EDF ENVIRONMENTAL DEFENSE FUND®
Finding the ways that work

Solutions

Vol. 49, No. 1 / Winter 2018

A year of reckoning

After a year of extreme weather and extreme politics, EDF and allies push forward on climate.

High plains dancer

The greater sage grouse was once so abundant that early settlers wrote of flocks darkening the Western sky. Those days are gone, but there are clear signs of hope for the famous bird's recovery, despite the Interior Department's efforts to weaken protections. EDF has worked with landowners, conservationists, energy companies and wildlife agencies across its 11-state range to develop a plan to save the bird. Already, a mining company has stepped up to protect 10,000 acres of grouse habitat in Nevada.

It's time for EPA's Scott Pruitt to go

THIS MONTH MARKS THE ONE-YEAR anniversary of President Trump's inauguration and the convening of the 115th Congress. And what a year it has been—a perfect storm of extreme weather and extreme politics. The president is surrendering America's climate leadership, undermining the government's ability to enforce the law and demolishing environmental safeguards.

The administration's point man for environmental assaults and climate denial has been EPA Administrator Scott Pruitt. As Oklahoma attorney general, he sued EPA 14 times trying to block clean air and water protections. This year he led what amounted to a hostile takeover of the agency, rolling back climate standards even as historic hurricanes and wildfires drove home the need for urgent action.

Pruitt has ruled EPA under a cloak of secrecy, suppressing climate web pages, silencing scientists and keeping his schedule secret, until Freedom of Information Act requests from EDF and others forced its release. It showed Pruitt meeting regularly with executives from the mining, fossil fuel and auto industries, sometimes shortly before making decisions that put their interests above those of the American people. His frequent travel to Oklahoma at taxpayers' expense prompted EPA's Inspector General to open an investigation.

While Pruitt denies the science, climate change is affecting people in every corner of the globe in deeply personal ways, from lifelong Louisiana resident Albertine Kimble, whose home has twice been destroyed by hurricanes, to farmers like Mohan Jadhav in India *(see "Faces of Climate Change," p. 11)*. Their stories are heart-wrenching examples of the mounting impacts of climate change, even as warming temperatures contribute to the spread of pathogens such as Lyme disease, droughts worsen food shortages and storms disrupt power generation, compounding risks to public health.

With progress blocked for now in Washington, D.C., we've found other ways to advance our goals, working with states, businesses and local communities. We're heartened that our members are more engaged than ever, contacting Congress and others more than 1.6 million times in 2017—once every 19 seconds—and contributing generously.

Thank you for helping us to stand in opposition to Administrator Pruitt, who has consistently sided with polluters and blocked or weakened dozens of environmental protections. EDF is working in the courts to stop the assault, but this much is clear: Scott Pruitt is not doing his job as America's top environmental cop. It's time for him to go. I urge you to join our petition calling for his dismissal (edf.org/NoPruitt). Our goal is to deliver one million signatures to President Trump and Congress. The stakes are too high to remain silent. Please join us.

Fred Krupp
EDF President

PHOTO: GETTY IMAGES

EDF ENVIRONMENTAL DEFENSE FUND®
Finding the ways that work

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: Extreme weather took a huge toll in 2017, with a series of devastating hurricanes striking the U.S. Ignoring the facts and the science, the Trump administration is racing to undo climate progress. The EDF *Solutions* team examines the human cost of recent climate disasters and documents our response, from the community level all the way to Congress.

Cover: Hurricane Elena, 1985, NASA

Solutions

Editor Peter Klebnikov
Art Director Janice Caswell

Environmental Defense Fund
257 Park Ave. South
New York, NY 10010

Main number 212-505-2100
Membership questions 800-684-3322 or members@edf.org

WE WANT TO HEAR FROM YOU
Send feedback to address above or email editor@edf.org

CONNECT WITH US ONLINE
edf.org
facebook.com/EnvDefenseFund
twitter.com/envdefensefund
linkedin.com/company/environmental-defense

Published quarterly in New York, NY
ASSN 0163-2566

New York / Austin / Bentonville, AR / Boston / Boulder / Raleigh / Sacramento / San Francisco / Washington, DC / Beijing, China / La Paz, Mexico / London

FIELD NOTES

SHUTTERSTOCK

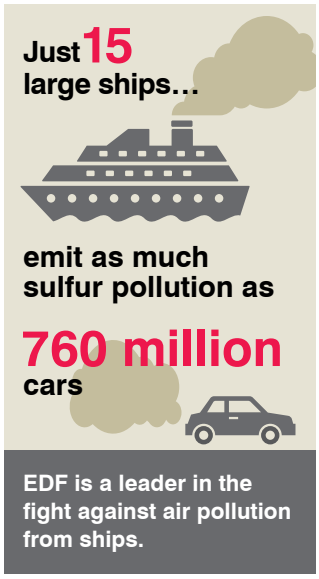
EDF is helping remove toxic chemicals from household products.

What's in your household cleaner?

A clean home is a healthy home. Or is it? It depends what's in the products you use. Some common ingredients in cleaning and personal care products contain carcinogens and chemicals known to cause birth defects and inhibit normal development. Now, finding out what's in your cleaning products will be easier. New York and California have announced rules requiring manufacturers to disclose ingredients online and, in California's case, on packaging, too. Greater transparency is a step in the direction of removal—an outcome EDF has long worked toward.

In 2013, we helped Walmart create a plan that cut 23 million pounds of toxic chemicals from products such as laundry detergents, cosmetics and household cleaners. In 2017, Walmart set a new goal to cut an additional 55 million pounds by 2022. With 90,000 products affected from brands including Unilever, P&G and Johnson & Johnson, the impact will be felt wherever those products are sold, making it easier for other retailers to follow Walmart's lead. "We're getting important things done together," says Walmart CEO Doug McMillon, of the company's work with EDF.

Now Target and CVS have announced chemical reduction plans of their own. Americans are still a long way from a toxic-free home but, as EDF's Elizabeth Sturcken says, "We're making progress."



SOURCE: THE GUARDIAN

Innovations in technology help revive fisheries

An EDF pilot project in the Gulf of Maine is installing electronic monitors on fishing boats to improve accountability and keep stocks healthy. Regulators are looking at adopting such technologies more widely.

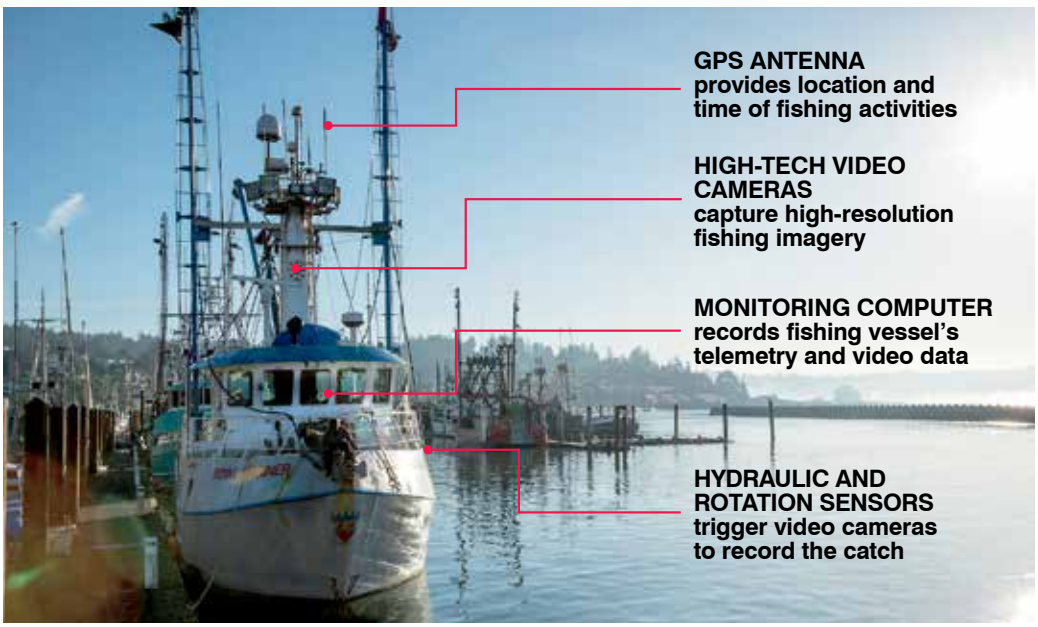


PHOTO: JOHN RAE

ISTOCK

NYC, a city with a climate plan

More than 380 U.S. cities have pledged to uphold the Paris climate agreement, and New York City has described exactly how to do it. The city's plan, *1.5°C: Aligning NYC with the Paris Climate Agreement,* engages multiple city agencies to reduce emissions by ten million metric tons—equivalent to taking two million cars off the road—by 2030. The plan was drawn up with the help of EDF Climate Corps fellow Ryan Moya.

"We're thankful to EDF for its continued leadership and partnership," said Mark Chambers, director, Mayor's Office of Sustainability.

ISTOCK

A big step forward for China

China is the world's largest greenhouse gas emitter, burning as much coal as all other countries combined. Now, it may become the world leader on climate action. In December, Beijing announced the launch of an ambitious emissions trading system (ETS) to stabilize and eventually reduce carbon pollution. "This is like the Mount Everest of climate policy," said Dr. Nathaniel Keohane, EDF's VP for global climate.

The ETS will initially cover the power sector, including 3.5 billion metric tons of carbon emissions from 1,700 stationary sources. That represents roughly 39% of China's total emissions. Additional sectors such as cement and aluminum will then be phased in. EDF has worked in China for 27 years, helping build the capacity for an undertaking of this magnitude. The transition is being overseen by environmental enforcement officers, some 39,000 of them trained through a program EDF established with leading universities.

Requiem for ski country?

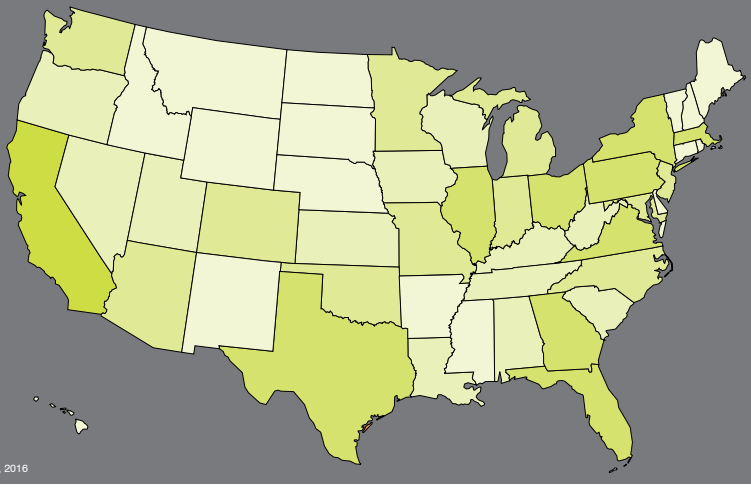
ISTOCK

It's a familiar refrain for skiers: another bad winter. Snowfall nationwide has declined 57% since 1930 because of climate change. That and several other factors, including competition from flashy "destination resorts," has hurt small ski areas, especially those without snowmaking equipment. The number of ski areas has plunged from 546 in 1992 to 481 today. In Vermont alone, there are now 115 "ghost mountains"—ski areas that have closed for good. In response, grassroots groups like Protect Our Winters are organizing to fight climate change. And the ski industry is lowering emissions. Vermont's Killington is fueling its energy-hungry snowmaking program partly through solar energy, while Deer Valley in Utah is running snowcats on bio-diesel. These resorts are part of a growing movement to ensure skiing is around for years to come.

> "The path toward climate stability and the path out of poverty have to be the same."
>
> —Dr. Zhang Jianyu, EDF China Managing Director

A BOOM IN ENERGY EFFICIENCY JOBS

EDF is working with government, industry and nonprofit groups to drive clean energy progress. One result is millions of well-paying jobs that cannot be shipped overseas.



SOURCE: ENVIRONMENTAL ENTREPRENEURS, 2016

EDF helps derail Trump nominee

One of EDF's biggest wins in recent years was a 2016 law protecting Americans from toxic chemicals. But President Trump's nominee to oversee this work, Michael Dourson, was a hired gun for the chemical industry. He would have been "a particularly toxic choice for the job," says EDF's Dr. Richard Denison.

EDF helped steer the opposition, rallying environmental and public health groups. Dourson withdrew his candidacy in December.

The butterfly wranglers

By Peter Klebnikov

America's wildlife is disappearing faster than traditional methods can save it. And now Congress and the administration are attacking the Endangered Species Act. Fortunately, new allies are stepping up, and new tools allow for broad-scale conservation. One of the most promising projects will help the monarch butterfly.

SHORTLY AFTER THEY MOVED TO their ranch in the Texas Hill Country in 2008, Amy and George Greer stumbled upon a magical sight: The trees along a creek that runs through their property were festooned with thousands of monarch butterflies.

"I'll never forget it," says Amy Greer, a biologist and 6th generation rancher. "We never saw anything like that again."

The great annual migration of monarchs spans the entire continental United States. But in just two decades, monarch populations have plummeted 90%. Scientists warn the beloved butterfly could be extinct in 20 years if conservation efforts fail.

A key reason for the monarch's decline is the loss of their milkweed habitat, where the butterflies lay their eggs and caterpillars feed. Across America's corn belt, farmers prefer to keep fields weed-free, and on ranches, cattle are fond of nectar plants, another food source.

In 2017, EDF launched a nationwide campaign to save the monarch, working with ranchers and farmers who own much of the land along the "superhighways" that the monarchs use to reach their wintering grounds in Mexico. Our goal is to restore 800,000 acres of milkweed and native prairie habitat—helping the butterfly survive climate change and other threats.

EDF scientists and their partners crisscrossed the country tracking monarch migration routes and building support among agriculture associations, farmers and local officials. "It's definitely not too late to save the monarch," says David Wolfe, EDF's conservation director.

Conservation at this scale cannot succeed without the participation of private landowners. So EDF created the Monarch Butterfly Habitat Exchange, where farmers and ranchers can earn credits for growing milkweed, which are then sold through the exchange to buyers who want to see the monarch survive. The U.S. Fish and Wildlife Service has approved EDF habitat exchanges as a preferred option for saving at-risk species.

The first EDF exchanges are now being launched in California, Missouri and Texas.

A wide array of potential investors, from food companies to conservation funds, have responded to the project, recognizing that it will help all pollinators, including native bees. Thousands of EDF members pitched in as well, contributing money to create habitat.

The 6,700-acre Greer ranch, outside Brady, lies in the heart of the monarch flyway. Among gently rolling hills and groves of live oak and eryngo wildflowers, the family raises 100 head of thriving,

grass-fed Waygu cattle.

"I see no conflict between ranching and nurturing wildlife," says George Greer. "For us, restoring butterfly habitat is a vital piece of bringing back the ecology of the landscape, helping pollinators, helping soil and water quality, and benefitting both people and wildlife." The Greers also appreciate the extra income from aiding monarchs.

At such ranches, EDF is developing habitat restoration plans. The plans include planting native flowering plants and keeping cattle away from them. The goal is to make the recommendations usable across multiple landscapes.

"The habitat can be many small patches across the landscape, such as in ditches or along fields," says Wolfe. "It just has to be in the right place." To recruit more landowners, we've launched a monarch butterfly habitat exchange website.

We've also developed a method for measuring butterfly habitat quality, so investors have a baseline against which to measure progress. The U.S. Department of Agriculture is using our method to track the results of its own conservation initiatives.

All agriculture stakeholders—from farmers to food companies—have an incentive to avoid the butterfly being listed as endangered. Such a listing could mean unwanted regulation and land use restrictions for landowners.

"It concerns me deeply that monarch butterflies are disappearing," says Amy Greer. "When you see crashing populations, it's a bad sign."

The Greers previously surveyed habitat for the black-capped vireo with us. "I have a lot respect for everything EDF does," says Amy Greer. "I jumped at the chance to work with them again.

"If we can take our piece of land and restore it to help the butterfly, my hope is that will inspire others and we'll get to the scale we need."

ISTOCK

JOHN DAVIDSON

"Owners must play a role in the survival of species," says rancher Amy Greer, seen with EDF's David Wolfe.

What you can do to help monarchs

CREATE HABITAT

During their long migratory journey, monarch butterflies are susceptible to drought and lack of food. Help hungry monarchs complete their passage by planting native nectar-producing plants, especially milkweed (genus *Asclepias*). Milkweed is the sole food resource for monarch caterpillars and the only plant on which females lay their eggs, so it's key to the species' survival. Visit monarchjointventure.org for details about which varieties are native to your area.

Additional ways to turn part of your yard into a splendid butterfly sanctuary:

- **Construct a "butterfly bath"** by placing stones or sticks in a shallow dish of water
- **Provide nectar-rich fruits**, such as citrus for sustenance for adult butterflies
- **Create sources of shelter** by planting hedgerows or letting a section of you lawn grow wild

Take it a step further by requesting a seed kit at monarchwatch.org and turn your garden into an official Monarch Waystation.

BECOME A CITIZEN SCIENTIST

Anyone can help the scientific community track monarchs through an online monitoring project.

Volunteer to help the University of Minnesota monitor monarchs at monarchlab.org/mlmp. Report adult monarchs, peak migration events, and roosting monarchs to Journey North at learner.org/jnorth.

ALAMY

The red-cockaded woodpecker

The Endangered Species Act matters

Monarch butterflies are more than just beautiful. They're an accurate indicator of the health of other pollinators and prairie ecosystems. Such keystone species are under threat as the Trump administration and Congress target the Endangered Species Act (ESA). Under their plans, successful policies that conserve species may be abandoned.

"Without the ESA, we wouldn't have some of the keystone species that have great influence on broader ecosystems," says Michael Bean, an expert on wildlife law and former director of EDF's wildlife program. "For example, the reintroduction of wolves into Yellowstone has brought that ecosystem into balance—elk foraging behavior has changed, key vegetation such as willow is flourishing and beaver populations are thriving."

Much of the ESA's clout lies in its mitigation policies that ensure that adverse impacts, such as loss of habitat from development, are offset by improvements elsewhere. But now, these policies are also in the crosshairs.

Opponents claim that protecting wildlife is a drag on the economy. In fact, habitat restoration employs 126,000 Americans, from ecologists to financial experts. That's more than in coal mining, logging or steel production.

The opponents of wildlife protection won't succeed. EDF is part of a growing coalition making sure endangered species aren't abandoned, for everyone's sake. As Bean says: "We all benefit from biological diversity—economically, recreationally, aesthetically and spiritually."

This is what climate change looked like in 2017.

It was the most harrowing year ever for climate disasters. In the U.S. alone, the price tag topped $300 billion. But the human toll was incalculable.

Three Category 4 hurricanes hit landfall in just three weeks, followed immediately by devastating wildfires in California. As summer turned to fall, millions of Americans experienced climate change impacting their families and communities as never before.

A new federal report put it this way: The climate is changing, humans are responsible, the risks are serious and it's time to act. Vetted by 13 federal agencies, the report sums up the latest science on climate, ocean acidification and sea level rise. It finds a greater risk of fires and flooding on nearly every continent.

Yet the Trump administration has chosen to ignore the warning while gutting our nation's ability to predict, assess and clean up after disasters. That leaves states, cities and communities to pick up the slack.

EDF is responding on multiple fronts, not only in Washington, where we're defending core environmental protections, but also at the local level, helping vulnerable communities build resilience. What follows is a survey of how, with the help of EDF members, we are standing strong against the ravages of climate change, reaching out to people impacted by extreme weather and fighting for action before it is too late.

By Tasha Kosviner, Charlie Miller and Leslie Valentine

FACES OF CLIMATE CHANGE

Mellissa and David Edney | California wildfires

"I had just enough time to put on some sweatpants, grab my child and we were out of there," says Mellissa Edney, mother of Charlotte, recalling the October night when fire took her Santa Rosa home and 1,300 others.

Average annual temperatures in the western U.S. have increased by 1.9°F since 1970. Drier conditions have fueled a leap in the number in large wildfires from 140 a year in the 1980s to 250 a year this decade. By mid-century, temperatures in California are projected to increase 2.5°–6.5°F.

Says Edney: "Now we're trying to figure out a way to rebuild without going bankrupt."

PHOTO: MARKO KOKIC FOR THE AMERICAN RED CROSS

In the storm, beacons of hope

AT A TIME WHEN THE INTERNATIONAL community is stepping up on climate, President Trump is pedalling hard in the opposite direction.

During the 2016 campaign, he vowed to dismantle the Environmental Protection Agency (EPA). Once in office, he appointed an extreme foe of the environment, Scott Pruitt, as head of the agency. Pruitt quickly began to implement Trump's agenda by rolling back vital public health safeguards.

Pruitt tried to work in secret, keeping his schedule hidden, but EDF sued to compel the release of his full calendar. The snippets EPA subsequently released showed Pruitt's calendar was filled with meetings for representatives of mining, fossil fuel and chemical industries. Sometimes, these meetings came shortly before Pruitt issued decisions favorable to them.

Trump's agenda is nothing if not ambitious. In his first 100 days, he withdrew the U.S. from the Paris climate agreement; made a bid to abandon the Clean Power Plan (CPP); and proposed to cut EPA's budget by 31%.

But Trump and Pruitt discovered that environmental protections are not so easy to unwind in the face of determined opposition. The CPP was finalized in 2015 after years of work by EPA, and unraveling it will take a lengthy process of legal and scientific review. EDF and a broad coalition of allies are defending the plan every step of the way.

"The American people support clean air and water," says EDF general counsel Vickie Patton. "Pruitt is facing a growing public backlash."

In June, Pruitt suspended methane standards for many oil and gas facilities, dealing a severe blow to climate action, since methane is a potent greenhouse gas. EDF filed suit, and a federal appeals court struck down Pruitt's decision. And when Pruitt sought to suspend implementation of tighter limits on ground-level ozone, or smog, EDF and 16 state attorneys general sued—and Pruitt reversed course. When Pruitt missed the court-imposed deadline of October 1 for implementing the smog rules, we sued again.

In mid-December, EDF along with the National Parks and Conservation Association and Sierra Club sued EPA over its wholly inadequate plan to cut emissions from Texas coal plants, which are spoiling scenic vistas in national parks across seven states, such as Big Bend National Park.

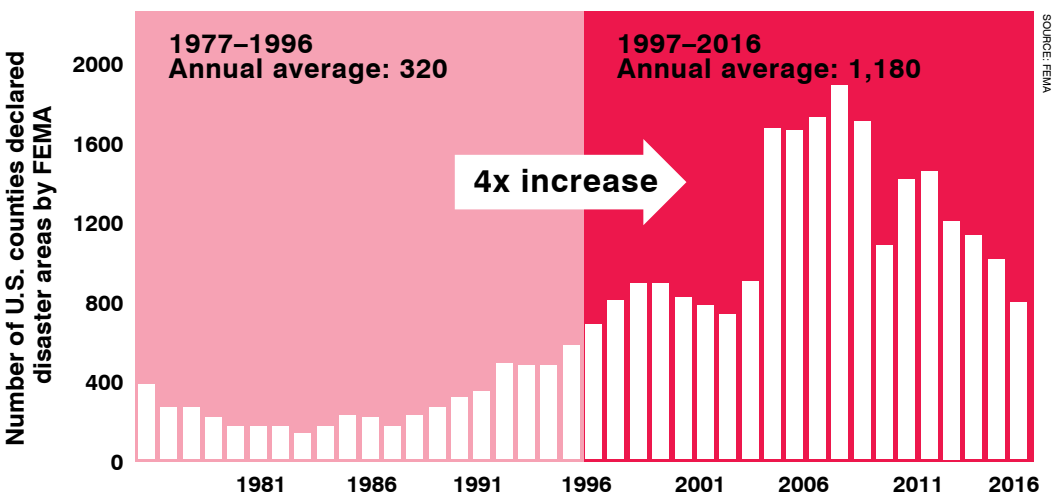
"We won vital early victories that overturned rushed attacks," says Patton. "We must stay focused and hold the administration accountable for its reckless actions."

Powerful alliances

In addition to our legal firepower, EDF has other weapons. EDF Action, our political partner, engages in direct lobbying, giving us political muscle to take on well-funded opponents. We've won important victories. In a dramatic Senate vote in May 2017, we preserved national limits on methane leaks from oil and gas operations on 460 million acres of public land. (In December, Interior Secretary Ryan Zinke suspended the limits until January 2019. EDF filed suit shortly after.)

EDF Action also prevailed on a House amendment that would have barred the Defense Department from preparing for

A SURGE IN DISASTERS



SOURCE: FEMA

FACES OF CLIMATE

Hilton Kelley | Hurricane Harvey

"We often see high water in our neighborhood, but never this bad," says environmental leader Hilton Kelley, whose flooded Port Arthur home was one of 203,000 damaged or destroyed when Harvey slammed Texas last year.

"People had to climb on their roofs. They had to sleep in their cars or their mold-infested homes." Harvey dumped 27 trillion gallons of water on Texas and Louisiana. Scientists estimate that due to climate change, heavy deluges in that region will be 18 times more likely by the end of this century, compared to the last.

"Anybody who doesn't believe climate change is real must be living in a difference universe," says Kelley.

Mohan Jadhav | Weather crisis in India

"We've had flash floods, droughts, unexpected rainfall, sudden heat," says farmer Mohan Jadhav of his farming community in the northern state of Maharashtra. "Seasons that used to last three months change every 20 to 25 days."

Conditions are desperate—and set to get worse. A 2017 study from the University of California, Berkeley, linked climate change to farmer suicide in India, while a 2013 World Bank report said by the 2050s, with a temperature rise of 3.6°–4.5°F, water shortages in India will bring food scarcity to 63 million people.

"The day is not far away when there will be clashes among people for water and food," Jadhav adds. "This is a fact."

Albertine Kimble | A quickly vanishing coastline

Every 100 minutes, a football-field-size piece of land disappears into the Gulf of Mexico. Rising sea levels and subsiding land leave Mississippi River Delta communities vulnerable to surges caused by storms such as Katrina and Isaac.

"I've watched the marshes disappear," says lifelong resident Albertine Kimble, a retired coastal manager whose home has twice been washed away. Now it stands on stilts, 22 feet high. "Who knows how long it will be safe?" she says. "This is my home, my community—I don't want to leave. I know I will have to, someday."

Irma Maldonado Perez | Hurricane Maria

Irma Maldonado Perez, 58, a cancer survivor, hid with her daughter in the basement of her Puerto Rico home last year, as Hurricane Maria tore it apart and cast it to the winds.

"It was scary to hear everything falling or ripping apart, all night long," she says. When they emerged, the devastation was complete. "We lost everything: every wall, every window."

Driven by climate change, oceans have warmed 1°–3°F and risen 5–8 inches over the last century. Warmer, higher waters supercharge storms like Maria. Perez and her family now share her mother's home, as they wait for U.S. government relief to arrive.

"Two hurricanes so powerful in a row," Perez says. "That's something no one has lived through before. Something is wrong."

Connie Hammond | California Central Valley drought

As heat and drought lead to a drop in surface water and overuse of groundwater, Central Valley residents like water board volunteer Connie Hammond suffer. "We have two wells, one has no water, the other has arsenic," she says. "We use it for laundry but not to drink. I don't even give it to my dogs." A 2017 study by the Lawrence Livermore National Laboratory predicts California rainfall could diminish by 15% in 20–30 years.

PHOTOS (COUNTER-CLOCKWISE FROM TOP LEFT): JULIE DERMANSKY, DEEPALI MISHRA, NICOLE BENGIVENO/REDUX, KIKE ARNAL, GETTY IMAGES/JOE RAEDLE

climate change. We had only 12 hours' notice of the vote, but we assembled a coalition that included 46 Republicans who took our side.

We also count on EDF members—two million strong—to make their voices heard. And our Moms Clean Air Force affiliate, with its one million members, has become an influential voice on Capitol Hill. EDF's outreach to millennials, Latinos and conservatives has also gained momentum this year.

Bringing business to bear

Another increasingly vocal ally is corporate America. When President Trump announced plans to reverse the CPP, Apple, Amazon, Google and Microsoft jointly responded: "We believe…the [CPP] can make renewable energy supplies more robust and address the serious threat of climate change while also supporting American competitiveness, innovation and job growth." EDF is now galvanizing more businesses to publicly support the plan before EPA's January 16 deadline for comments on the repeal.

"It's not just PR. It's about the business value of strong climate policy," says EDF+Business director Elizabeth Sturcken. This is not the first time business, with EDF's support, has advocated for the environment. In 2016, we worked with Cummins Inc., the largest U.S. diesel engine maker, to strengthen clean truck regulations, parts of which are now in EPA's crosshairs. But Cummins stands strong."Our support for the [clean truck] rule…has not changed," says Brian Mormino, the company's executive director of worldwide environmental strategy.

The next battleground

Under the Clean Air Act, California can set its own emission standards for new cars. This so-called waiver gives the state room to lead on clean air and has helped transform the auto industry. Though the waiver has been in place since 1967, many expect Pruitt to soon deny it. EDF will fight to prevent that. In the face of a hostile administration, we are working to protect strong, sensible environmental regulation. We're confident that, with the help of EDF members, we will prevail.

"EPA has undergone the governmental equivalent of a hostile takeover," says EDF's Patton. "But EDF is filling in for the missing EPA, and we've shown we can fight and win."

Communities unite in the face of climate change

JOHN RAE

Scientists from EDF and local groups are working to protect New Orleans from storms.

THE IMPACTS OF CLIMATE CHANGE have hit home harder and sooner than predicted. A new federal report concludes that food and water supplies and electric generation are all being affected in interconnected ways.

Communities are taking steps to prepare, because one dollar invested in predisaster mitigation can prevent four dollars in disaster response costs. Here are some of the ways EDF is helping build resilience.

Storm buffers

Barrier islands and wetlands are the first line of defense for coastal Louisiana, which has lost 2,000 square miles of wetlands since the 1930s. With sea levels rising, nobody is sure exactly how fast or where the water will end up.

Early on, EDF encouraged community-led resilience planning in the Mississippi River Delta, bringing together diverse interests—from Native American tribes to the oil and gas industry. EDF then worked with the Foundation for Louisiana to spearhead a bottom-up approach in Plaquemines Parish, one of the hardest-hit communities.

"Vulnerable communities have to be at the table to understand their flood risks and make hard choices so their communities can stay together," says Steve Cochran, director of EDF's Mississippi River Delta work. State officials picked up on EDF's community model and took it to another six parishes.

The state legislature approved the latest Coastal Master Plan, a blueprint EDF helped develop for coastal restoration that outlines $50 billion for projects over 50 years. Key to the plan is diverting sediment-rich Mississippi River water to restore wetlands. Already, 150 projects are underway, and 60 miles of barrier islands and berms have been constructed.

We're sharing our work with planners in other areas experiencing severe flooding. Says Cochran: "Coastal areas from Miami to the Mekong Delta are facing the same set of challenges."

Drought relief

California's Central Valley produces 40% of our fruit, vegetables and nuts. But the bounty comes at a price. The valley consumes nearly 80% of the state's water. After years of drought and diminished snowpack, aquifers are being depleted faster than they can be replenished, causing wells to run dry or become more contaminated. Here, thousands of people—many of them low-income—live without safe drinking water. A new groundwater law requires local water districts to maintain safe levels in their aquifers, but managers of small water systems need guidance in navigating the new law.

"Rural communities have been left to fend for themselves," says EDF project manager Ana Lucia Garcia Briones. "The poor lose out the most."

To provide assistance, Garcia Briones is training managers of small water systems in towns like Armona. "Developing leadership in these communities is vital if California is to overcome its water crisis and build resiliency," she says. Garcia Briones has now expanded her work to include the Imperial Valley as well.

Protecting communities

Last summer, Hurricane Harvey pummeled Texas. As storage tanks leaked, gas pipelines ruptured and fires broke out at industrial facilities, Houston residents began complaining of nausea and dizziness. With nobody monitoring air quality and residents looking for answers, EDF toxicologist Elena Craft hired a van with equipment for detecting toxic emissions.

When the unit found a huge plume of benzene, a carcinogen, near a Valero plant, Dr. Craft reported the finding to Texas officials. After days of inaction, EPA inspected the facility and found Valero had vastly underreported benzene releases. In part because of Craft's work, the Texas environmental commission began looking into post-Harvey toxic pollution.

For years, Craft has led a coalition of community groups to reduce Texas air pollution. "We often turn to Elena for help on such issues," says Adrian Shelley, director of Texas Public Citizen. As global warming ups the ante for more intense and frequent storms, people living near petrochemical facilities must contend with more flooding and industrial accidents. Proposed budget cuts at EPA would cripple its ability to respond to such disasters. EDF is opposing the cuts and expanding local pollution monitoring so states have the information they need to make informed decisions.

Grid modernization

Our electricity system's vulnerability to climate change came into sharp focus five years ago, when Superstorm Sandy battered the East Coast and knocked out power to eight million customers in 21 states, plunging much of New York City into darkness for weeks.

Similar outages plagued Florida after Hurricane Irma—and 70% of Puerto Ricans still lacked power six weeks after Hurricane Maria.

One way to build grid resiliency is through the use of microgrids, small decentralized electrical systems that can be powered by solar or wind and keep working during extreme weather events.

After Sandy, EDF worked with New York officials to launch a competition to help communities statewide develop microgrids. So far, 11 microgrid projects have been funded.

We've made progress in other states, too. In Ohio, the Midwestern utility giant AEP reached a settlement with EDF and others that will provide $20 million in funding for grid modernization, such as infrastructure for electric vehicles.

Today, there are about 160 microgrids online in the United States. The capacity of such systems is expected to double by 2020, helping communities nationwide ride out the coming extreme weather.

REUTERS

After Sandy knocked out power, EDF helped build microgrids that work in extreme weather.

ISTOCK

Coal's best friend

Energy Secretary Rick Perry loves coal. He loves coal so much, in fact, that he wants to give coal plant owners guaranteed profits—whether or not their plants are economically competitive.

That's why Perry has asked the Federal Energy Regulatory Commission (FERC) to issue an order propping up coal plants and making customers foot the bill. The move comes as coal is failing to compete against cheaper alternatives such as natural gas and renewable energy in many states around the country.

U.S. utilities are expected to close 46 coal plants over the next few years, as they mostly transition to natural gas. Since 2010, 262 coal plants have either closed or are slated for retirement. EDF and hundreds of organizations, from the American Petroleum Institute to Walmart and Microsoft, oppose the Perry proposal. We have submitted formal comments to FERC and will continue to make the case against this misguided plan.

The pretext for using customers' money to prop up coal is that doing so would purportedly make the electric grid more reliable. But even the Energy Department's own staff has concluded that the transition to cleaner energy is making America's electricity system more reliable and affordable—not less.

Estimates put the cost of the proposal at $10.6 billion a year in higher utility bills. The health consequences would be substantial, with thousands of premature deaths every year through particulate pollution alone.

"Perry's first year at the Department of Energy has seen one effort after another to boost the coal industry," says Jim Marston, EDF vice president for clean energy. "This is just the latest—and most outrageous—example."

A new generation of climate defenders

No climate strategy is complete without addressing the way corporate America does business. Graduates of EDF Climate Corps, now entering its 11th year, move from intensive training to summer fellowships at leading companies to jobs at Fortune 500 companies, government agencies and more. We're helping to build a millennial army of corporate environmental stewards.

Jenny McColloch

Director, global sustainability, McDonald's Corporation

2011 fellow, Nestlé Waters North America

McColloch is helping integrate sustainability across restaurant operations and the supply chain at one of the world's biggest restaurant brands. Her team's highlights include working to eliminate deforestation from McDonald's supply chain; increasing community and in-restaurant recycling; and sustainably sourcing 100% of coffee, palm oil, fish and fiber-based packaging by 2020. Of her EDF Climate Corps fellowship, McColloch says: "The skills, experience and network are invaluable."

Last summer, McColloch engaged 2017 EDF Climate Corps fellow Amanda Bangs to help bring suppliers, restaurant operators and employees on board with McDonald's sustainability goals. The move continued a 27-year partnership with EDF that has helped the fast food chain switch to paper-based sandwich wraps, eliminate antibiotic growth promoters in poultry and incorporate recycled content into napkins.

Says McColloch: "EDF takes time to understand what an organization needs before digging in to help develop practical solutions."

Nicki McClung

Senior global responsibility specialist, Starbucks

2015 fellow, City of Boston

Following college, McClung spent a brief period working for a mining company in Western Australia. It was during a flight over the region that McClung decided she was on the wrong team. "Seeing how mining impacted the environment made me realize I needed to go back to college," she says. She got her MPA and joined EDF for a fellowship with the City of Boston. This paved the way for a job at Starbucks where she works on the coffee giant's sustainability program, including acting as part of the consortium which spurred Washington, D.C. to offer municipal cup recycling.

Tyler Van Leeuwen

CO_2 Portfolio advisor, Royal Dutch Shell

2013 fellow, adidas Group

Van Leeuwen describes the climate challenge as a "beautiful problem, interesting from nearly every angle." The Yale School of Management graduate's passion began during a study abroad program looking at Amazon deforestation in Brazil. Today he can be found presenting the case for CO_2 management at one of the world's largest energy companies. Asked about the potential conflict of working on CO_2 at a fossil fuel-producing company, Van Leeuwen replies: "What conflict? Limiting the amount of CO_2 in the atmosphere requires immediate action on every front."

Xinyuan Wen

Research fellow, National Center for Climate Change Strategy and International Cooperation, Beijing

2015 fellow, Walmart China

Wen helps broker and deliver on agreements between China and countries such as Iran and Myanmar to provide renewable and energy efficiency products and develop low carbon zones. "Climate Corps taught me effective communication is key," she says. On the future, Wen is hopeful: "More and more entrepreneurs are pursuing sustainable development in China."

Dara Ward

Energy and sustainability manager, St. Vrain Valley School District, CO

2011 fellow, adidas Group

Ward credits EDF Climate Corps with showing her the persuasive clout of big data. The skill serves her well in her role measuring and cutting energy use in 55 schools and chairing a state-wide association on resource conservation in cities. Ward also co-founded the networking group, Colorado Eco-Woman.

Jake Shirmer

Manager and sustainability specialist, Deloitte Consulting

2011 fellow, Sungard (now FIS)

"There are great business opportunities in sustainability," says Shirmer, whose role involves helping businesses identify the cost and resiliency benefits of sustainability. Nonetheless, Shirmer envisages a day when the word "sustainable" disappears from the corporate lexicon. "The benefits should become so obvious they'll just be absorbed into daily operations," he says.

Adapting our strategy to a changing world

Pathways 2025, our new strategic plan, lays out the avenues we'll use to drive change in the years ahead.

COMPOSITE ILLUSTRATION: ANURANJAN PEGU AND CHRISTINA BAUTE

THE 2016 U.S. ELECTIONS PUT major roadblocks in the way of environmental progress, while the United Kingdom's Brexit vote and political turmoil in Brazil have changed the context of EDF's global work. At the same time, deepening climate ambition in China and a new wave of technological innovation are opening new pathways to positive change, so EDF's goals for the years ahead are as ambitious as ever.

That's the optimistic message of Pathways 2025, EDF's new strategic plan, which sets our objectives in five major areas. Here are a few highlights; for the complete picture, please write members@edf.org or call 800-684-3322 to request your free copy of the 56-page plan, or find it online at edf.org/pathways2025.

HEALTH

For the first time in our 50-year history, EDF has embraced a goal of improving air quality not just in America but around the world, including in China and India. Outdoor air pollution causes 4.5 million premature deaths annually, and in many cases, the same actions needed to cut greenhouse gases—like moving from coal to solar and wind—will also benefit local air quality. EDF and Google have partnered on new ways to measure air pollution at street level instead of with rooftop monitors, generating actionable data on a block-by-block level. EDF aims to make this kind of hyperlocal data available to communities worldwide.

CLIMATE

When the U.S. rejected the Paris Accord —the only country in the world to do so—it did not reflect the view of most Americans. Pathways 2025 builds on the commitment of U.S. states, cities and companies to keep meeting emissions reductions goals. For example, California embraced a new climate target this year, using market-based methods championed by EDF to cut greenhouse gas emissions 40% by 2030. And our staff in Beijing is helping China begin phasing in a national emissions trading system that could peak national emissions by 2025, five years ahead of its Paris commitment.

ECOSYSTEMS

Healthy ecosystems are essential for human prosperity and wildlife, but they face unprecedented pressure in a warming world. Our new plan expands EDF's programs to enlist farmers, ranchers and other landowners as stewards by giving them economic incentives to protect ecosystems. This includes marshes and floodplains that safeguard coastal communities from storms. Whether for agriculture, water supplies or wildlife habitat, our aim is to make natural systems more resilient to climate change.

OCEANS

Millions of people rely on fish for essential nutrients, but overfishing could put 10% of the world's population at risk of malnutrition. Pathways 2025 expands EDF's work to reverse overfishing and restore the seas to abundance, while fostering prosperity. Managing fisheries through the use of catch limits and secure fishing rights can provide more fish in the water and more food on the plate. In the process, EDF seeks to secure nutrition and better economic conditions for 400 million vulnerable people by 2030.

POLITICS

In the long run, Washington, D.C. must be part of the global climate solution, and lawmakers will need to restore and expand protection of bedrock environmental values. But simply waiting on the politicians is not an option. Through EDF Action (our political arm) and allies such as Moms Clean Air Force, we aim to build a bench of environmental champions among Republican and Democratic officials and to inspire a large, bipartisan majority of Americans to stand up for environmental defense.

Ask for your free copy

To receive a copy of the complete plan, please email members@edf.org, call 800-684-3322, or write EDF Membership, 1875 Connecticut Ave. NW, Ste. 600, Washington, DC 20009.

Desert jewel: La Cienega de Santa Clara

A historic agreement on Western water

By Peter Klebnikov

A breakthrough deal in Arizona overcomes old animosities and offers the parched Southwest a new way forward.

SOME 2,300 YEARS AGO, THE Huhugam people settled along the fertile banks of the Gila River, a tributary of the Colorado River, in what today is Southern Arizona. In a remarkable feat of engineering and enterprise, they carved 500 miles of canals out of the Sonoran Desert, grew cotton, corn, beans, fruits and tobacco, and began engaging in long-distance trade. Each tribal village was responsible for maintaining its part of the canal system. With equal ingenuity, the Gila community learned to survive periodic droughts. They flourished until their lifeblood—Gila River water—was cut off by upstream dams in the 1880s, destroying their ability to raise crops.

Today, with the region in the grip of a 17-year drought, people are turning to the Huhugam's descendants, the Gila River Indian Community, for help in managing their precious water resources.

Lake Mead, the largest reservoir on the Colorado River and a critical lifeline for Arizona, California, Nevada and Mexico, is less than half full today. If its water level drops below 1,075 feet, the federal government can declare a shortage and trigger reductions in water taken from the lake by the Southwestern states. Today, that water level hovers only a few feet from such a declaration. Some experts predict Lake Mead will reach critically low levels this year.

In the past, such a shortage could have triggered an avalanche of lawsuits among cities, farmers, environmentalists and agribusiness—all wanting to dip their straws into the receding Colorado River.

But scarcity, and the realization that climate change is here to stay, have a way of sharpening the mind. "People are realizing that water shortages can only be solved cooperatively," says Kevin Moran, EDF's senior director of Western water. "Old habits must change."

In 2017, EDF spearheaded a deal between formerly contentious users to make more Colorado River water available for the environment. The Gila River Indian Community was key to the agreement.

Under the deal—the first of its kind—the city of Phoenix, the State of Arizona, the U.S. Bureau of Reclamation and the Walton Family Foundation together paid the Gila River community $6 million to leave 40,000 acre-feet of the tribe's Colorado River water allotment in Lake Mead. That's the equivalent of 35% of Phoenix's total annual consumption. (After long being denied their ancestral rights to water, the Gila community now

controls a major share of the allotment.)

The extra water will slow the decline of Lake Mead and strengthen the Colorado River at a time of projected shortages. It will also protect wildlife habitat. Only by freeing up more water can supplies dedicated to critical wildlife habitat such as La Cienega de Santa Clara, the largest wetland in the Colorado River Basin, remain secure.

"Solving our region's water problems will take cooperation and creativity," said Gov. Stephen Roe Lewis of the 14,000-member Gila River Indian Community. "Working with partners like EDF, we're helping preserve the health of the Colorado River system."

Many Native Americans and Alaska Natives are being disproportionately impacted by climate change. The Gila River community, like other Native American groups, is making plans to become more resilient in the face of the hotter, drier world that climate change is bringing.

The Arizona water agreement could point the way for more cooperative conservation deals throughout the parched West. EDF is working with cities, tribes and agriculture on similar water sharing agreements, and finding ways to incentivize conservation, particularly in the farming community.

The fundamental problem is that demand for Colorado River water among the Southwestern states far exceeds supply. This "structural deficit" is exacerbated by a growing population and the trend toward more frequent and severe droughts.

"We need to change our relationship with water from one focused primarily on consumption, to one of give-and-take, balance and resilience," says Moran.

EDF's goal in the Colorado River's Lower Basin is to cut the current over-allocation of water in half by 2020.

Key to achieving this goal are "system conservation" agreements such as the one we brokered with the Gila River Indian Community, in which a water rights holder is compensated for conservation measures that improve the overall health of the river system.

This agreement on the Colorado River helps point the way toward future deals aimed at securing a stable supply of water for the Southwest. It also offers a model for the Gila River Indian Community's vision of restoring the river to the way it was before dams and diversions left it dry.

"Being good stewards of this most sacred resource is part of who we are as a people," says Gov. Lewis. "It's what we have stood for across time."

CIRCLE OF BLUE

Gov. Stephen Roe Lewis of the Gila River Indian Community at the river he hopes to restore. The tribe boasts a thousand-year history of efficient water use.

ALAMY

A "bathtub ring" reveals the drop in water level in Lake Mead. With the Colorado River severely overallocated, new thinking is needed.

AURORA

The Colorado River is the lifeblood of the Southwest. EDF spearheaded a deal that makes water available for the environment.

THE WILSON LEGACY

The case for the Clean Power Plan

By Frank Convery, EDF Chief Economist

‘“When I use a word,” Humpty Dumpty said, in rather a scornful tone, “it means just what I choose it to mean—neither more nor less.”’ (*Through the Looking Glass,* by Lewis Carroll, 1872)

Humpty Dumpty’s arrogance is alive and well in the Trump administration. In making the case for repealing the Clean Power Plan, the Trump EPA cast aside accepted science by downplaying the benefits of reducing air pollution from power plants and suggested those benefits could be disregarded entirely.

The Clean Power Plan is the most significant action the U.S. has taken to address climate change, with the aim of reducing greenhouse gas emissions from the electricity sector to 32% below 2005 levels. The plan’s emission reduction targets would phase in gradually over time and allow states and power companies flexibility in deciding how best to meet those targets.

The Clean Power Plan would save American lives, accelerate investments in clean energy and demonstrate global leadership on climate change, encouraging similar actions by other countries.

In its desperation to justify repealing the Clean Power Plan, EPA inflated its costs and obscured its benefits. That EPA did so underscores this administration’s disregard for science and reasoned decision making.

ISTOCK

This regular column honors the memory of Robert W. Wilson, a longtime EDF supporter and champion of harnessing market forces to drive environmental progress. See edf.org/wilson

Wellsprings of hope

ISTOCK

OUR ENVIRONMENT ENDURED many assaults in 2017. We asked for the literary and cultural inspiration that kept you hopeful. From movies to books and even a little humor, here’s a selection of your replies.

In praise of science

In a year when science was undermined, you upheld its value, praising *Drawdown*, the epic work by Paul Hawken, which meticulously models solutions to global warming, and Bill Nye’s *Everything All at Once*, which advocates open-mindedness, critical thinking and science.

Unsurprisingly, stories about holding strong against adversity also proved popular. Member Barry R. of Stormville, NY, recommended *The Long Walk*, Slavomir Rawicz’s account of his escape from the Siberian Gulag in 1941; while the 1841 essay *Self-Reliance* by American philosopher Ralph Waldo Emerson reminded Steven K. of Malden, MA, to “repair what is broken, …protect what is vulnerable, cherish what is beautiful and be a good steward of creation.”

Hope on the big acreen

Film brought optimism too. The 1946 feature, *The Yearling*, about a boy who learns some stark lessons about poverty, racism, life and death, gave Philip S. of Houston, TX, “knowledge of what was, what is and what should be,” while many of you recommended Al Gore’s 2017 film, *An Inconvenient Sequel*, which reminded member George S. of Van Nuys, CA, to “keep fighting the good fight.” Matt Tyranauer’s film about Jane Jacobs’ crusade against Robert Moses, *Citizen Jane: Battle for the City*, reminded Barbara B. of Los Angeles, CA, that “regular people, when organized, can make a difference even in the face of great power.”

The power of a good story

Then there’s the simple pleasure of beautiful stories, well told. You loved *To Obama with Love, and Hate, and Desperation,* a moving *New York Times* article about the 10,000 daily letters sent to the White House, and the aides who read them all. Linda C. from Lake Forest Park, WA, touched on an issue close to EDF’s heart when she recommended the Barbara Kingsolver novel *Flight Behavior*, about the plight of the monarch butterfly, which she read while watching birds feed in her garden.

Laughter in disaster

Humor proved a tonic too. Margaret T. from Forest Grove, OR, recommended a calendar of cartoons from the Union of Concerned Scientists. “When I hear the uneducated and downright greedy speak out against climate change, I look to the calendar for a laugh,” she wrote.

We are, it turns out, an optimistic bunch. As Elizabeth B. from Dallas, TX, writes: “There’s a will. There’s a way. Our numbers are greater than we may realize, which augurs well for our strength.”

What will you read, listen to and watch in 2018? Tell us at editor@edf.org.

ASK AN EXPERT

MINDEN PICTURES

Some 50,000 grizzly bears once roamed the West and Midwest; fewer than 1,700 remain.

Congress v. wildlife: a primer

With this issue, *Solutions* introduces a new forum designed to help you get answers to the environmental questions you care about most. Write to us at editor@edf.org.

Member Erich Rose of Austin, TX, asks: *Wildlife appears to be under attack as never before. What are the most serious threats facing the Endangered Species Act (ESA), and what can I do about this?*

Holly Pearen, EDF's senior attorney on wildlife law and the ESA, responds: Republican lawmakers led by Congressman Mike Bishop (R-MI) continue to push partisan bills that would eviscerate the ESA. Although neither the House nor the Senate has yet acted to fully repeal the ESA, the House Natural Resources Committee advanced five bills that would dismantle the law piece by piece. They would:

- Preclude the Fish and Wildlife Service from listing an imperiled species if the perceived economic impacts of a listing are deemed excessive (**H.R. 717).**
- Automatically accept state, local and tribal information as the best scientific and commercial data available—undercutting scientific integrity (**H.R. 1274**).
- Limit recovery of attorney's fees, giving well-funded industry groups the upper hand in lawsuits (**H.R. 3131)**.
- Remove protection for Great Lakes wolves without a scientific basis or the opportunity for judicial review (**H.R. 424)**.
- Remove authority to list non-native species like the Great Ape and Asian Elephant, eliminating essential restrictions on wildlife trade (**H.R. 2603**).

Equally troubling, outside of Congress is a steady stream of well-funded legal challenges to the ESA and an attempt by the administration to roll back mitigation policies that ensure that adverse impacts, such as loss of habitat from development, are offset by improvements elsewhere.

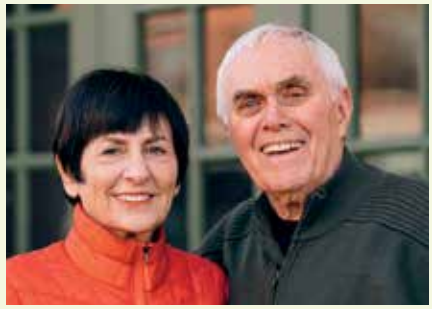
EDF has launched a multipronged campaign to defend this flagship law. Polls show most Americans do not want the ESA weakened. We're using that fact—and the support from EDF members like you—to encourage champions in Congress to stand up for what the public wants.

EDF has helped defeat other anti-environmental congressional actions, such as attempts to undo 2016 methane rules on public and tribal lands. With our allies, we stand ready to defend the law in court—and win. We need your help. Fight back against well-funded interests with a gift to EDF's Save the ESA Campaign.

››› DONATE ››› edf.org/saveESA

EDF MEMBER SPOTLIGHT

A second career: mobilizing millennials to vote



CHAD KIRKLAND

For EDF members Richard and Elsa Gary, the Supreme Court decision on the Citizens United case, which opened the gates for unlimited campaign cash, was the last straw. After years of frustration with our electoral system, they decided to act.

"That decision turned elections into auctions," says Richard Gary.

In response, they started a nonprofit called Voterise (voterise.org), with the goal of registering young people to vote.

"Millennials are the country's largest demographic, bigger than baby boomers, but they have the worst voting record," says Elsa Gary. "We're trying to change that."

After creating Voterise, they commissioned a survey to find out why young people aren't voting. Three reasons popped out. Number one? Those surveyed weren't interested in politics (an enormous mistake in the Garys' view). The survey also revealed that millennials lacked confidence in our political system and believed their votes didn't matter. Gerrymandering, and the lack of truly competitive races, amplified that problem.

Launched in 2016, Voterise has already registered 6,000 voters. The Garys believe the program will take off in 2018 with the midterm elections. Visitors to voterise.org can use the site to register online. Although their efforts are currently focused on Utah, they plan to expand the program to other states.

"We're just getting started," says Elsa Gary.

“Every moment is an organizing opportunity, every person a potential activist, every minute a chance to change the world.”

—Dolores Huerta, social justice advocate

GETTY