more important for us than getting our energy future right,” the president said when he announced the program.

## Energy efficiency appeals to red states

Any state, even one that historically has done little to advance energy efficiency, can be rewarded for coming up with a compelling idea.

“The beauty of this approach is that no mandate is being imposed on the states. Their participation is completely voluntary,” says Holstein. “If they want to put policies in place that conserve energy, they can. But the government isn’t making them do anything. It’s just rewarding them if they do.”

The next step is to convince Congress to fund “Race to the Top.” The fact that the grants will be awarded to any state with a good idea should help bridge the regional and partisan divides.

“As they learned in Kansas,” Holstein says, “energy efficiency is cheap, creates jobs and saves money on electricity bills. It’s also the low-hanging fruit of greenhouse gas reductions.”



Steve Hebert for The New York Times

In a local competition to save energy, one Kansas family opted to dine by candlelight.

# GREEN LIVING



Getty Images/Maccluff Everton

## HELP WANTED

### Citizen scientists—no experience necessary

At 10:14 am on May 5th, David Govoni spotted an Eastern Towhee perched high in a tree in Nokesville, VA. Years ago, we'd only know this if he told us about it, but today the news—complete with photos and coordinates—is available to anyone with Internet access.

Govoni posted his sighting on iNaturalist.org, a website that shares observations of the natural world online. He is part of a growing international network of Citizen Scientists, encouraged and aided by professional scientists, who use modern tools—including GPS, mobile phones and cameras—to add to our knowledge.

Scientists are discovering the value of tapping into the world of well-informed amateurs, says Dr. Doug Rader, EDF's chief Oceans scientist. "There's no reason why citizens can't make important observations," he adds. "Yes, there's a possibility of mistakes—kids might be hearing cricket frogs instead of cicadas. But the best amateur work is documented by exact coordinates and photographs."

Rader practices citizen science himself. He's been tracking sightings of *genus magicada*, a type of cicada that crawls out of the ground en masse to eat and breed every 13 or 17 years. With digital camera and GPS, Rader helped document the emergence of 17-year Brood II, last seen in 1996 in North Carolina. He volunteered for the work

because it might answer researchers' questions about why cicada populations are diminishing. But there are other rewards too, he says: "You can't imagine what it's like to be in a forest surrounded by millions of chirping cicadas."

If you want to get involved as a Citizen Scientist, here are some good places to start.

### An app for wildlife

From Arctic foxes in Iceland to puffins in Scotland, wild creatures all over the planet are recorded on the mobile phones of travelers and submitted to Project NOAH. The acronym stands for Networked Organisms and Habitats. [Projectnoah.org](http://Projectnoah.org).

### Dinosaur angels

The National Audubon Society's program, Hummingbirds at Home, gives nature lovers a role in studying the impact of climate

change, flowering patterns and human interaction on these tiny, fast-moving birds. Members also get to follow the spring migration in real time. [Birds.audubon.org/hummingbirds-home](http://Birds.audubon.org/hummingbirds-home).

### Fluttering wings

A similar project, FeederWatch, sponsored by the Cornell Lab of Ornithology, offers tech tools to make bird watching and identification easier. Used by Scouts, who need to identify 20 species to earn merit badges, the project is open to anyone who can observe feeding locations near home. [Birds.cornell.edu/pfw](http://Birds.cornell.edu/pfw).

### Tuna trackers

This one's for the large number of frequent recreational fishermen and charter operators who go out into open ocean. Those concerned about threatened bluefin tuna can identify and release juveniles they catch. More than 1,000 tuna have been tagged so far. The data is recorded by the National Marine Fisheries Service and used to map habitat and track migration patterns of this magnificent species, which is mercilessly hunted all over the globe to make sushi. [Tunalab.org/tagatiny.htm](http://Tunalab.org/tagatiny.htm).

### Save the night

In addition to wasting energy, light pollution damages our view of the night sky. Volunteers for The Globe at Night, hosted by the U.S. National Optical Astronomy Observatory, are helping to document the trend toward more and more artificial light in our nighttime skies. [Globeatnight.org](http://Globeatnight.org).

## REAL SCIENCE FOR AMATEURS

- The Citizen Science Alliance at [citizensciencealliance.org](http://citizensciencealliance.org) offers Internet-based citizen science projects in the following categories: Galaxy Zoo; Hubble; Old Weather; Planet Hunters and Whale FM. Go to: [www.zooniverse.org](http://www.zooniverse.org).
- Cicada sleuths can visit [cicadamania.com](http://cicadamania.com) for news, video and audio about cicadas from all over the world.
- The website [iNaturalist.org](http://iNaturalist.org) encourages all nature lovers "from hikers to hunters, birders to beachcombers" to observe animal and plant life and post information that's useful to researchers.
- A comprehensive list of citizen science projects is at [Scientific American scientificamerican.com/citizen-science](http://ScientificAmerican.scientificamerican.com/citizen-science).



Diamond Photography

hired by SunGard to become its first sustainability director. During his two years at SunGard, he was able to implement many of the projects he recommended as an EDF Climate Corps fellow.

“EDF Climate Corps provided a strong foundation for the work I’m doing now,” Whisnant says. “The work is exactly what I was looking for.”

Whisnant’s dedication to EDF is impressive. When he got married last year, he asked that people consider donating to EDF in lieu of a wedding gift.

Elizabeth Turnbull Henry (*at left in photo*) spent the summer of 2009 working with disadvantaged youths planting street trees in New Haven, CT, where she was attending graduate school at Yale. She heard about EDF Climate Corps from fellow students who had been through the program, and decided to apply for the summer of 2010.

Henry was placed at adidas Group, the footwear and sporting apparel company, in Boston. Over the course of the summer, she identified \$1.5 million in potential energy savings.

“It was really inspiring to be 27 years old, knuckle down for a summer, and come up with a really big number,” she says.

After her graduation, Henry was hired by adidas Group and is now the company’s senior manager for environmental affairs.

“EDF Climate Corps has been an amazing launch pad for me and many others,” says Henry. “EDF connects the dots in a very compelling way.”

## NEXT-GEN GREEN LEADERS SHAKE UP COMPANIES

**F**rom its inception in 2008, EDF Climate Corps had a clear goal: to train business school students and place them with businesses and public institutions over a summer to look for energy waste.

But the program also had a more ambitious intent. The idea was that the EDF Climate Corps fellows, inspired by their experience, would seek out careers in sustainability and become the next generation of environmental leaders.

“The beautiful thing is, it’s coming true,” says EDF managing director of corporate partnerships Victoria Mills. Three hundred students have now

participated in EDF Climate Corps since 2008, and 80% are now working professionally in fields related to sustainability.

Take EDF Climate Corps alumnus Ryan Whisnant. Whisnant spent the summer of 2009 as a fellow with SunGard, a Fortune 500 technology and software company based in Philadelphia. Over the course of the summer, Whisnant uncovered, among other energy-saving opportunities, errors in lighting timers that had kept one-third of the lights on during non-business hours.

After his fellowship, Whisnant was

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## Signs of progress in the natural gas business



Amy Sussman/Corbis

**Voluntary standards are a start but no substitute for regulations.**

Worthy public policy initiatives are a dime a dozen, but the announcement in March of a new center, based in Pittsburgh, to set standards for shale gas development triggered a wave of media attention.

The *Washington Post* called the Center for Sustainable Shale Development (CSSD), “a heartening breakthrough in the war over fracking.”

EDF, a partner in the negotiations that led to CSSD, agrees. For the first time, environmentalists and energy companies have come together to ensure that natural

gas operations are carried out responsibly.

The center’s standards are voluntary and will work much like the Underwriters Laboratories, which gives its seal of approval to electrical appliances that meet stringent safety standards. In this case, gas drilling and pipeline companies can submit their operations for independent review

by the Pittsburgh-based center. Those that pass will be certified.

The hope is to make certification the de facto standard and that communities will insist on having only center-approved drilling and pipeline companies.

None of this is a substitute for regulation and enforcement. But if it can show that industry leaders can produce shale gas safely and responsibly, CSSD could help build a powerful coalition of producers, environmentalists and communities, all in favor of getting the rules right.

## Investing in sustainable fishing

Five years ago, the once-thriving fishing industry in Morro Bay, CA, had all but disappeared. Trawlers no longer came into port to unload fish, and the processors and tackle stores were shuttered.

Today, fishing has returned, but with a crucial difference. Now, fishermen are more selective, using less destructive gear. Catches are smaller, but the fish—fresh and sustainably caught—command a higher price. This turnaround was aided by the California Fisheries Fund, a revolving loan program EDF helped launch in 2008 to rebuild the West Coast’s struggling fisheries.

Since the program’s inception, we have provided nearly \$1.7 million in loans. One recent recipient, Steve Fitz, used a loan to purchase his uncle’s boat. “It allowed me to preserve my family fishing heritage, upgrade my fishing equipment and bring a higher quality and sustainable product to the dock,” he says.

Fitz’s vessel is the only one in the U.S. that uses an eco-friendly technique that gently herds fish into the path of nets without dragging destructive gear on the ocean floor. In January, EDF received the state’s highest environmental honor for reviving fisheries and fishing communities.

## Gulf restitution: EDF holds BP’s feet to the fire

The coastal settlement of Bayou Jacquin, along with 30 other places in Plaquemines Parish on Louisiana’s coast, was formally removed from federal charts in recent years after it slid under the water. These places simply no longer exist. With a football field of wetlands washing away almost every hour, the Mississippi Delta’s race against time continues.

But there is good news. Three years after the oil disaster in the Gulf of Mexico, BP is releasing \$340 million for coastal Louisiana restoration, out of the \$1 billion pledged to kick-start restoration across the Gulf. The money will go toward rebuilding four barrier islands that provide vital storm protection and bird habitat, as well as smaller projects, including research.

They are part of the state’s master plan, which EDF helped shape, for restoring 860 square miles of damaged coastal land.

The first phase of the biggest environmental trial in U.S. history has ended, but a verdict on whether BP acted with “gross negligence” in the oil spill may not come for months, if not years. That verdict, or settlement, will yield up to \$17.4 billion, largely for restoration efforts.

“There won’t be justice for the Gulf until the case against BP is resolved and the billions in fines begin flowing



Eric Gay/AP Photos

**Justice won’t be done until BP’s money starts to flow.**

in,” says Steve Cochran, director of our Mississippi River Delta work. EDF will remain fiercely engaged to ensure restoration is done right.

## Little chicken on the vanishing prairie

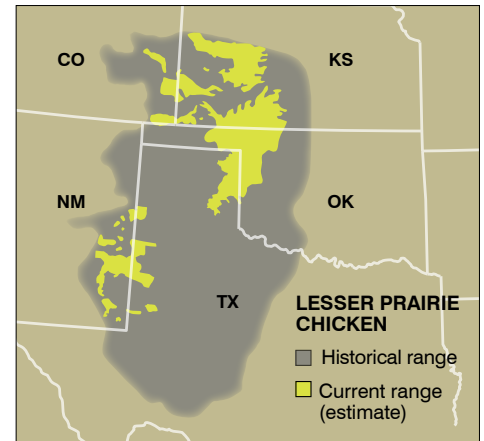
Bird enthusiasts who wanted to attend the annual lesser prairie chicken festival in Milnesand, NM, this year were disappointed when the event was canceled. It turned out that not enough leks (where the males perform their spectacular mating ritual) could be located: prolonged drought in the Southwest has taken a toll on already

fragile populations.

Emblematic of the great Western plains, the lesser prairie chicken today lives on a fraction of its once-extensive historic range. Much of its grassland habitat has been cleared for crops and energy development.

Federal officials will soon reach a decision whether to list the bird under the Endangered Species Act. Listing it would set off a firestorm of legal challenges that could jeopardize the Act itself.

To help save the bird, and avoid years of conflict, EDF has developed Habitat Exchanges, a science-based approach that provides economic incentives for landowners who expand habitat for rare species. Under a Habitat Exchange program, developers offset their impacts by buying credits from landowners



who restore and maintain habitat. The net result is expanded habitat that's large enough for a species to recover.

EDF is working with agriculture groups, energy companies and cattlemen's associations to set up a Habitat Exchange for the lesser prairie chicken.

"The Endangered Species Act should be a legal tool of last resort," says Eric Holst, EDF's director of working lands. "We need new tools that protect wildlife and also allow landowners to continue the activities necessary to feed America."



One million lesser prairie chickens lived in the West in the 1800s. Today there are only about 37,000.

## Chemical nation: A breakthrough on toxic chemicals reform

In one of his last actions in the Senate before he died, Frank Lautenberg (D-NJ) introduced legislation—co-sponsored with Sen. David Vitter (R-LA)—to reform the nation's dangerously weak law that governs chemical safety. The 1976 Toxic Substance Control Act (TSCA) has never been updated to ensure it protects Americans from toxic chemicals.

The law is so weak that millions of people today risk exposure to dangerous chemicals through everyday household products. In fact, companies have only had to test about 3% of 85,000 available chemicals.

One result is that nearly all pregnant women (99%) in the United States have flame retardant chemicals in their blood. These are linked to decreased IQ, memory deficits and hyperactivity in children.

Thanks to the bill that Lautenberg and

Vitter introduced, change may finally be on the way. In a bipartisan breakthrough to reform the Act, Lautenberg and Vitter were joined by seven other Democrats and seven other Republicans as co-sponsors.

The Lautenberg-Vitter bill (Chemical Safety Improvement Act, S. 1009) would for the first time require all chemicals to be evaluated for safety. It would also give EPA critical tools to better protect families and the environment from dangerous chemicals.

EDF scientist Dr. Richard Denison and his colleagues have worked for more than a decade to fix TSCA. They helped build a national coalition and pushed companies to take action on hazardous chemicals. EDF is fighting to strengthen the final bill and ensure it protects public health and the environment.

Says Denison, "While this bill

isn't perfect, it's a policy and political breakthrough and opens a bipartisan path forward to fix a law that needs a major overhaul."



Time to fix the nation's toothless chemical laws.

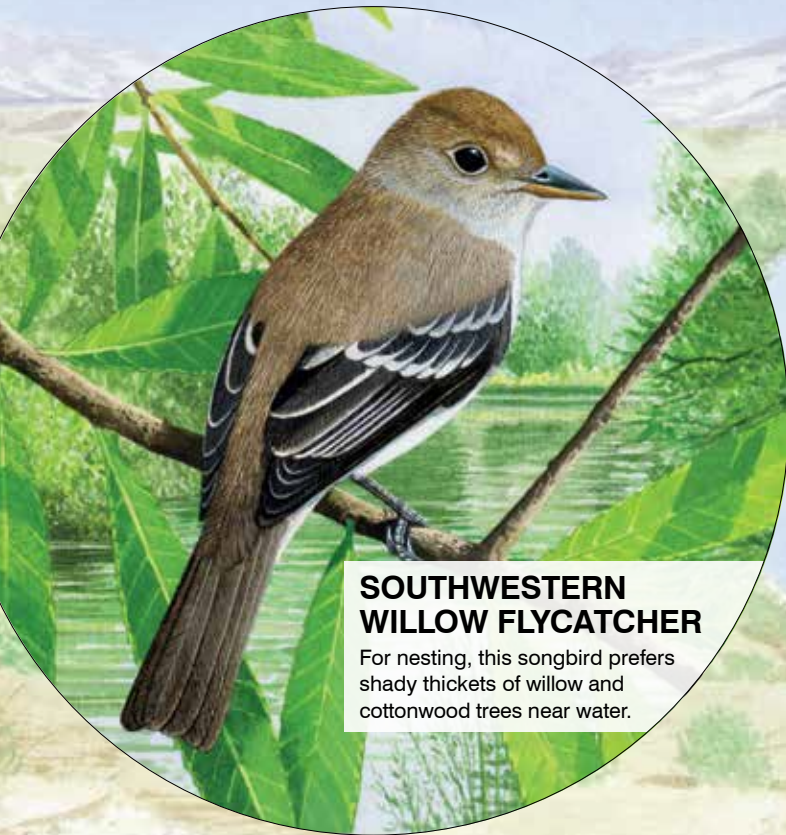
# A SONGBIRD IN A WARMING WORLD

## The endangered southwestern willow flycatcher faces new threats



Scarcely bigger than an open hand, the southwestern willow flycatcher travels up to 2,500 miles each way between its tropical wintering grounds and its breeding grounds in the southwest U.S. The species has declined due to widespread habitat loss. Climate change will further degrade this species' riparian and wetland habitat. Yet precisely how it will affect migratory birds throughout their annual cycles has not been

adequately studied, says EDF scientist Stacy Small-Lorenz. EDF is working to reduce threats to aquatic ecosystems, from climate change to poor water management.



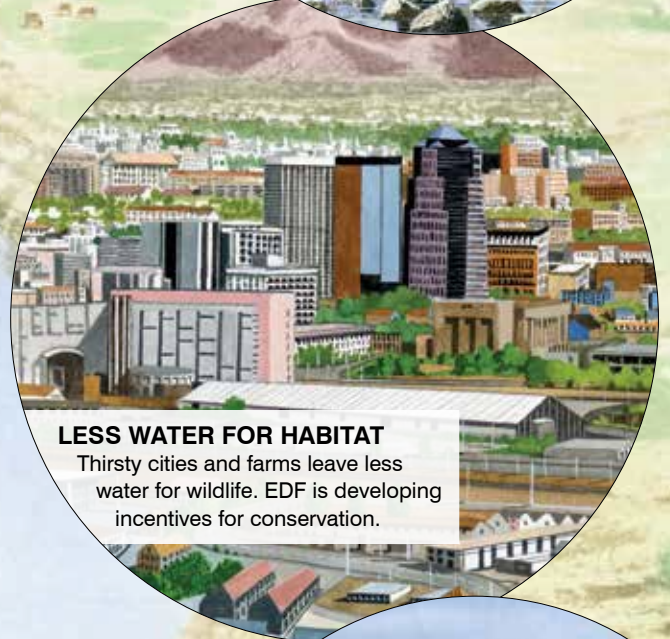
### SOUTHWESTERN WILLOW FLYCATCHER

For nesting, this songbird prefers shady thickets of willow and cottonwood trees near water.



### CHANGES TO SNOWPACK

Rising temperatures mean altered snowpacks and earlier snowmelt, affecting streamside vegetation where the birds nest.



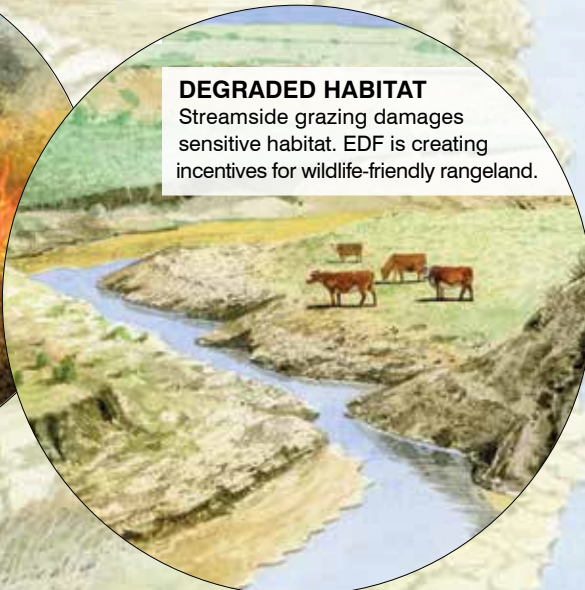
### LESS WATER FOR HABITAT

Thirsty cities and farms leave less water for wildlife. EDF is developing incentives for conservation.



### DANGEROUS WILDFIRES

Invasive, water-sucking salt cedar outcompetes native willows in dry conditions and serves as dangerous fuel for wildfires.



### DEGRADED HABITAT

Streamside grazing damages sensitive habitat. EDF is creating incentives for wildlife-friendly rangeland.



### SEVERE DROUGHT

Drought and heat may shrink the bird's wetland and streamside breeding habitat, and could deplete its insect prey.