

# The cleanup begins

In Congress and statehouses across the country, new faces are working with EDF to reverse two years of environmental vandalism.

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# A safe haven for winter

Monarch butterflies nearing extinction along the West Coast finally have a lifeline. A new California state program, co-sponsored by EDF, offers \$3 million to protect and restore breeding and overwintering habitat in the Central Coast, Central Valley and Sierra Nevada.

Here, grasslands once abundant with flowers and milkweed have been taken over by settlement and agriculture. Farmers are eager to help. Thankfully, even a modest amount of restoration on the edges of fields and roads can help the beloved butterfly.

# Rising to the challenge



I'm energized about 2019, in part because November's elections put a check on the excesses of the Trump administration. The voters clearly demanded change in Washington and around the country, and greater accountability from their elected leaders. Many winning candidates made environmental protection central to their campaigns, and many who reject climate science were sent packing (*see p. 8*).

Now the time for congratulations is over. The recent National Climate Assessment outlined the immense threat that climate change poses to our country. It laid out in detail the grave effects of a changing climate on our health and environment, as well as the economic costs driven by increasing water scarcity in dry regions, torrential downpours in wet regions and more severe heat waves. These warnings were followed by the devastation from Hurricane Michael in Florida and the Western wildfires.

It's no coincidence that many candidates running in regions hard-hit by climate change promised climate action and won. The election of governors and others who pledged environmental action bodes well for the future. Environment and climate are growing issues worldwide. EDF is working hard in China as the country moves toward creating the world's largest carbon market. We're also working with the International Civil Aviation Organization to set up a global emissions trading system capping airplane carbon emissions—the first global carbon market.

EDF and its partners are making progress in other areas, too. Our Oceans program is working around the world changing the way fisheries are managed so there can be more fish in the oceans and better livelihoods for fishermen. Our Health team will be working this year to make sure the EPA actually implements the 2016 Lautenberg Chemical Safety Act to reduce risks from household products. And in our Ecosystems work, our top priority is to help natural systems become more resilient to adapt and thrive in a changing climate.

In Washington, we will expand our litigation to protect critical safeguards for the environment and public health. We'll remain vigilant in opposing the administration's attempts to repeal the EPA's Mercury and Air Toxics Standards and weaken clean car standards.

Opportunities for progress in 2019 are supercharged by new technologies. For example, this year we plan to contract for the construction of MethaneSAT, our global methane tracking satellite, set to launch in 2021.

Of course, none of this progress would be possible without the support of our members. Thank you. Together, we will rise to the challenges of 2019.

*Fred Krupp*  
EDF President



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. Donate online at [edf.org/newsletter](http://edf.org/newsletter) or by mail: EDF, Attn.: Member Services, 1875 Connecticut Ave. NW, Ste. 600, Washington, DC 20009



## On the cover:

November's election shifted the political landscape in Washington and beyond, as voters turned out many climate deniers, apologists and foot

draggers. The gains extended to state level races, as new governors and state legislators supporting climate action also prevailed. EDF senior writer Charlie Miller examines EDF Action's role in the midterms and the hard work ahead.

COVER ART: CHRISTINA BAUTE AND AMANDA MAY-NASHBAN

## Solutions

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# FIELD NOTES



SHUTTERSTOCK

## The sweet taste of victory

In a win for food safety, EDF successfully petitioned the Food and Drug Administration in October to remove seven artificial food flavorings from the market. The flavorings, which include some mint and citrus flavors, cause cancer in animals. They are found in candy, chewing gum and baked goods, and they appear on labels as “artificial flavors.”

The FDA was legally obliged to decide by August 2016 whether to withdraw

the chemicals from the marketplace. When it failed to meet that deadline, we took the agency to court, and prevailed. For one chemical, the FDA went a step further in safety, banning its use in plastics. Industry now has two years to find safer substitute chemicals.

In another win, EDF led a successful effort to ban lead from hair coloring products such as Grecian Formula. Lead is highly toxic and even trace amounts are unsafe.

## EDF on Twitter



**Fred Krupp** @FredKrupp  
2020 presidential candidates looking to stand out? Make climate change the centerpiece of the campaign. **Help Wanted: A Climate Champion for the 2020 election** [bit.ly/2eYYP5](https://bit.ly/2eYYP5)

## A lifeline for artisanal fishing

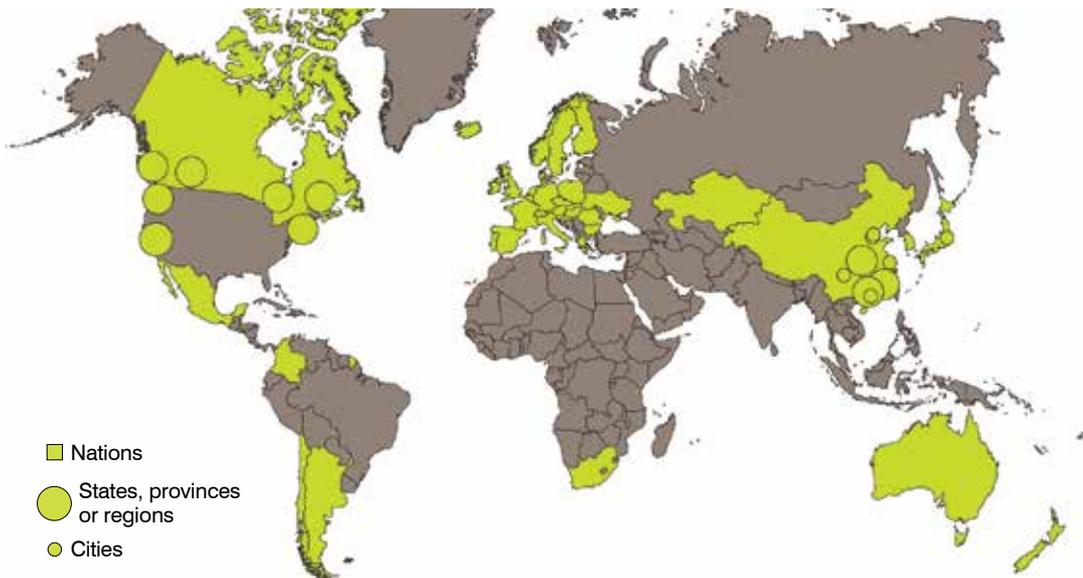


Mirna Treufu, a member of the Mapuche tribe in southern Chile, relies on fishing for her livelihood. Working with Costa Humboldt, a local nonprofit, EDF is helping Treufu and other fishermen collect data on their fishery and implement a management plan to improve marine conservation. We're working with similar artisanal fishing communities worldwide.

LUCIANO HIRRI/BERTRAND/COSTA HUMBOLDT 2018

## WHO'S PUTTING A PRICE ON CARBON?

It's a proven tool for curbing emissions: Carbon taxes, cap and trade, and other measures are already in place or scheduled to launch in the EU, 30 nations, and 25 cities, states and provinces worldwide.



SOURCE: WORLD BANK

## Houston, we have a solution

When is a city bus not just a bus? When it's also an air quality monitor. A new EDF report found municipal vehicles can do double duty combatting air pollution.

Using sensors and GPS data, just 10 to 20 carefully selected vehicles can map air quality in 70 percent of a city with no change to their regular routes.

EDF has installed pollution sensors on Houston's municipal fleet and is now analyzing the data collected to help jump-start clean air measures such as congestion relief, bike infrastructure and freight electrification.



## Marching for action on methane

To passers-by, it must have been a curious sight: 20 women marching up a street in San Ramon, California, last spring, carrying bundles of paper toward the headquarters of one of the largest U.S. producers of natural gas.

The women were on a mission. Representing the 800,000-strong United Methodist Women, they hand-delivered 1,800 letters to Chevron, calling on the company to tackle methane leaks.

“We’re urging Chevron to protect the health of our people and God’s earth,” said Marlene Ward of UMW.

Methane causes over 25 percent of today’s global warming. Each year, 14

million tons escapes from U.S. oil and gas operations, costing companies about \$2 billion a year in lost sales. UMW weren’t the only ones demanding action. The day after their march, a Chevron shareholder resolution calling on the company to set methane reduction targets gained an unprecedented 45 percent vote. Forty similar resolutions have been filed before oil and gas companies in the last three years.

In September, Chevron joined 12 other oil and gas giants committed to reducing methane emissions to near zero by 2025. EDF is now monitoring progress and working with companies to ensure they meet these goals.

## Kickstarting climate leadership

Creators and inventors looking for financial backing through the Kickstarter funding platform will find it easier to build sustainability into their projects thanks to EDF Climate Corps fellow Alexandra Criscuolo (*right*). The EDF-trained MBA student built an online resource center (*see [kickstarter.com/environment](http://kickstarter.com/environment)*) to help early-stage creators evaluate and reduce the environmental



LAUREN RENNER

impact of their projects. Since its launch in 2009, Kickstarter has helped fund 154,000 new projects.

**86%**  
of consumers believe companies should take a stand for environmental and social causes

SOURCE: SHELTON GROUP

## IN THE COURTS

A federal judge upheld Illinois’ landmark Future Energy Jobs Bill, which EDF helped pass. The legislation will double the state’s renewable energy by 2030 and help cut power-sector climate pollution by 56%. This victory sets a precedent for other states.

EDF has joined Maryland in challenging EPA’s rejection of that state’s bid to crack down on power plant pollution from five upwind states. Officials estimate that only 30% of smog that blankets the region on summer days comes from inside the state.



GETTY/ISTOCK

## The case for cleaner cars

When the Trump administration proposed to roll back the nation’s clean car standards last year, a coalition of 18 states, joined by EDF and other groups, challenged it in court. The administration argued for dismissal of the lawsuit without considering the merits of the case. In November, the D.C. Circuit refused, and said the case would move forward.

“EPA’s justification for undermining the rules lacks any basis in sound economic, science or health data,” says our

attorney Martha Roberts. “We have the law on our side.” To buttress our case, EDF and NRDC have sued the EPA for its failure to release internal analysis indicating the affordability of the standards.

Stronger clean car rules have been adopted by 13 states, including Colorado last fall, representing more than one-third of the U.S. market. They are popular because they reduce climate pollution, protect health, improve fuel efficiency and save money at the pump.



GETTY

# A plan to rescue the Amazon

By Tasha Kosviner

Ending tropical deforestation and allowing forests to regenerate would reduce global greenhouse gas emissions by at least 25 percent. But with deforestation in Brazil at a 10-year high, the future in the Amazon looks bleak. EDF finds reasons for cautious hope.

**A**T HIS FARM, FAZENDA AGUA VIVA, in the rainforest-rich state of Mato Grosso, in western Brazil, cattle rancher Caio Penido has a magazine that reminds him where he's come from. On the cover is an image of his grandfather, also a rancher, sitting on the burnt stump of a tree. A calf is tethered nearby. Published in the 1960s, the story casts Brazil's ranchers as pioneers, heroes on a mission to feed a hungry nation.

"Clearing forests to create pasture, to

create food: That was our routine," Penido says today. "There was no shame."

Today, Penido, and the world, face a new reality. Tropical forest loss is responsible for 16–19 percent of global climate emissions—more than all the world's cars and trucks combined. In the Amazon, where 95 percent of deforestation is caused by farming, scientists estimate that once 20–25 percent of the forest is destroyed, it will reach a tipping point. After this, damage to the water cycle and resulting reductions in rainfall mean the forest will begin degrading on its own. Currently we are at 19 percent.

EDF is working hard to reverse this. But we have a steep climb ahead. In 2018, Brazil reported the worst annual deforestation rates in a decade. And in October, Jair Bolsonaro, the country's new populist president, sailed to victory. Among his campaign pledges was a promise to open up forests on indigenous lands to mining and agriculture.

The news is bleak. But there are some

reasons for hope. Caio Penido is one of those reasons. He has ended deforestation on his ranch, leaving more than 5,000 acres of forest intact. By planting more nutritious grasses and practicing better land management he has been able to increase the number of cows per hectare, growing his business without clearing more land. Elsewhere in Mato Grosso similar projects are unfolding, increasing profitability while reducing emissions and saving forests. The Novo Campo project in the Alta Floresta region has assisted a group of beef ranchers to reduce climate emissions associated with beef production by 60 percent. The project will expand to cover 250,000 acres in the next four years.

Why is Mato Grosso host to these promising initiatives? Because, with the help of EDF and partners, the state—which produces 30 percent of Brazil's soy and is home to more than 30 million cattle—has committed to ending illegal deforestation by 2020. To achieve this, it has partnered with local producers,



**Caio Penido, enlisting ranchers to curb deforestation in Brazil**

**“The key is to introduce economic incentives that make forests more valuable alive than dead.”**

—Dr. Steve Schwartzman, EDF director of tropical forest policy

communities and environmental organizations to help coordinate and fund initiatives that increase productivity while reducing deforestation.

“Mato Grosso’s approach is one of the most effective ways of tackling deforestation across entire landscapes,” says Dr. Steve Schwartzman, EDF’s director of tropical forest policy.

The proof is in the numbers. If it were a country, Mato Grosso would have been the world’s fifth-largest greenhouse gas emitter in 2004. By 2014 it would have been 50th.

If it stays on track, it could cumulatively reduce emissions by more than six gigatons—that’s nearly the annual emissions of the U.S.—by 2030.

To support the effort, EDF is encouraging corporations to get involved.

“In the last 15 years, more than 470 companies in the U.S. food and agriculture sector have responded to public concern and pledged to eliminate deforestation from their supply chains,” says EDF+Business manager, Katie Anderson. “But progress has been slow as companies have struggled to find reliable programs to invest in. Mato Grosso’s initiative can help.”

Our advocacy scored a victory in 2018 when EDF partner Walmart said it would begin urging its suppliers to invest in regional approaches, including Mato Grosso. We are now compiling a directory of projects that companies could support in the state. The French supermarket chain Carrefour will also invest \$1.5 million in Mato Grosso to help restore 452,000 acres of degraded pasture and preserve 2.4 million acres of rainforest.

“The key,” says Schwartzman, “is to introduce economic incentives that make forests more valuable alive than dead.”

Another promising incentive is carbon markets. EDF is helping California develop standards for how companies



The golden lion tamarin is one of more than 2,500 species whose habitats are threatened by forest destruction in the Amazon.

participating in its carbon market, one of the world’s largest, can invest in rainforest protection to offset part of their emissions. Currently under consideration by the state’s Air Resources Board, the program would establish a framework that could be used in carbon markets around the world. Elsewhere, EDF is working to strengthen a new global aviation agreement that commits airlines to capping emissions at 2020 levels. The agreement would require international flights to reduce or offset their emissions by, for example, buying carbon credits from regions that reduce deforestation.

Choosing regions where strong governance guarantees regulatory enforcement is key. In Mato Grosso, EDF has been working with local partners to make the program an independent entity, helping insulate it from political interference.

Success ultimately will depend on local buy-in. In the lush Araguaia Valley, Caio Penido has enlisted 70 other ranchers to comply with Brazil’s forest laws, conserving 160,000 acres of forest while still intensifying production. The ranchers’ efforts will cut carbon emissions by half a million tons by next year.

“We are in a moment of sustainable development,” Penido says proudly. “We are showing it is possible to produce and to preserve.”

# A gift to EDF can pay you back for life...

What’s more, new increased payout rates are in force—the first change since 2012. If you are 59½ or older, a charitable gift annuity will pay you or your beneficiary a lifetime income. At the end, everything left over will support EDF’s important environmental work.

Age	Rate	New rate*
60	4.4%	4.7%
65	4.7%	5.1%
70	5.1%	5.6%
75	5.8%	6.2%
80	6.8%	7.3%
85	7.8%	8.3%

\*Gifts made on or after July 1, 2018



## THE WILSON LEGACY

This feature 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](http://edf.org/wilson)

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A photograph of Michelle Luján Grisham, the first woman elected Governor of New Mexico, waving her right hand. She is wearing a blue suit and has a joyful expression. The background is dark with blue lighting and a large, ornate chandelier.

# Getting America back on track

By [Charlie Miller](#)

The face of 2019: The first promise New Mexico Gov.-elect Michelle Luján Grisham made in her victory speech was clean energy.

In Washington and beyond, it's a brand new day. Fresh faces in Congress and the states are helping block the Trump agenda and bringing renewed energy to the fight for a cleaner environment.

**T**HE STATE MOTTO IS “LAND OF Enchantment.” New Mexico's high plains, mountains and stunning deserts cast a spell over many visitors. But beyond the scenery lies a dirty secret—a 2,500-square-mile invisible cloud of methane from oil and gas operations hovers over New Mexico's San Juan Basin, a cloud so enormous that scientists can spot it in infrared images from space.

New Mexico's last governor, Susanna Martinez, had no problem with this. She backed a congressional effort to allow unfettered emissions of methane, a greenhouse gas 84 times more powerful than carbon dioxide. She also vetoed three solar bills that would have nudged the state toward clean energy.

The state's new governor, Michelle Lujan Grisham, couldn't be more different. She is one of many new faces of 2019 who are turning the page to an era of renewed environmental progress. Over her career as a New Mexico official, Grisham and EDF staff built a decade-long partnership on the environment, including fighting methane, and she has pledged that renewables will supply 50 percent of New Mexico's energy by 2030. EDF Action, EDF's political advocacy partner, supported her 2018 campaign.

Lujan Grisham's victory is a story that replayed across the country on Election Day, at both the federal and state level, as voters demanding climate action ousted anti-environment incumbents and elected candidates who called for clean energy and fighting climate change.

“Climate change was without question in the mix,” says EDF President Fred Krupp. “Voters were unhappy with the country's direction and expressed their disapproval at the ballot box.”

### Defeating climate deniers

EDF Action was heavily involved, with candidate training, voter education and sophisticated efforts to mobilize voters and make sure they cast their ballots.

EDF Action spent some \$9 million to support climate champions in 30 contested races in 14 states, the biggest election effort EDF Action has ever undertaken. The result was an impressive 80 percent win rate.



America's majestic Western landscapes could get a respite from congressional assaults.

The change will be felt in Washington, D.C., where for the past two years power has been held by a Congress hostile to environmental progress and a White House occupied by the most anti-environment president in U.S. history.

Many climate deniers in Congress lost their seats in the midterms. Among the

an attorney who worked to conserve her state's water supply, won a congressional district that President Trump carried by 10 points in 2016. EDF Action had put a full-time organizer on the ground and ran television ads highlighting her opponent's coziness with polluters.

In some races, climate was an explicit issue. Sean Casten is a writer, scientist and clean energy entrepreneur. He defeated an 11-year incumbent representing suburban Chicago who called climate change “junk science.” Casten put climate change at the heart of his campaign.

In a Florida district spanning the Everglades and the Florida Keys—both areas highly vulnerable to climate change—the candidates, Democrat and Republican, even released dueling television ads over who was tougher on climate.

### Priorities for 2019

The implications of a more environmentally friendly Congress are profound. Bills that would harm the environment, such as proposed legislation to eviscerate the Endangered Species Act and slash environmental protection budgets, are now

**“When you face questions in oversight hearings about your horrible policies that make climate change worse, we will not be turning the cameras off.”**

—Rep. Don Beyer (D-Va.) in a message to EPA Administrator Scott Wheeler

most prominent was Dana Rohrabacher, who sat on the House Science Committee and represented Orange County, California. One of the most outspoken anti-environmental members of Congress, he called climate science “bogus.” EDF Action conducted an aggressive mail campaign in the district, and Rohrabacher lost his reelection bid to Harley Rouda, a Democrat who supports climate action. One analysis showed that Rohrabacher's position on climate was a major factor in his defeat.

In New Mexico, Xochitl Torres Small,

## A changing landscape



### THE 100% CLUB

550 winning state and local candidates, including nine new governors, pledged to move toward 100% clean energy.



### SUPPORTING THE WINNERS

EDF Action backed pro-environment candidates in 35 races in 14 states. Eighty percent won.



### DENIERS' DEFEAT

EDF Action opposed six prominent climate deniers who went down in defeat.



### A CHANCE FOR BIPARTISAN PROGRESS

If an infrastructure bill moves in Congress, it could mean more money for mass transit and cleaner transport.

nonstarters. And environmental supporters in Congress can now fend off moves to defund critical programs and agencies. And although the Trump administration will still try to roll back key safeguards, it no longer has a completely free hand.

A disturbing hallmark of the Trump administration has been its unrelenting attacks on science, with climate denial at the center. One proposal now under consideration at Trump's EPA would invalidate many studies that underpin key public health protections. Supporters of sound science can now push back.

The House Science Committee is now led by Rep. Eddie Bernice Johnson, elected in 1992 and the first registered nurse to serve in Congress. As chair, she replaced retiring Rep. Lamar Smith, who often brought climate deniers to testify before the committee. Among Johnson's top priorities: "Defending the scientific enterprise from political and ideological attacks" and restoring "the credibility of the Science Committee as a place where science is respected."

A comprehensive carbon bill isn't likely to pass in this Congress, but these are building years to get a strong, bipartisan law passed after 2020. Already, three House committees have announced climate change hearings. We expect House leaders to revive the House Select Committee on Climate Change, which

through hearings can draw attention to the issue. With so many new members in Congress, this committee can also educate House newcomers on the dangers of climate change through the testimony of credible experts and scientists, instead of industry shills.

One newcomer who needs no education is Alexandria Ocasio-Cortez (D-N.Y.), a strong voice for environmental justice and swift congressional action.

### The crucial role of oversight

A critical role for Congress is to provide oversight of the executive branch, a role largely abdicated in the past two years. Acting EPA Administrator Andrew Wheeler will be summoned to appear before Congress to testify under oath about why, for example, he is promoting a sham Clean Power Plan that will do almost nothing to halt climate change.

Wheeler will face relentless scrutiny of his failure to enforce clean air and clean water rules, as well as the exodus of talented but dispirited staff from the EPA. Many have been handcuffed by political appointees as they try to protect the public from pollution and climate change.

"Wheeler should get used to frequent visits to Capitol Hill," says EDF Legislative Director Carol Andress. "Oversight is not a one-off process. It's ongoing."

EDF scored a major win when we

## MILLENNIALS: The growing green wave



Millennials sometimes get a bad rap. They are portrayed as apathetic, self-absorbed and fixated on social media. When it comes to politics, there's some truth to that. Roughly one in five young people voted in 2014 midterm elections, half the rate of the general population.

Unlike their parents—baby boomers who saw progress in civil rights and women's rights—many young people today associate politics with dysfunction. But the times they are a-changin'.

In the 2018 midterms, 31 percent of 18- to 29-year-olds cast ballots, a 50 percent bump from 2014. In many hotly contested races, they were the X factor, helping sweep more progressive environmental candidates into office. Two-thirds of millennials think that



President Trump says climate change had nothing to do with this. Voters disagreed.

helped push Interior Secretary Ryan Zinke from office in December. His successor should prepare for equal scrutiny.

Strong oversight will also help protect public health. Our Health team is working to ensure that the EPA implements the Lautenberg Chemical Safety Act, which passed Congress with overwhelming bipartisan support in 2016. The chemical industry, along with Congress and the Trump administration, saw an opportunity after the 2016 elections to undermine the Act. EDF is challenging their actions in court, and the new House can be counted on to block further rollbacks.

Victories for the environment extended far beyond Washington, D.C., on Election Day. In seven states, gubernatorial candidates promising strong climate action won their races. Six more state legislatures now have a majority supporting climate action, and more than 300 state House and Senate seats flipped.

During his campaign, Colorado Governor-elect Jared Polis (D) promoted a “market-oriented plan” to move Colorado to 100 percent renewable energy by 2040. Polis will have a new, pro-environment legislature to work with. EDF Action donated heavily to political action committees there that supported green candidates.

In Pennsylvania, Gov. Tom Wolf thrust climate to the forefront of his

campaign, and his reelection provides an opening for further reductions in methane emissions from oil and gas facilities. The realignment also gives Wolf a chance to make good on his pledge to join the Regional Greenhouse Gas Initiative, the coordinated effort by nine Northeastern states to slash carbon dioxide emissions.

In North Carolina, one of the country’s most zealously anti-environmental legislatures has hollowed out protections, despite strong resistance from EDF’s Raleigh office. In November, however, Tea Party-inspired legislators in the General Assembly lost their supermajorities, meaning they can no longer override the governor’s vetoes. EDF Action supported candidates in both parties with digital and radio ads and direct mail.

On election night, EDF President Krupp had an important call to make: He called Michelle Lujan Grisham, the governor-elect of New Mexico, just minutes after she was declared the winner, to offer congratulations. She said she looked forward to continuing work with EDF to fight methane pollution. Moments later, in her victory speech, the very first thing she mentioned was clean energy.

“It’s a long game, and we can’t expect one election to change everything,” says Krupp. “But we’ve turned the corner.”

**>>> TAKE ACTION >>>** Help support EDF’s agenda in Congress [edfaction.org/100days](https://edfaction.org/100days)

protecting the environment should be a top priority for the federal government, compared to less than half of people over the age of 65, according to the Pew Research Center.

During the past two years, EDF has been in the trenches working to mobilize the younger generation. Defend Our Future, a 200,000-member group backed by EDF that seeks to educate and engage young voters on climate change, launched voter registration drives in key states, including Arizona, Colorado, Ohio and Pennsylvania.

EDF also teamed up on events with partners such as Moms Clean Air Force, Mi Familia Vota and Hip Hop Caucus in our ongoing effort to broaden climate engagement.

“My generation is the most likely to care about climate, yet we are most likely to skip

voting,” says student Samantha Bishop, a Defend Our Future intern. “I’m voting to raise the volume.”

Already the second-largest voting bloc by age, millennials have the potential to wield significant electoral power. When the next presidential election comes in 2020, millennials and members of the following generation, Generation Z, are expected to make up 40 percent of the U.S. population. In just the next two years, 22 million new potential voters will become eligible to cast a ballot.

“Voting is a habit,” says pollster Celinda Lake. “Once people are brought into the process, they’re more likely to vote again. That’s how democracy works.”

And that is good news for the environment.

*Rod Griffin*

## POWER IN NUMBERS

### Millennials...

represent **28%**  
of eligible U.S. voters

are **2x** as likely as older voters to care deeply about the environment

voted at a **50%** higher rate than in 2014

AMANDA BROWN



Valerie Amor helped New York City plan for the impacts of climate change.

# Building resilient cities with EDF Climate Corps

As extreme weather hits home, past conditions are no longer a predictor of what will come. EDF helps cities and public institutions prepare for an uncertain future.

**S**UMMER SANDOVAL HAD LIVED IN New York City for only a few weeks when Superstorm Sandy hit in the fall of 2012.

She remembers the wind, the rain, the chaos—and then the silence as floods cut power to much of Lower Manhattan, plunging America’s financial and cultural epicenter into darkness.

“It was eerie,” she recalls.

But the lights stayed on for much of New York University, where Sandoval had enrolled as an undergrad. That’s because the university has its own microgrid, which continued to supply power after the city’s main grid went down.

“It made me realize cities need to prepare for the future,” says Sandoval, now studying for a master’s in Sustainable Urban Planning at Pratt Institute in New York City.

It was fitting, then, that as a 2018 EDF Climate Corps fellow, Sandoval was paired with the City of Austin to help it plan for dramatic climate events. Summer created a blueprint to help the city identify and convert municipal

buildings into storm shelters.

“Hurricane Harvey devastated parts of Texas very close to Austin,” says Sandoval. “The city realized it needed a plan.”

Now entering its 12th year, EDF Climate Corps trains graduate students to help businesses, cities and public institutions advance climate and energy goals. Services include improving energy efficiency, setting renewable energy and greenhouse gas reduction goals, analyzing supply chain sustainability and, increasingly, resilience—that is, helping to prepare for the unavoidable impacts of climate change.

“Resilience is emerging as a strong priority among the organizations we work with, especially cities,” says EDF Climate Corps manager Ellen Shenette. “They want to know how to improve energy security and prepare for the future. We equip EDF Climate Corps fellows with the expertise to address these urgent questions.”

With 70 percent of our nearly 1,000 EDF Climate Corps alumni now employed in sustainability and energy-related roles, this expertise is not just for a fellowship—it is for life.

As a 2016 fellow, Valerie Amor helped New York City develop plans to retrofit residential buildings with energy efficiency measures. Now a full-time city employee, she was part of the team that developed NYC’s new guidelines on incorporating climate change preparedness into building projects.

“Past climate conditions are no longer a reliable predictor of future risk,” says the graduate of Columbia University’s MPA program in Environmental Science and Policy. “Our task was to look at future scenarios—more storm surges, increased heat, heavier precipitation—and recommend development practices that take these never-before-seen conditions into account.”

Energy security is critical to living through—and recovering from—superstorms. Microgrids, which can take over localized energy distribution when the main grid goes down, are key. When powered by renewable energy and backed up by robust battery storage, they become a truly sustainable solution.

EDF Climate Corps fellows have participated in microgrid projects for Dominica, Boston, Hoboken, N.J., the Shedd Aquarium in Chicago and the U.S. Army. This summer saw Maryland University MPP candidate Jessica Frech working with the U.S. Department of the Navy on a financial framework for analyzing the cost of microgrids and other energy security measures.

“Jessica’s algorithm allows us to create budget forecasts to support energy security requirements for the naval services,” said John Kliem, executive director at the Navy’s resilient energy office. “Her work truly supported naval readiness.”

*Tasha Kosviner*

## 11 years of EDF Climate Corps





PHOTOS: RICK LOZIER

# Hope arrives on fragile wings

**I**T WEIGHS LESS THAN A DOLLAR BILL and is capable of flying 2,500 miles. The beguiling strength and fragility of the monarch butterfly has captured American hearts. But in the past 30 years, loss of habitat has seen the butterfly's population plummet 95 percent. It faces an Endangered Species Act listing decision this year.

Last summer, on a vibrant prairie near Greenville, Missouri, thousands of monarchs seemed to defy this bleak outlook. They flitted between native flowers, fueling up for an extraordinary migration that would carry them across the Great Plains to Mexico.

"This is beautiful and productive," says David Wolfe, EDF's director of conservation strategies. "It makes me optimistic for the future."

It's hard to imagine that just a few years ago, this was degraded pasture, a monoculture of nonnative grass with no monarchs and little ecological value.

The transformation was made possible through a collaboration between EDF, Smithfield Foods and a renewable energy company, Roeslein Alternative Energy. With EDF's help, Smithfield is restoring 1,000 acres of prairie for monarchs and other pollinators. Roeslein will use the flowers and grasses, harvested after the monarchs have passed through, as biomass for renewable fuel. It's a partnership that can be a model for landowners and companies across the country.

"We can have energy, we can have ecological services and we can have wildlife habitat," says Missouri-raised Rudi

Roeslein who, after 30 years in the engineering industry, founded Roeslein Alternative Energy as a way to give back.

The collaboration, which also involves Roeslein's capturing methane from hog waste on Smithfield farms, is helping the world's biggest pork producer meet its greenhouse gas reduction goals.

Saving the beloved butterfly and supporting renewable energy are not the only benefits. The presence of monarchs and other pollinators such as bees and birds is a key indicator of the health of the land. Restored prairie, rich in native flora, is an ecological powerhouse. It sequesters carbon, prevents soil erosion, retains water and absorbs excess fertilizer, keeping waterways clean.

"We're not just helping monarchs," says Wolfe, "we're rebuilding entire ecosystems."

EDF is also restoring habitat along monarch flyways in Texas and California, working with landowners, farmers, academics, corporations and others. Our goal is to restore 1.5 million acres of habitat by 2028, helping to keep the monarch off the Endangered Species list and secure its long-term survival.

"There's a lot of interest in helping pollinators, particularly the monarch," says Eric Holst, EDF's associate VP for Ecosystems. "The question I get from farmers is not, 'Should I do this?' but 'How do I do it?'"

As the summer waned, the monarchs quit Missouri, riding the air currents south in search of the next wildflower-rich waystation on their incredible

migration. This winter, some will arrive at their overwintering roost in Mexico, but many will not. In years to come, the plan is that most of them will.

*Tasha Kosviner*



**EDF's David Wolfe and Eric Holst examine the native grasses at the farm in Missouri. Check out our video at [bit.ly/4Mrch](https://bit.ly/4Mrch) to see the butterflies in action on the restored prairie.**

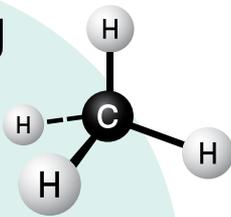


**A critical component of prairie restoration is the planting of milkweed, the only plant on which the monarch caterpillar feeds.**

# As climate urgency builds, so does

A decade ago, EDF scientists recognized a critical climate opportunity: controlling emissions of methane—the fast-acting pollutant responsible for more than one-quarter of today’s warming—from oil and gas operations. With EDF’s help, companies, states and countries responsible for nearly half the world’s oil and gas production are now taking steps to limit methane pollution, even as Washington attempts to undo national methane standards. Our goal to cut methane pollution from global oil and gas operations 45 percent can deliver the same near-term climate benefit as closing 1,300 coal-fired power plants—one-third of all the coal plants in the world.

## Exposing a hidden climate problem

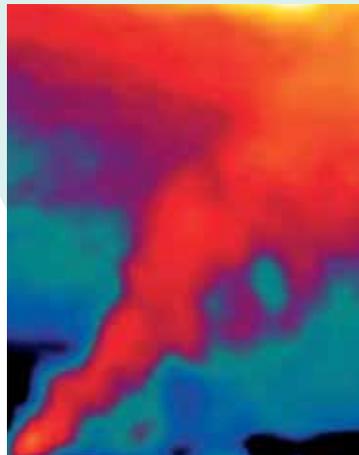


As natural gas production booms, EDF scientists investigate whether leaks of methane, the primary component of natural gas, could have an outsize impact on near-term warming. No one knows how much methane is leaking from the oil and gas supply chain, so EDF launches its most ambitious scientific research ever: 16 field studies involving 140 scientists and industry partners.



## Finding leaks, enacting laws

Methane is colorless and odorless. Fixing most leaks isn’t hard, but finding them across the entire U.S. natural gas supply chain is. EDF teams up with Google Earth Outreach to equip Google Street View cars with methane sensors and develop new science to quantify and map leaks across 12 cities. New Jersey’s largest utility uses this data to target repairs and reduce emissions more than 50 percent.



### MAKING THE INVISIBLE VISIBLE

In December 2015, EDF experts fly over a massive ongoing gas leak at a storage facility in California. Our infrared footage captures the shocking extent of the largest methane leak in U.S. history, just 28 miles from Los Angeles. Within months, California legislators propose new rules regulating methane pollution.

**178,913**  
**EDF members**  
and activists call on the EPA to address methane pollution.

**2016: A MILESTONE**  
**First U.S. methane standards**  
are enacted nationwide, building on EDF’s success in getting blue and red states to regulate methane.



**2014: Colorado**, working with EDF, becomes the first state to regulate oil and gas methane.



**2016: Republican-led Ohio** introduces new statewide methane rules.



**2017: California** enacts the nation’s toughest methane standards, covering both new and existing facilities, onshore and offshore.

2009 — 2014

2016

2017

# momentum to cut methane pollution

## Fighting rollbacks, driving change

In 2017, the Trump administration tries to weaken national methane rules. EDF's legal and political teams defend these essential protections, winning key victories in the courts and in Congress. EDF ramps up work with states, industries and other nations to keep up the momentum. By the end of 2018, companies and governments responsible for nearly half the world's oil and gas production commit to reducing pollution.



### INNOVATION TAKES HOLD

Shell, Equinor and other oil and gas companies—participants in challenges co-sponsored by EDF—assess new technologies that monitor methane emissions 24/7 or spot leaks on the fly.

### NEAR-ZERO EMISSIONS

Working with EDF, 13 companies that represent almost one-third of global oil and gas production set a target to reduce methane emissions from their operations to near-zero levels by 2025.



**2018: Pennsylvania**, the second-largest U.S. gas producer, issues controls on methane from new facilities.



### CHANGING THE CONVERSATION

As the only environmental group present at the World Gas Conference, EDF puts a spotlight on methane reduction by getting industry members to hunt and fix leaks in virtual reality.

In 2018, EDF research reveals U.S. oil and gas methane pollution is 60% higher than previously thought.



**2018: Canada**, the world's fourth-largest natural gas producer, and **Mexico** announce strict new methane rules.

## Launching a safer climate future

Expected to launch in 2021, EDF's MethaneSAT signals a new era in methane detection. It will gather much-needed emissions data from oil and gas production worldwide, helping EDF continue to push governments and the world's oil and gas industry to reduce methane pollution.



“MethaneSAT is a major step forward and continues EDF's pioneering work in seeking to tackle these emissions worldwide.”

—Fatih Birol, Executive Director, International Energy Agency

**Our goal:**  
cut methane pollution from global oil and gas

**45%**  
by 2025



BYRON HOULGRAVE

# A harvest of change in the heartland

To feed a burgeoning global population while sustaining natural resources, the world needs America’s farmers. EDF is partnering with leading U.S. farm organizations to grow more food with fewer environmental impacts.

**I**N AMERICAN AGRICULTURE, CORN IS king. More than 89 million acres were planted in 2018, enough to fill a freight train that would more than encircle the earth.

But growing corn has a steep environmental cost. Excess fertilizer runs off fields into rivers, lakes and groundwater, polluting drinking water around the Midwest and creating algae-filled dead zones around the country. It also forms nitrous oxide, a potent greenhouse gas.

Historically, farmers often didn’t know

how much fertilizer to use, so they applied extra to be on the safe side. This hurts downstream communities. Today, farmers increasingly want to use fertilizer more efficiently, which also saves money, and adopt other conservation practices.

EDF’s collaboration with major food buyers including Campbell Soup Company, Land O’Lakes, Smithfield Foods and Walmart has raised the bar for sustainable large-scale agriculture. We’re helping these companies measure progress toward their sustainability goals—and we’re helping farmers meet the new standards.

That means partnering with farmers and trade groups to advance practices such as applying fertilizer more precisely, using no-till techniques that leave more carbon in the soil, creating buffers and wetlands along rivers and streams to reduce erosion and improve water quality, and planting cover crops to protect the soil.

Today’s tech-savvy, data-hungry farmers are using these practices to reinvent their approach to the land. To further accelerate progress, EDF recently partnered

with the National Corn Growers Association, which represents some 80 percent of America’s corn farmers. This partnership will greatly expand farmers’ access to our sustainability innovations.

“EDF has been a key ally for years,” says Jon Doggett, the association’s CEO. “Our new partnership will bolster corn farmers’ tradition of stewardship, helping the environment, farm profitability and rural America.”

“Farmers are eager to implement practices that benefit natural resources, but tough economics and the risks of trying something new are a real hurdle for them,” says EDF’s Suzy Friedman. “Our partnership will make it easier for farmers to overcome these challenges.”

So far, our partnerships have resulted in improved fertilizer and soil management on more than 3.6 million acres of corn, with commitments to boost conservation on 20 million more. By 2022, we aim to have such practices in place on 45 million acres, half of all U.S. cornfields.

“EDF is a trusted name in the countryside,” says Iowa grain farmer Bill Couser (*pictured above*) who, with his son Tim, helps other farmers adopt new techniques. “EDF shows companies like Walmart how farmers operate. Neither of us has all the answers, but EDF has persuaded us to move in directions I did not know were possible or practical.”

*Peter Klebnikov*



GETTY

With better management practices such as buffers, farming and nature can coexist.



## Moms fight Trump scheme to greenlight mercury pollution

**W**HEN I SAT DOWN FOR MY first—and only—meeting with then-EPA Administrator Scott Pruitt, representing the million members of EDF's affiliate Moms Clean Air Force, I was eager to hear what he wanted to accomplish. Instead, what I heard about were the accomplishments of past administrations—and how they should all be undone. Clean car standards, ozone standards, methane emission rules, America's Clean Power Plan—all of them were among Pruitt's targets.

But one subject Pruitt didn't bring up was the Mercury and Air Toxics Standards.

So I asked about it: Would Pruitt's EPA

undo health protections for infants, toddlers and pregnant women that Moms fought so hard for, back when we started out in 2010? That rule protects us from mercury, lead, arsenic and acid gases coming from coal-burning power plants.

Pruitt became defensive. Do you hear me talking about mercury, he wanted to know. Absolutely not, he said.

Pruitt was true to his word. Although he failed utterly in his responsibilities as EPA Administrator, he did not reverse the mercury standards.

But when President Trump appointed coal lobbyist Andrew Wheeler as EPA acting administrator, I knew the mercury standards were in trouble. EPA watchers have long known that Wheeler wanted to undo those vital health protections. And sure enough, in October, Wheeler announced that the EPA was reviewing the standards.

When I was pregnant with my first child, my doctor told me not to eat tuna, swordfish, or any other large, fatty fish, because they contained high levels of mercury. What no one told me was that mercury comes primarily from the

smokestacks of coal-burning power plants.

Airborne mercury eventually gets into water, where it is converted by microorganisms into toxic methylmercury. That is ingested by fish and gets into our bodies when we eat those fish. It easily crosses the placenta, concentrating in a developing fetus' blood and organs.

Babies born with mercury poisoning can suffer from brain damage. It can affect a child's ability to walk, talk, read and learn.

The mercury standards have been in place since December 2011. Most coal plants have been outfitted with "scrubbers" and are complying with the rules. In fact, the electric utilities that run America's coal-burning power plants oppose any change in mercury standards.

"Industry wants regulatory certainty," says Emily Fisher of the industry group Edison Electric Institute. "Whether or not we 100 percent agreed

with every element of the rule, when rules are final, we comply with them. Having the rug pulled out from under us after we've made significant investments does not feel like regulatory certainty."

Moms Clean Air Force is rallying to fight this insidious proposal by Wheeler. Our partner EDF was instrumental in helping shape the strong mercury standards during the Obama administration and has helped lead the successful defense of mercury protections in Congress and the courts, including the U.S. Supreme Court. We are grateful for the leadership of Vickie Patton, EDF's general counsel and an expert on the standards.

I suppose it is true that a mother's work is never done. But to have to clean up the same mess over and over again defies our patience.

On this issue, the fact remains that we ought to be able to rely on an EPA that will keep us safe, not put us in danger.

*Dominique Browning*

**>>> ACTION ALERT >>>** Tell the administration not to roll back mercury and air toxics standards. [edf.org/AgainstAirTox](http://edf.org/AgainstAirTox)



Author and editor **Dominique Browning** is co-founder of Moms Clean Air Force, an EDF-backed project with more than one million members.

# How to spot the greenwash

**A**S MORE CONSUMERS SEEK OUT PRODUCTS THAT ARE socially and environmentally preferable—a 2017 study found 79 percent do—manufacturers are responding. But are companies changing their practices, or just their messaging? This guide helps you suss out the difference between green marketing ploys and meaningful commitments.

Labels aren't foolproof. If we had stronger laws to protect consumers and the environment, and more companies engaged, shoppers wouldn't have to be environmental detectives. We could just bring our own post-consumer recycled bag.



## Paper products

### 'Forest friendly' vs. 100% post-consumer recycled



Paper towels or copy paper that claims to be "forest friendly" or "responsibly sourced" sounds reliable—but sometimes the responsible party has its hand in the cookie jar. Industry groups have created their own forestry certifications, using weak standards decried by environmental groups. Bottom line, if you don't want to cut down trees, you'd best

look for high post-consumer recycled content.

**A closer look:** Investigate how serious a company is about stopping deforestation at [www.supply-change.org](http://www.supply-change.org). A solid zero-deforestation policy should cover all major products that drive deforestation, such as palm oil, soy, beef, wood and paper, and include free, prior and informed consent for indigenous and traditional peoples.

## Household cleaners

### 'Nontoxic' vs. EPA Safer Choice



A cleaning product can claim to be "nontoxic," but there is no legal or scientific standard for this term. In practice, this assertion has little or no meaning. EPA Safer Choice, on the other hand, ensures that cleaning products are made with the safest possible ingredients for their intended function. There are more than 2,000 products with this

certification available on the market today.

**A closer look:** Be wary of the word "natural," which doesn't necessarily mean "safer." Also remember to check the ingredient label for the sneaky catchall term "fragrance," which can mask the presence of undisclosed and potentially harmful chemicals.

## Meat and poultry

### 'No antibiotics' vs. USDA Organic



Claims about no antibiotic use are self-verified, typically not validated by USDA inspection. Health-conscious consumers can avoid antibiotics, growth hormones, or artificial colors and flavors in food by choosing USDA Organic. But note that USDA recently pulled back on updating animal welfare requirements, and many feel the standard could be stronger.

**A closer look:** Greenerchoices.org helps demystify scores of food labeling claims. And keep in mind that smaller producers—such as at your farmers' market—may use sustainable practices even if they aren't certified.

## Personal care

### 'Natural botanicals!' vs. EWG VERIFIED™ or Cradle to Cradle Certified™



Your shampoo might boast of organic lavender or "natural" and "plant-based" ingredients, but that doesn't mean it's free of harmful chemicals. Just for Me, a shampoo marketed to young black girls as a "natural sulfate-free hair milk" was recently found to contain cancer-causing benzene. The new EWG VERIFIED™ program certifies products that

are free of chemicals linked to certain health or environmental concerns. Cradle to Cradle™ certification rewards ingredient safety and takes into account other attributes, such as recyclability.

**A closer look:** Strong certification for many personal care products is lacking. Check for these red flags on ingredient lists: parabens, fragrance, phthalates and toluene.

Note: EDF does not endorse any of these certification or labeling programs.

# A time and a place to recharge...



Peace along the Pacific: California's Pebble Beach, from EDF member Kelsey G., St. Petersburg, Fla.

With the environment under assault and the country divided, we asked EDF members: "How does nature replenish you?" Your responses have been inspiring, educational and uplifting—not unlike nature herself. Please share more with us on Instagram using **#EDFthanksnature**.

I am a native Marylander and always loved the ocean. I get my soul and heart filled back up with joy every time I dig my toes in the sand.

—**Judee S. Rixeyville, Virginia**



**evans4mt** Gardening is my spirit renewal place. **#EDFthanksnature**

When I heard that my school was organizing a sunrise hike up Stone Mountain, I was reluctant to get up at 5 a.m., but I signed up anyway. Our group hiked in peaceful silence. When we reached the top, everyone plopped down on the rocks and looked out over the Atlanta

skyline, where the sun was just beginning to peek out over the horizon to butter the day. It painted the cotton candy blue sky with strokes of pink rimmed with gold ... It was healing. The entire trek down, I couldn't stop feeling good.

—**Bailey C. age 14 Stone Mountain, Georgia**

I hike in Mississippi Palisades State Park in far northwest Illinois, where I live. I rest on the top of a rocky bluff overlooking the Mississippi, the islands in the river and the bluffs on the Iowa side. I have memorized every tree and outcropping on this bluff.

—**Carol G. Savanna, Illinois**

In the heat of summer or the chill of winter, I sit on my back porch with a cold beer or a cup of coffee and watch the shenanigans of roadrunners, bush tits, lesser goldfinch, metallic beetles, cabbage whites and grasshoppers play out before my eyes. I'd hoped to create a

pollinator garden, but what I've gotten in the way of an aviary is not to be discounted. I thank God for all of it.

—**Annette A. Albuquerque, N.M.**

Over my 87 years of life there have been several places that feed me. In Santa Barbara, I used to hike my favorite trail at 7 a.m., stopping to take in the smells and sounds of the wind, birds in the sky or hawks floating below me when I got near the top. I'd make my way back down reluctantly, yet loving



**kay\_bix** These moments are all I think about ... **#EDFthanksnature**

every step on the way. Now I walk with my walker over to the park, find "my" bench where I'll sit—sounds of hummingbirds, wind in the trees, ducks in the pond, people with children walking the paths, always something to see, listen to, feel ... need I say more!

—**Bettina B. Santa Barbara, Calif.**

In our San Diego neighborhood that was wiped out by a fire 15 years ago, the trail I love most has several amazing trees that remained after the fire. The bottom half of the trunk is blackened and charred. But as your eye follows the trunk, it turns into a thick, green, leafy crown. This always reminds me of the power of resilience. I hope that we may have that same resilience. For now, I will keep walking amongst those trees to remind myself that we still have a lot of beauty left to fight for in this world.

—**Sarah V. San Diego, Calif.**



**the\_basic\_hippie** Tongass National Forest. I am thankful for all that our national parks and public lands have given us. **#unselfie #EDFthanksnature**

## Deer River Reverie

*A quiet lake  
Eagle's domain.  
Blessed am I,  
a slow drifter  
afloat in time.*

—**James B. Carrollton, Georgia**

*Responses have been edited for brevity and clarity.*

“Water hollows out stone, not through force but through persistence.”

—Ovid